Education and Training
For Tropical Ecosystem Conservation

A Report Sponsored by The Gordon and Betty Moore Foundation and the Center for Applied Biodiversity Science, Conservation International

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1 ACRONYMS

ACEER	Amazonian Center of Environmental Education and Research, Peru
ADRA	Adventist Development and Relief Agency, Madagascar
AMNH	American Museum of Natural History
ANGAP	National Association for the Management of Protected Areas, Madagascar
APECO	Peru Association for the Conservation of Nature
BioFor	Biodiversity and Sustainable Forestry project (USAID)
CABS	Center for Applied Biodiversity Science (Conservation International)
CAPES	Coordinator for the Training of Higher Level Personnel
CASFS	Center for Agroecology and Sustainable Food Systems (UC Santa Cruz)
CBG	Conservation Biology Group (Cambridge)
CCB	Center for Conservation Biology (Stanford)
CCDN	Training Center for Community Development, Madagascar
CDS	Centro para o Desenvolvimento Sustentável (U of Brasília, Brazil)
CenTREAD	Center for Tropical Ecology, Agriculture and Development (UC Santa Cruz)
CESP	Center for Environmental Science and Policy (Stanford)
CFSIGE	Training Center for GIS and Environment, Madagascar
CI	Conservation International
CIEL	Center for International Environmental Law
CNPq	National Council for Scientific and Technological Development, Brazil
CNRE	College of Natural Resources and the Environment (U of Florida)
CONAM	National Environment Council, Peru
CSF	Conservation Strategy Fund
CTC	Center for Tropical Conservation (Duke)
DCID	Duke Center for International Development
DICE	Durrell Institute of Conservation and Ecology (U of Kent)
ECI	Environmental Change Institute (Oxford)
ECMVS	Ecology, Conservation and Wildlife Management Program (U Minas Gerais, Brazil)
E-LAW	Environmental Law Alliance
EMBRAPA	Brazilian Agricultural Research Corporation
ESRI	Environmental Systems Research Institute
ESSA	Ecole Supérieure des Sciences Agronomiques, Madagascar

FANPE	Project to Strengthen the National System of Natural Protected Areas, Peru
FAO	Food and Agriculture Organization
FBPN	Boticário Foundation for Nature Protection
FFI	Fauna and Flora International
FNS	Faculty of Natural Sciences, Madagascar
FUNBIO	Brazilian Fund for Biodiversity
GEF	Global Environment Facility
GIS	Geographic Information Systems
GTZ	Deutsche Gesellschaft fur Technische Zusammenarbeit (German aid agency)
IBAMA	Brazilian Institute for Renewable Natural Resources
IDRC	International Development Research Centre, Canada
IIAP	Institute of Peruvian Amazonía Research
IIE	Institute of International Education
IIEB	International Institute for Education in Brazil
IIS	Institute for International Studies (Stanford)
IMARPE	Peruvian Institute of the Sea
IMAZON	Institute for Man and the Environment in the Amazon, Brazil
INIA	National Institute of Agricultural Research, Peru
INPA	National Institute for Amazon Research, Brazil
INRENA	National Institute of Natural Resources, Peru
INRENA-GDNPA	INRENA General Direction of Natural Protected Areas
INTH	National Institution for Tourism and Hotelery, Madagascar
IPAM	Amazon Institute for Environmental Research, Brazil
IPB	Bogor Agricultural Institute, Indonesia
IPÊ	Institute for Ecological Research, Brazil
IPER	Interdisciplinary Graduate Program in Environment and Resources (Stanford)
IRG	International Resources Group
ISA	Socio-Environment Institute, Brazil
IUCN	World Conservation Union
KSG	Kennedy School of Government (Harvard)
LDI	Landscape Development Intervention/Chemonics International, Madagascar
LEAD	Leadership for Environment and Development
MICET	Madagascar Institute for Tropical Ecosystem Conservation
MFG	Madagascar Fauna Group
NGO	Non-governmental organization
ONE	National Office for Environment, Madagascar
OTS	Organization for Tropical Studies
PEI	Princeton Environmental Institute
PIDP	Program for International Development Policy (Duke)
PROCAM	Graduate Program in Environmental Sciences (U of São Paulo, Brazil)
PROFONANPE	National Fund for Natural Protected Areas, Peru

PSTC	Program for Studies in Tropical Conservation (U of Florida)
RAP	Peruvian Environmental Network
RSPB	Royal Society for the Protection of Birds
SAGE	Support Services for Environmental Management, Madagascar
SENASA	National Agrarian Health Service, Peru
SF&ES	School of Forestry and Environmental Studies (Yale)
SFRC	School of Forest Resources and Conservation (U of Florida)
SI/MAB	Smithsonian Institution, Monitoring and Assessment of Biodiversity Program
SNRE	School of Natural Resources and Environment (U of Michigan)
SOS	SOS Mata Atlântica
SPDA	Peruvian Society for Environmental Law, Peru
SUNY	State University of New York
TBA	Tropical Biology Association
TCD	Tropical Conservation and Development (U of Florida)
TNC	The Nature Conservancy
TS	Tefy Saina Association, Madagascar
UFMG	Federal University of Minas Gerais, Brazil
UI	University of Indonesia
UNAM	Universidad Autonóma de México
UNALM	Universidad Nacional Agraria – La Molina, Peru
UNALM-CDC	UNALM Center of Conservation Data
UNAP	Universidad de la Amazonía Peruana, Peru
UnB	University of Brasilia, Brazil
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNICAMP	Universidade de Campinas, Brazil
Unilivre	Universidade Livre do Meio Ambiente
UNIPA	Papua State University, Indonesia
UNMSM	Universidad Nacional Mayor de San Marcos, Peru
UNSAAC	Universidad Nacional San Antonio Abad del Cusco, Peru
USAID	US Agency for International Development
USIA	United States Information Agency
USP	University of São Paulo, Brazil
WBI	World Bank Institute
WCMC	World Conservation Monitoring Center, UK
WCS	Wildlife Conservation Society
WRI	World Resources Institute
WTO	World Trade Organization
WWF	World Wildlife Fund
WWF-CAF	World Wildlife Fund Community-Based Forest Management Project, Madagascar

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EXECUTIVE SUMMARY

This report analyzes opportunities to build the professional capacity of conservationists working in tropical developing countries. Conservation Strategy Fund (CSF) undertook this study at the request of the Gordon and Betty Moore Foundation and the Center for Applied Biodiversity Science (CABS) at Conservation International (CI). Moore and CI-CABS share a perception that there is a shortage of highly trained professionals in the field to carry out a new wave of ambitious conservation initiatives deemed necessary to stem destruction of the planet's high-biodiversity ecosystems. CSF conducted a global survey of demand for conservation education and training, along with a review of existing training programs in six selected countries: the United States, the United Kingdom, Brazil, Peru, Madagascar and Indonesia. This work was conducted between January and October 2002.

RECOMMENDATIONS

Build the Movement From the Bottom,
Strengthen it From the Middle and Top.

This statement encapsulates our findings in one sentence. It reflects the fact that the conservation movement needs more people and more skills for those individuals already involved. Conservation is part career and part cause, so the best way to swell its ranks is to attract young people as they make life choices. People already in the movement often have education limited to one discipline, and are handicapped in their ability to confront the social, economic, biological and political factors wrapped up in environmental problems. Others have degrees from universities woefully understaffed and ill equipped, and therefore unable to provide quality education. These professionals need the chance to build their skills, both in short courses and degree programs.

To build and strengthen conservation movements in the tropics we suggest four interlocking initiatives:

1. Create regional university hubs for interdisciplinary conservation education.
2. Get outstanding tropical conservationists into US and European graduate programs with targeted scholarships, and back to the field with prestigious apprenticeships.
3. Fill skill gaps with in-stream professional development training.
4. Provide training in protected areas management.

The details of each of these recommendations are discussed below and in the body of this report.

1. Create regional hubs for conservation education at leading universities in the developing world. Invest in truly interdisciplinary conservation studies programs.

Rationale:

- The cost of in-country education is much lower because of basic economic differences and because leading universities are usually state supported.
- Almost all developing country conservationists obtain undergraduate education in-country, even those "stars" who go on for advanced degrees abroad.
- Students need access to the ecosystems of global concern for fieldwork.
- Drawing talented teens into the conservation movement is the key to expansion.
- Exposure to nature in formative years will produce conservationists with personal commitment.
- Interdisciplinary training builds critical thinking skills.
- Support for these university programs will help build in-country excellence at the PhD and faculty level in conservation biology and environmental science, which are the foundation of many conservation interventions.
- Our survey results showed a broad-based demand for training in conservation biology.
- There is opportunity for convergence with the Foundation's Science and Higher Education programs.

Estimated cost:

$10 million per year for five university hubs (approximately $2 million each).

2a. Expand access to graduate programs in the US and Europe through highly targeted scholarships. Attach conditions and incentives for graduates to return home.

Rationale:

- Conservationists from tropical wildernesses and other global biodiversity priority areas are not attending Northern graduate programs in significant numbers.
- The cost of study abroad is the main obstacle to developing-country students.
- There are no scholarships that specifically target conservationists from globally important ecosystems.
- Northern universities already have excellent faculty, programs and infrastructure in place, so large institutional grants are not needed to make them attractive to conservationists.
- Education at top schools abroad confers prestige, builds an international network, facilitates access to international funds and gives students world-class training. Tropical countries need a pool of conservation leaders with these advantages.
- Graduates can often land more attractive jobs in the US or Europe. Non-return is particularly common among PhD's.
- There is opportunity for overlap with Science and Higher Education programs.

Estimated cost:

$4.7 million a year for 50 new scholarships annually, including third-party administration.

2b. Create prestigious apprenticeship program for new graduates to work with conservation organizations in their home countries.

Rationale:

- Conservation is still a risky career choice. Prestige and starter opportunities will draw more people into conservation careers and ensure that talented graduates go to work in conservation organizations.
- First jobs can determine the rest of a career path.
- Apprenticeships will lower the cost and risk for organizations to build staff and create results that can be used to raise funds to make staff expansion sustainable.

Estimated cost:

$1.1 million a year for 50 apprenticeships.

3. Fill skill gaps with in-stream professional training. Focus on subjects that can be taught in short modules, such as economics, policy analysis, negotiation, business skills and biological monitoring.

Rationale:

- Our survey identified needed skills that are not being provided in university programs and can be supplied in short-term formats.
- Many conservationists do not have access to professional training because of high costs or because training is only open to staff of certain projects.
- Very little training is happening in areas identified as crucial over the long-term, especially skills to influence policy.
- Proven courses exist but are still only available on a very small scale.
- There is opportunity for convergence with Science and Higher Education programs.

Estimated cost:

$2.4 million per year for 40 short courses.

4. Provide training in Protected Areas Management.

Rationale:

- Protected Areas Management registered as a top priority on both an emergency and on a long-term basis in our survey.
- Few degree programs or professional courses exist specifically for protected areas management.
- Protected areas are the foundation of wilderness conservation efforts.
- There are broad opportunities to expand protected areas if parks are well managed over the next few years.

Estimated cost:

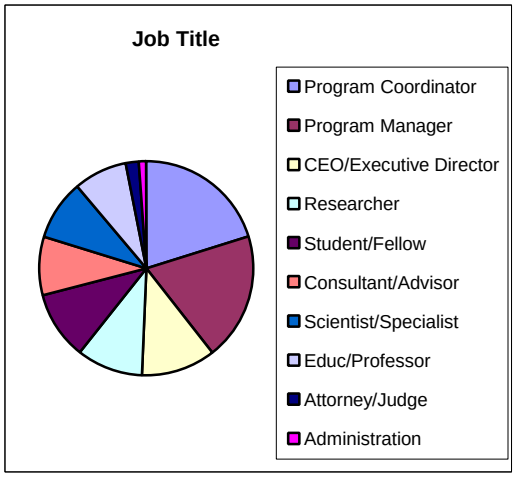
Unknown. CABS 'current research on park management costs will help inform cost estimates.

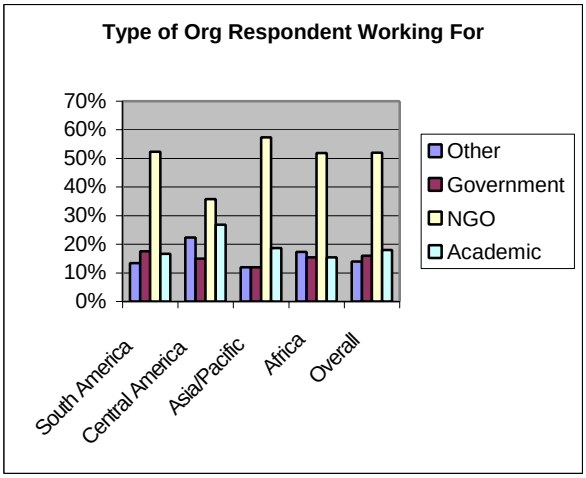
DEMAND FOR CONSERVATION EDUCATION AND TRAINING

Who Are "Conservationists"

We collected detailed data on 438 people from 77 countries throughout the world. Eighty-four percent were from developing countries. Of these, 54 percent were working in South America, 17 percent in Central America, 16 percent in Asia and the Pacific, and 13 percent in Africa. Brazil alone accounted for nearly a quarter of the sample.

Figure 1. Professional profile of survey respondents





Fifty-two percent of respondents worked for non-governmental organizations. NGOs made up more than half of the sample in all regions except Central America, where it was still the leading category. Government employees made up 12 to 18 percent of the regional samples and accounted for 16 percent overall. Academic institutions varied between 15 and 27 percent in the different regions and averaged 18 percent in the whole sample. Most respondents were professionals implementing or overseeing conservation programs, either as program staff or CEOs.

The median age of respondents was 33, with 90 percent of respondents under the age of 47. Sixty percent were male overall, though 8 in 10 African respondents were men. The sample was well educated with 87 percent having at least an undergraduate degree. Sixty-one percent had at least a Master's degree and 26 percent had doctorates. Sixty-eight percent of respondents had an educational background in biology or some form of environmental science or studies. The other third were scattered among eight other disciplines.

What Do They Want?

Participants were willing to spend a median of 30 days a year on training. Executives were willing to spend 25 days a year in training, just slightly less than the other categories, with the exception of students, who were willing to spend 40 days. These figures are a proxy

for the "price" people are willing to pay for training, and also are a useful guide in setting the length of courses.

Respondents listed the most important subjects in which training is needed, choosing from a list of twenty topics. Needs were segmented into their *own* needs, in the short- and long-term, and the needs of the conservation movement as a whole within their country.

Table 1. Survey training topics for past courses taken and future training needs

Training/Education Topics:	
Basic Natural Sciences	Monitoring/Evaluation
Conservation Biology	Protected Areas Management
Forestry	Conservation Enterprise Development
Sociology/Anthropology	Negotiation/Conflict Resolution
Economics	Lobbying
Law	Communication/Outreach
Policy Analysis	Organizational Management/Administration
Research Methods	Fundraising
Project Design	Information Technology/Computer Skills
Accounting/Financial Management	Other

General Needs

The data point to a strong perception that the movement as a whole needs an underpinning of Conservation Biology. Fifty-four percent of respondents cited its importance for conservationists in general. Conservation Biology scored high between both people trained in that field and people trained in other disciplines. The next closest topic, Monitoring and Evaluation, was mentioned by 41 percent of respondents.

Mentioned by between 35 and 41 percent of respondents were Monitoring and Evaluation, Fundraising, and Project Design, all topics related to internal management of organizations and projects. The next topic, also with 35 percent, was Protected Areas Management, an umbrella concept that wraps together a broad set of organizational management and technical skills. Rounding out the list of topics mentioned by at least 30 percent of respondents were Policy Analysis and Negotiation, signaling the need for conservationists to be more influential on environmental policy. Policy Analysis is another topic that rolls up several disciplines, Economics first and foremost, but also Law and Organizational Analysis. When we excluded those with a background in Natural Sciences and Environmental Studies, Policy Analysis moved up to second in importance.

Personal Needs – Short-Term

When respondents were asked what training they personally needed in the short-term, the same top seven topics came up, but in a different order. The trio of Fundraising, Monitoring and Evaluation and Project Design topped the list, followed by Negotiation, Conservation Biology, Protected Areas Management and Policy Analysis. After Fundraising, the rankings of the other topics are so close that they are probably not

statistically significant. The short-term question seems to have elicited needs related to basic organizational survival.

Table 2. Ranking of training needs according to survey data

General needs	%	Personal short-term	%	Personal long-term	%
Conservation Biology	54	Fundraising	32	Policy Analysis	26
Monitoring/Evaluation	41	Monitoring/Evaluation	24	Enterprise Develop.	20
Fundraising	37	Project Design	24	Economics	19
Project Design	35	Negotiation	21	Negotiation	18
Protected Areas Mgt.	35	Conservation Biology	19	Conservation Biology	18
Policy Analysis	33	Protected Areas Mgt.	19	Protected Areas Mgt.	16
Negotiation	31	Policy Analysis	18	Monitoring/Evaluation	15

Personal Needs – Long-Term

Only when respondents were asked about their long-term training needs did the list change substantially. Policy Analysis topped the list by a healthy margin. Enterprise Development and Economics jumped to the second and third spots on the list, while Fundraising and Project Design fell out of the top seven topics. Interestingly, Economics is at the core of all three of these top priorities. One might interpret this list as recognition by conservationists that economic forces are driving resource use and that long-term conservation success requires understanding these forces and intervening to influence policies and business practices.

We cut the data according to job title, and predictably found that CEOs were concerned with Fundraising. Program Directors and Managers, as well as junior professionals shared this concern, but it was not *the* supreme priority, as it seemed to be among the executives. With slight changes in the order of priorities, the list is basically the same up and down the ranks of conservation organizations.

The least cited topics were Forestry, Lobbying, Accounting/Financial Management, Basic Natural Science and Information Technology/Computer Skills.

SUPPLY OF CONSERVATION EDUCATION AND TRAINING

The first conclusion we reached in investigating the supply side is that there are myriad training programs offered by Northern universities and NGOs, and also by in-country institutions. Most programs focus in areas of natural science and resource management. In most developing countries there is usually one leading university where almost all conservation professionals receive their undergraduate training. In larger countries, like Brazil, there are several schools that turn out serious conservation talent. Most schools in developing countries have rigid disciplinary boundaries, though a small handful are now offering multi-disciplinary advanced degrees under titles such as "Amazonian Studies," "Conservation Biology and Wildlife Management" and "Economic Management of the Environment."

In the US and Europe, degrees in environmental sciences have been around for decades, and interdisciplinary programs have flourished in the past 10 years. A growing minority of these programs caters to developing country students. Leaders in international conservation education, such as Yale, University of Florida, Oxford and the University of Kent, are being joined by other schools where new faculty members bring international interests. A growing number of Universities in the UK and some in the US are also trying to develop flexible or condensed degree programs that are more relevant to conservation professionals. With few exceptions, however, Northern university programs have had only limited success in attracting conservationists from globally important ecosystems.

US and UK Suppliers of Training

We interviewed the following US and UK universities and organizations:

Universities

- Cambridge University, Zoology Department
- Duke University
- Center for Tropical Conservation
- Nicholas School of Environment and Earth Sciences
- Sanford Institute of Public Policy – Program for International Development Policy (PIDP)
- Harvard University, John F. Kennedy School of Government
- Oxford University, Environmental Change Institute (ECI)
- Stanford University
- Interdisciplinary Program in Environment and Resources (IPER)
- Center for Conservation Biology
- University of California at Santa Cruz (UCSC), Environmental Studies
- University of Florida
- Tropical Conservation and Development (TCD), Center for Latin American Studies
- College of Natural Resources and the Environment (CNRE)
- Program for Studies in Tropical Conservation (PSTC)
- School of Forest Resources and Conservation (SFRC)
- University of Kent, Durrell Institute of Conservation and Ecology (DICE)
- University of Michigan, School of Natural Resources and the Environment (SNRE)
- Yale University, School of Forestry & Environmental Studies (F&ES)

Other Institutions

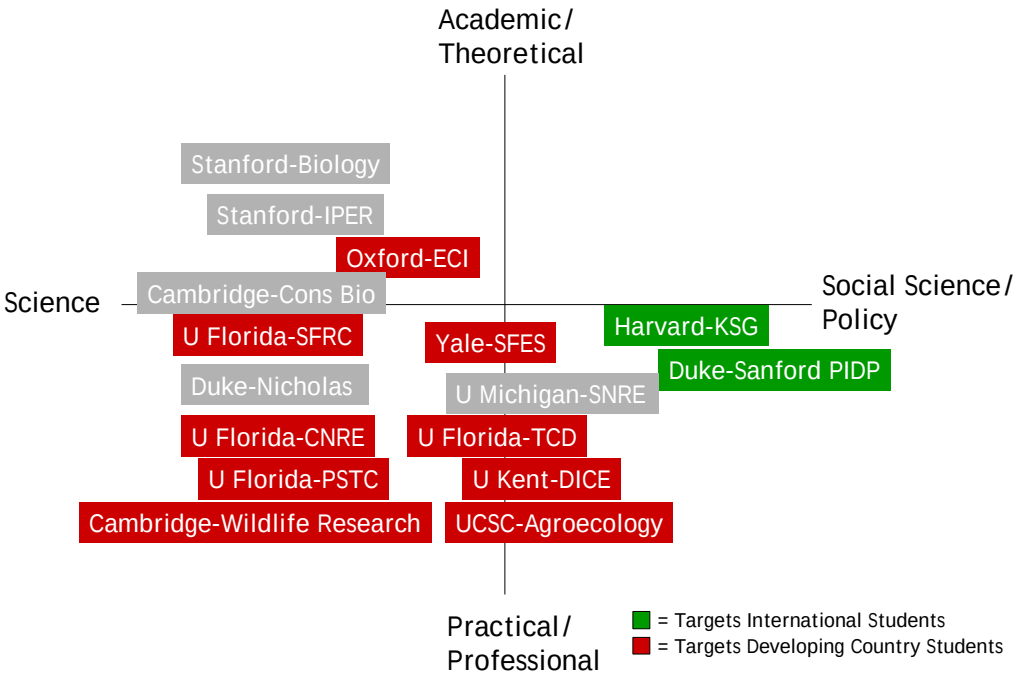
- American Museum of Natural History (AMNH), Center for Biodiversity and Conservation
- BirdLife International
- Fauna and Flora International (FFI)
- Institute for International Education (IIE)
- World Conservation Union (IUCN)
- Organization for Tropical Studies (OTS)
- Smithsonian Institution, Monitoring and Assessment of Biodiversity Program (SI/MAB)
- Tropical Biology Association (TBA)
- The Nature Conservancy (TNC)
- United Nations Environment Program, World Conservation Monitoring Center (UNEP-WCMC)
- United States Agency for International Development (USAID)
- Wildlife Conservation Society (WCS)
- World Bank Institute (WBI)
- World Resources Institute (WRI)
- World Wildlife Fund (WWF)

Annex 3 contains detailed information on each of these institutions. A list of other relevant institutions— 34 universities and 20 organizations— can be found in Annex 4. Summaries of our findings on Peru, Brazil, Indonesia and Madagascar are in the body of the report, with supplementary information in Annex 5.

Academic Training

There are many university programs in the US and UK related to conservation. Most programs that target students from developing countries offer a practical and professional curriculum related to the natural sciences. The following diagram roughly separates academic programs by the service they provide and their target constituency based on information and impressions gathered during interviews.

Figure 2. Schematic of university programs by training type and student body



US universities are reaching more students from Latin America (Florida, UCSC, Yale) and Asia (Duke, Yale), while UK providers are reaching more Africans and people from Commonwealth countries (U of Kent, Cambridge). Geographic proximity and geopolitical history are strong determining factors, although there were students from a variety of countries in each program reviewed in this study. Many conservation practitioners from Southeast Asia, Micronesia and Melanesia are served by universities in Australia and the Pacific region (Australian National University, U of South Pacific).

Several university programs such as Oxford Environmental Change Institute and Duke Sanford PIDP are moving towards creating flexible opportunities for degree programs and professional development at a lower cost, such as 1-year Master's programs (already offered by U of Kent) and distance learning.

Despite a large international student population at many of these programs, tropical conservationists from high-biodiversity wilderness areas are not accessing these programs in large numbers. Less than 300 students from tropical developing countries are being trained per year at these programs, of which only a subset can be classified as "conservationists." Further, probably no more than 50 conservation-inclined students from Moore focus regions (Amazon-Andes, Congo Basin and Melanesia) are being trained each year at US and UK universities.

Non-Academic Programs

Conservation challenges themselves are varied and multi-faceted, and most institutions and organizations have chosen specific capacity-building niches within this complex terrain. Organizations can be broadly divided by whether they are service providers focusing primarily on training, or whether they support or provide training as a means to achieve a larger project or program goal.

Organization Focus:

Capacity-Building Programs

- AMNH
- IIE
- IUCN
- OTS
- CSF
- Smithsonian
- TBA
- UNEP-WCMC
- WBI
- WWF

Conservation Programs

- BirdLife
- CI
- FFI
- TNC
- WCS
- WWF
- WRI

Activities of organizations can also be divided into broad categories based on the type of support they provide (a number of organizations fall into multiple categories):

- Specific skills– OTS, CI conservation biology training, CSF economics and policy training, WCMC Geographic Information Systems (GIS) and information management
- Institution building– TNC partner training and mentoring, IUCN courses on organizational management, and BirdLife International business, human resources and financial planning
- Awareness training for decision makers– OTS decision makers courses and IIE US-Asia Environmental Partnership program
- Scholarship funding– WWF Russell Train Scholarship, IIE Fulbright, Humphrey and Ford Foundation Fellowship administration, and WCS scholarships
- Large and diffuse programs providing aspects of all of the above– WWF, WCS, USAID, IUCN and TNC

IS THERE A PROBLEM HERE?

Most conservationists we surveyed had advanced degrees and on average had participated in three trainings over the last five years. Further, almost every conservation organization or agency claims to be doing some sort of training. These facts raise two threshold questions: Is there a lack of tropical conservation education and training? And does the Moore Foundation in particular have a useful role to play in this area?

We believe that there is a problem, but that it is a more manageable problem than we expected. First, truly interdisciplinary university conservation education is still rare, and nonexistent in most countries. Second, the quality of instruction in many countries is low due to insufficient funding. Third, instruction is often dominated by memorization, leaving graduates without critical thinking and problem solving skills. Fourth, conservationists from high-biodiversity wilderness areas are not accessing education programs abroad in large numbers, primarily deterred by tuition costs. Fifth, instability in the conservation job market still makes this a risky career path. Sixth, there are real gaps in professional development offerings, particularly related to long-term priorities and to the area of policy analysis in particular.

MOORE FOUNDATION'S POTENTIAL ROLE

Moore has a useful role to play in clearing all of these bottlenecks. The first three, relating to the content and quality of in-country university education, draw together three of the Foundation's program areas— Environment, Science and Higher Education. Further, resolving these issues over the long-term by creating world-class conservation education at in-country universities requires resources on a scale that few foundations are willing and able to commit to the developing world. Past environmental funding for universities has mostly been short-term, piecemeal and on the order of hundreds of thousands of dollars.

Similarly, opening North American and European graduate programs to conservationists from the tropics also represents an intersection of three of the Foundation's program areas. There is a real opportunity here because no other funder has provided scholarships on a significant scale with biodiversity conservation as the leading objective. The high per-student cost has deterred smaller funders, or limited programs to a few scholarships. Great academic programs are in place and good candidates are out there. Further, there are already high quality organizations capable of administering targeted scholarships.

The instability of the tropical conservation job market is a problem the Foundation cannot solve on its own. Stability will come in the long run with more robust national budgets for conservation and "indigenous" philanthropy. At the same time, the program of conservation apprenticeships we recommend is a useful complement to support for higher education and intervenes at a key moment in conservationists' career development.

Finally, we see professional development opportunities that can marry the Foundations' scientific and technical orientation with its environmental goals. Overlaying current training supply and demand, we found critical gaps, particularly on skills for long-term policy success and for the stability of protected areas. These are key areas for the survival of wilderness areas, regions where the future is strongly shaped by governments' economic policies and commitment to protected areas.

3

BACKGROUND

The Gordon and Betty Moore Foundation and Conservation International (CI) share the goal of conserving global biodiversity. To that end, they focus on protecting biologically rich tropical ecosystems. CI's efforts reach over 30 countries, encompassing many hotspots and wilderness areas, while the Moore Foundation has decided to focus mainly on three major tropical wilderness areas, marine conservation and protection of salmon. This report, co-sponsored by CI's Center for Applied Biodiversity Science (CABS) and Moore, presents recommendations for education and training interventions that will contribute meaningfully to biodiversity conservation in the tropics. The study was undertaken based on a perception that there is a shortage of highly trained conservation professionals to implement ambitious new initiatives that will be needed to save biodiversity in the tropics. Conservation Strategy Fund conducted this analysis between January and October 2002.

The report is organized as follows. We begin by discussing some of the challenges of tropical conservation that should guide capacity-building efforts. We review the literature on conservation training and education and then present options for where, when and how capacity-building interventions can be done. Next we present results of our survey of conservation education and training "consumers" before moving on to "suppliers" of the same. Finally, we present recommendations for training and education programs to build the tropical biodiversity conservation movement. The report also contains a number of annexes with detailed supplemental information.

CONSERVATION INSTITUTIONS IN THE TROPICS

Tropical ecosystem conservation efforts face challenges stemming from poverty, newly globalized industries, weak governments, limited awareness of conservation problems, and a lack of trained conservationists within the movement, to name but a few. Education and training can make inroads in all of these areas.

Conservation movements in the tropics vary tremendously across countries and regions. Latin American civil society is well developed. In Brazil, for instance, there are large national NGOs with strong technical capacity, a voice in public policy and entirely Brazilian staffs. International NGOs have a strong presence there and well-trained professionals are scattered among environmental agencies at the federal, state and local levels. Several universities and research organizations have strong programs in natural

sciences and conservation biology. In smaller Latin American countries, however, university conservation programs still struggle for funding and support, and NGOs have less impact on the national policy arena.

In East Asia, civil society is still incipient and biodiversity conservation occurs mainly through government resource management initiatives or local community action. In Africa, the venerable hunting and safari traditions have shaped conservation movements based primarily on wildlife. Organizations there are now maturing to undertake broader conservation and sustainable development work. Many NGOs and resource management departments in Africa face basic infrastructure limitations, weak or corrupt governments, and have difficulty competing with economic development and poverty alleviation agendas.

In smaller countries, such as Papua New Guinea and Madagascar, environmental initiatives are often overwhelmingly driven by large multi-lateral and bilateral donations. These programs create jobs for professionals who may have only a passing interest in conservation, and the jobs often disappear when the projects end.
In most countries, there are close, often formal relationships between governments and NGOs. NGOs are often hired to implement public functions in research, park management and local development. In smaller countries, some NGOs are better funded than public agencies. There is often a core group of politically moderate (or apolitical) NGOs that capture much of the international and public funding for conservation. In most countries there is a proliferation of other NGOs with little access to funding. They operate at a minimal level or rely on contracts from larger organizations.

The "alpha-NGOs" in these countries are often affiliated with local offices of CI, World Wildlife Fund (WWF), the World Conservation Union (IUCN), or The Nature Conservancy (TNC). Their programs usually center around non-confrontational local development, assistance to government protected areas, research and work on policy issues.

Many tropical developing countries have activist groups, but very few of these have a purely environmental focus. Activism is much stronger in areas of human and indigenous rights, labor and land reform. Environmental issues are sometimes conflated with other left-wing causes out of convenience and sometimes there is real overlap in the agendas. Local chapters of Greenpeace are conspicuous for their environmental activism.

LITERATURE REVIEW

We reviewed the literature on tropical conservation training and education and found no previous studies with the same focus and scope of this one. We did find some closely related studies for particular regions, some of which also used questionnaires. Casting a wide net, we came across articles on several related topics, all of which are summarized individually in the Literature Cited in Annex 8. In this section we describe only those studies most closely related to ours.

The Global Environment Facility (GEF)/United Nations Development Program (UNDP) has the most extensive recent body of work on biodiversity training needs, with at least six papers on the topic. Four of these, published in 2000, deal with major developing regions.

The study on Latin America and the Caribbean examined individual, institutional and systemic capacity for environmental protection, employing a questionnaire and several country studies. Needs were defined, somewhat vaguely, as 1) training decision-makers who control economic policy affecting biodiversity, 2) training judges on values and legal obligations related to biodiversity, and 3) training civil servants on planning, management and financing for conservation. These first two priorities overlap with our finding that raising the awareness of non-environmentalist authorities is useful, though perhaps not a first-tier training opportunity for the Moore Foundation (see Recommendations section). In general this study differed from ours in stressing biodiversity training for non-environmentalists, while ours focused on educating and training conservation professionals.

The GEF/UNDP study on Africa was conducted in a similar manner as the Latin America paper, but came to markedly different conclusions. It identified five key areas of training in short supply and high demand: 1) environmental economics; 2) trade policy and law; 3) taxonomy; 4) data/information management; and 5) negotiation skills. These priorities overlap very closely with those identified by our respondents as long-term training needs.

In Asia and the Pacific, the GEF/UNDP found more need for scientific skills related to taxonomy, bioprospecting, integrated ecosystem management and biosafety. There was also strong demand in that region for on-the-job training in the sorts of organizational and project management skills we also found in demand among our respondents— program planning, administration and proposal writing— as well as one skill that rated very low among our respondents: information technology.

In Small Island Developing States the GEF/UNDP identified capacity gaps, rather than explicitly laying out training priorities. Gaps included skills needed to identify and monitor biodiversity, develop sound policies, develop community-based conservation areas and strategies and deliver general education on biodiversity. These priorities mirror reasonably well those emerging from our data. Conservation biology, policy analysis and management are all common threads.

These studies were intended to be uniform, so the sometimes widely different results suggest that different teams took somewhat different approaches in each region. Applying the same questionnaire to the whole world, we detected only modest differences between regions. Still, most of the top priorities identified in our work appear in the GEF/UNDP findings, though with different emphasis and relative rankings.

The author of the Africa study wrote another report, focused specifically on scientific and technical capacity needs in developing countries, and while much of the paper dwells on definitional issues of limited interest, it does propose several key areas for investment. These are: 1) assessing the nature and status of environmental problems and managing

information to come up with appropriate actions; 2) formulating science and technology policies that effectively address environmental problems; and 3) creating or strengthening scientific bodies. The other GEF/UNDP study is mostly a self-assessment and not as directly relevant as the other papers.

Barbara Pitkin authored *Training Needs and Opportunities Among Protected Area Managers in Eastern, Central and Southern Africa* in 1995 for the Protected Area Conservation Strategy (PARCS) initiative. She surveyed more than 200 directors of protected areas throughout the region and arrived at conclusions on the main individual capacity-building needs in the parks and reserves. This information is useful because park managers often lack Internet access and therefore did not respond to our survey in significant numbers. Further, we listed "protected area management" as a choice in the ranking of training priorities, but the term is an umbrella under which various skills fall. Pitkin found a need for training to ensure visitor satisfaction, community-based conservation projects, development of park policies and procedures, planning, finance and accounting, creativity, problem analysis and evaluation. That seems like something of a grab bag, but it does omit conservation biology, economics, policy analysis and fundraising, some of the topics at the top of the list in our survey.

Pitkin notes that most protected area managers receive higher education at the College of African Wildlife Management in Tanzania if they are English speakers or at the École des Specialistes de la Faune in Cameroon for French speakers. These schools have suffered as a result of funding declines, underscoring that without long-term external investment the wildlife colleges will wither. In-service training can fill some of the gaps when formal education falters, and Pitkin points out the importance of doing training in the field to avoid an over-accumulation of skills and prestige at headquarters, far from the protected areas.

An additional assessment of interest is *Building Capacity for Marine Conservation in the Western Pacific*, commissioned by the Packard Foundation in 2000. Though the recommendations are wide-ranging and not clearly prioritized, some important themes come through. The study assessed individual and institutional capacity based on 200 interviews with 60 organizations. In the areas of formal education and training the assessment recommends strengthening university curricula, creating centers of excellence for marine conservation, and establishing national "learning networks." The study also proposes a laundry list of in-service training needs for individuals and institutional strengthening measures for NGOs.

The last among the most relevant studies is *Mid-Career Professional Development for Environmentalists* by Peter Szabo (for the Doris Duke Foundation). Though the study looks at North American professionals, it contains a relevant comparison of "award" and "education" programs promoted by foundations. Awards (Ashoka, Goldman, MacArthur, etc.) have the goal of stimulating and revitalizing people, while education aims to build their technical and managerial capacity. Not surprisingly, the three-dozen well-educated professionals interviewed showed a strong preference for the open-ended award over specific support for their education. The author agrees. He recommends "going deep" on individuals with financial awards and public recognition. We feel that education and technical training are much higher priorities in developing countries for a

few reasons. First conservation work is often more technical and less a matter of political activism there. Second, professionals there do not have the universally high-quality educational opportunities enjoyed by Szabo's interviewees. Finally, there are a number of reward-type programs already, so the benefit of adding one more is unclear.

CAPACITY-BUILDING OPTIONS

Building a person's ability to contribute to nature conservation can be done at various points in their career with different kinds of interventions. We used the following sets of choices as a guide in formulating our recommendations:

Point of intervention in career path:

- Undergraduate
- Graduate school
- Post-grad school (post-doc, post-masters)
- Internship
- On-the-job
- Mid-stream (during professional career, past apprentice stage)
-

Type of intervention:

- New academic programs
- Clearing bottlenecks for access to existing programs
- Scholarships
- Short courses
- Apprenticeships
- Networking opportunities
- Awareness raising
- Mentoring
- Training publications

Place of intervention:

- In-country
- Regional South
- Northern institution

Content of intervention:

- Academic in specific disciplines (biology, law, economics, anthropology, etc.)
- Interdisciplinary academic (conservation biology, environmental studies, natural resource management, public policy, sustainable development)
- Technical (policy analysis, economic analysis, project design, monitoring and evaluation, GIS, wildlife management, IT skills)
- General job skills (organizational management, accounting and finance, computers, languages, fundraising)
- Leadership and Management

4

SURVEY OF TRAINING NEEDS

Before conducting our survey, we envisioned several different target groups for conservation education, with a decided emphasis on the first one in this list:

- Professionals implementing conservation programs (NGO or government)
- Activists (running environmental campaigns)
- Researchers
- Politicians
- Students (university, graduate)

We distributed the survey (which is reproduced in Annex 1) through a variety of international networks and posted it on CSF's web page in English, Spanish, Portuguese and French. Over half of responses came from people who received it from the following six sources: CSF, International Institute for International Education in Brazil (IIEB), World Conservation Union, Organization for Tropical Studies, Yale School of Forestry & Environmental Studies, and Conservation International. A more complete list of the distribution network can be found in Annex 2. Using the Internet as the main tool for distribution of the survey excluded those people without computer or Internet access, notably staff of protected areas. Our survey netted 438 responses from 77 countries throughout the world. The survey collected information on basic demographics, past education and training and perceptions of capacity-building needs.

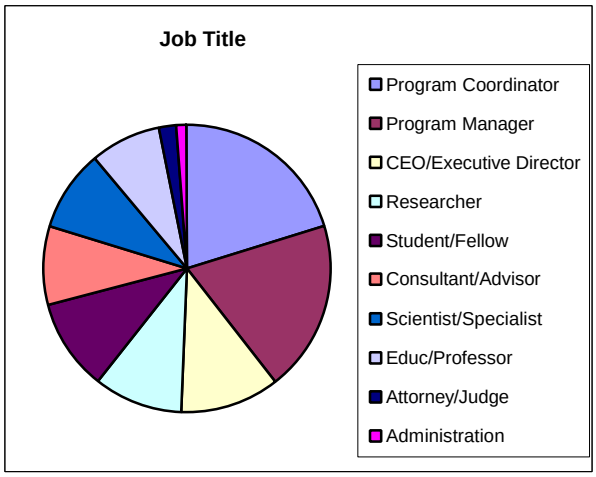
Of the total respondents, 84 percent were from developing countries. Developed country respondents were mostly expatriates working in developing countries. Of the developing country respondents, 54 percent were working in South America, 17 percent in Central America, 16 percent in Asia and the Pacific, and 13 percent in Africa. Brazil alone accounted for nearly a quarter of the entire sample.

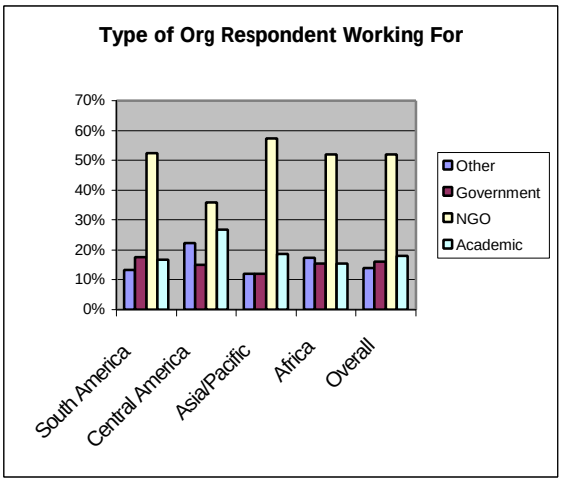
PROFESSIONAL BACKGROUND

Fifty-two percent of respondents worked for non-governmental organizations. In all regions, NGOs made up more than half the group, with the exception of Central America, where academics and others had significant shares. NGO respondents were 36 percent of the Central American sample, still larger than the other categories. Government employees made up 12 to 18 percent of the regional samples and accounted for 16 percent overall. Academic institutions varied between 15 and 27 percent in the different regions and averaged 18 percent over the entire sample.

Most respondents were professionals implementing or overseeing conservation programs. The leading category was "Program Coordinator/Assistant" with 20 percent, followed closely by "Program Director/Manager" with 19 percent. CEOs and Executive Directors were next with 11 percent. No other category accounted for more than 10 percent of respondents.

Figure 3. Professional profile of survey respondents

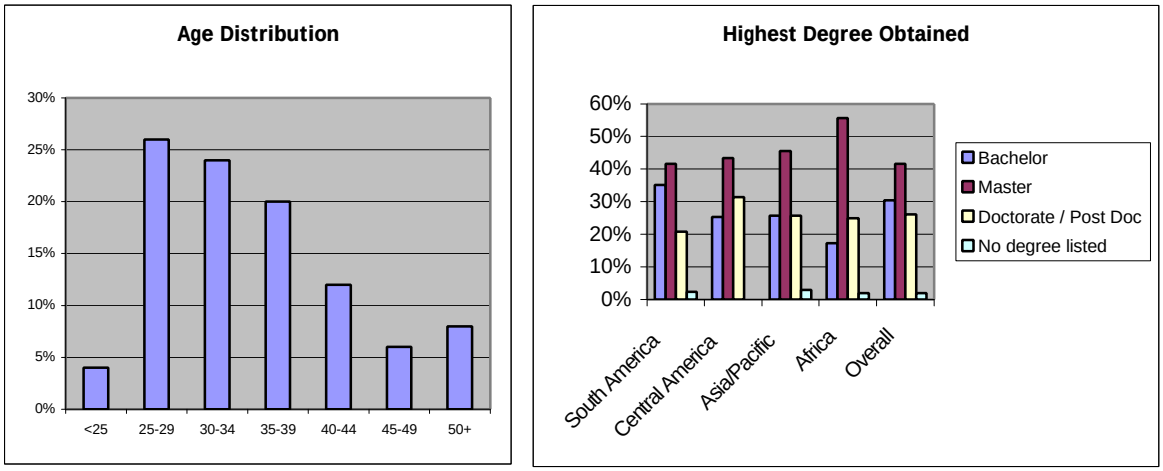




DEMOGRAPHICS

The median age of respondents was 33, with 90 percent of respondents under the age of 47. Sixty percent were male overall, though 8 in 10 African respondents were men. The sample was well educated with 87 percent having at least an undergraduate degree. Sixty-one percent had at least a Master's degree and 26 percent had PhD's. In South America, more respondents obtained a Bachelor's degree as their highest degree than in other regions; in Africa, more people had Master's degrees as a highest degree, while in Central America, more people had PhD's as the highest degree obtained than in other regions.

Figure 4. Demographic profile of survey respondents



Sixty-eight percent of respondents had an educational background in biology or some form of environmental science or studies. The other third were scattered among eight other disciplines. Africa again differed somewhat in that more people had backgrounds in applied sciences rather than basic sciences, more were trained in business administration and more had interdisciplinary degrees. In summary our sample was mostly, though not overwhelmingly, male, young and well educated in the sciences. Regional differences were slight, except in Africa.

Figure 5a. Educational background of survey respondents

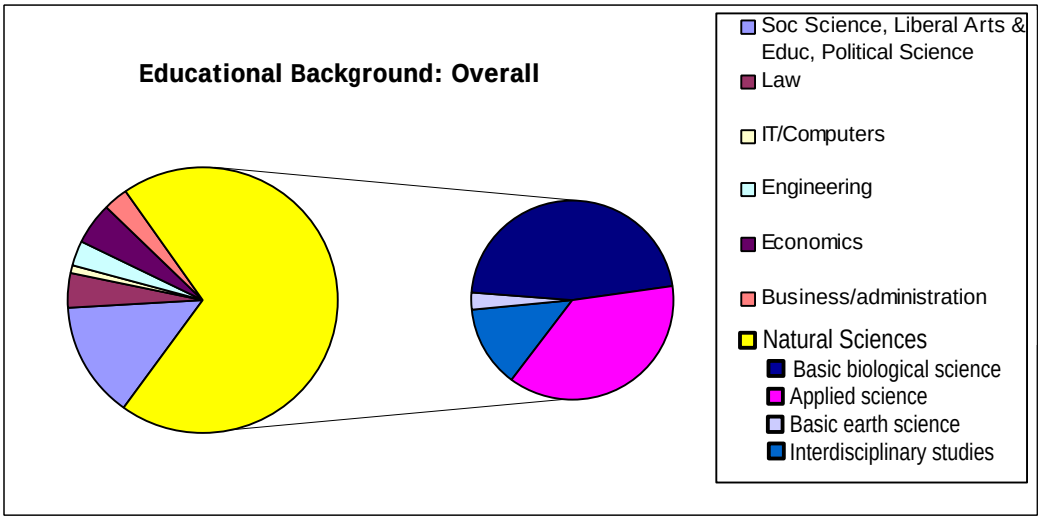
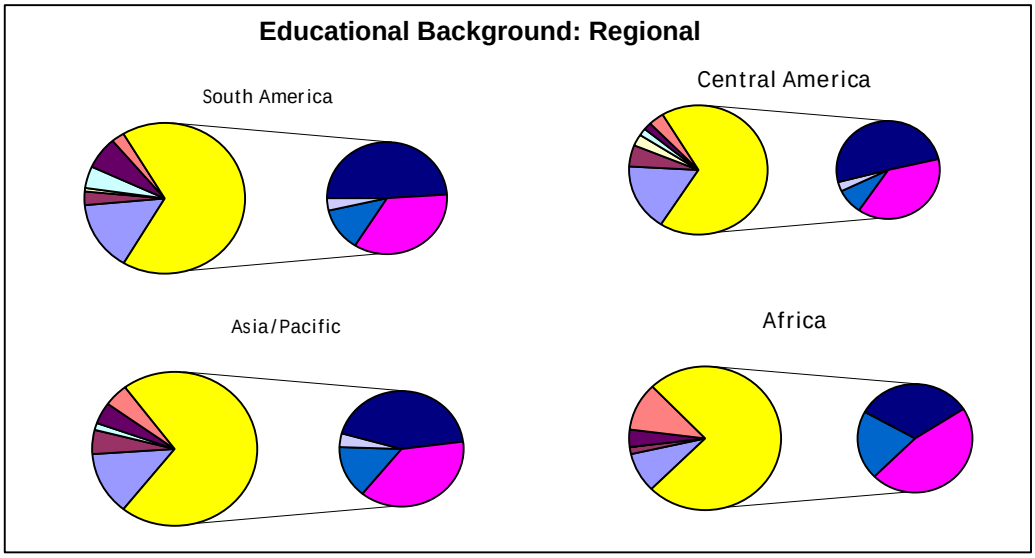


Figure 5b. Educational background of survey respondents



DEMAND FOR CONSERVATION EDUCATION AND TRAINING

A survey of this nature necessarily records people's *perceptions* of training needs. These perceptions are shaped by their own educational background, their experiences and the context in which they work. Collecting data like this is meant to correct our own biases and blind spots, but we have to remain alert to those of our respondents.

Training Received

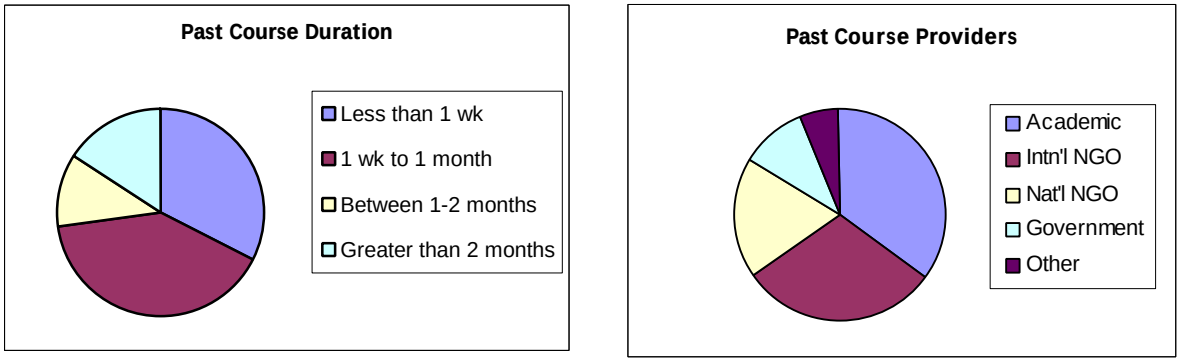
Before asking participants what conservation education is needed, we asked them what training they have already had outside of degree programs and how much time they are willing to spend being trained. A list of twenty topics was provided.

Table 3. Survey training topics for past courses taken and future training needs

Basic Natural Sciences	Monitoring/Evaluation
Conservation Biology	Protected Areas Management
Forestry	Conservation Enterprise Development
Sociology/Anthropology	Negotiation/Conflict Resolution
Economics	Lobbying
Law	Communication/Outreach
Policy Analysis	Organizational Management/Admin
Research Methods	Fundraising
Project Design	Information Technology/Computer Skills
Accounting/Financial Management	Other

In the last five years, the average respondent had taken around three trainings and, on average, found the courses very useful (4.3 on a 1-5 scale, with 5 being the most useful). The most common topics taught in these non-university courses were Conservation Biology, Monitoring and Evaluation, Project Design, Research Methods and Basic Science.

Figure 6. Past training received by survey respondents



Participants were willing to spend a median of 30 days a year on training. We expected large variations in this figure according to professional rank, but executives were willing to spend 25 days a year in training, just slightly less than the other categories, with the exception of students, who were willing to spend 40 days.

Training Needed

We asked respondents to list the most important topics where training is needed, selecting from the same list of twenty topics. Needs were segmented into their *own* needs in the short- and long-term, and the *general* needs of the conservation movement in their country. Table 4 presents the top seven topics listed for each of these three questions (see Annex 2 for a full list of general training needs and personal needs in the short- and long-term).

Table 4. Ranking of training needs according to survey data (% of respondents who ranked topic as a top priority)

General needs	%	Personal short-term	%	Personal long-term	%
Conservation Biology	54	Fundraising	32	Policy Analysis	26
Monitoring/Evaluation	41	Monitoring/Evaluation	24	Enterprise Develop.	20
Fundraising	37	Project Design	24	Economics	19
Project Design	35	Negotiation	21	Negotiation	18
Protected Areas Mgt.	35	Conservation Biology	19	Conservation Biology	18
Policy Analysis	33	Protected Areas Mgt.	19	Protected Areas Mgt.	16
Negotiation	31	Policy Analysis	18	Monitoring/Evaluation	15

General Needs

The first trend to emerge from the data is a perception that the movement as a whole needs an underpinning of Conservation Biology. Fifty-four percent of respondents included this field in their list of priority topics for conservationists in general. The next closest topic, Monitoring and Evaluation, was mentioned by 41 percent of respondents. An argument might be made that conservation biology scored high on the strength of opinions of those trained in conservation biology and that it can be attributed to disciplinary bias. But the perception that this discipline matters was not correlated with respondent's academic background. When looking at training needs and excluding those with a background in Natural Sciences and Environmental Studies/Sciences, Conservation Biology remains within the top three needs.

There is some underlying logic to the importance of this discipline. Conservation depends on understanding ecosystems and applying that knowledge to the design of protected areas and other conservation interventions. Most of the people who have been drawn to conservation careers come from that background, and in many developing countries biology is the area in which conservationists have become the unquestioned experts. Indeed, governments often rely on non-governmental organizations for biological data and analysis.

The next block of general needs has to do with internal management of conservation organizations and programs. Mentioned by between 35 and 41 percent of respondents were Monitoring and Evaluation, Fundraising and Project Design. The next topic, also with 35 percent, was Protected Areas Management, something of an umbrella concept that wraps together a broad set of organizational management and technical skills. Rounding out the list of topics mentioned by at least 30 percent of respondents were Policy Analysis and Negotiation, signaling the need for conservationists to be more influential in environmental policy discussions. Policy Analysis is another topic that rolls up several disciplines, Economics first and foremost, but also Law and Organizational Analysis. When excluding those with a background in Natural Sciences and Environmental Studies/Sciences, Policy Analysis moves up to second in importance.

Lowest-ranked topics for general needs were Forestry, Lobbying, Accounting and Financial Management and Information Technology/Computer Skills.

Personal Needs – Short-Term

When respondents were asked what training *they personally* needed in the short-term, the same seven topics came up on top, but in different order. The trio of Fundraising, Monitoring and Evaluation and Project Design topped the list (Fundraising by a healthy margin), followed by Negotiation, Conservation Biology, Protected Areas Management and Policy Analysis. After Fundraising, the rankings of the other topics are so close that they are probably not statistically significant. The short-term question seems to have elicited needs related to basic organizational survival.

Personal Needs – Long-Term

Only when respondents were asked about their long-term training needs did the list change substantially. Enterprise Development and Economics jumped to the second and third spots on the list, while Fundraising and Project Design fell out of the top seven topics. Policy Analysis topped the list by a good margin. Interestingly, Economics is at the core of all three of these top priorities. One interpretation of this list is that conservationists recognize that economic forces are driving resource use and that long-term conservation success requires understanding these forces and intervening to influence policies and business practices.

We cut the data according to job title, and predictably found that CEOs were concerned with fundraising. That concern was shared by Program Directors and Managers, as well as junior professionals, but as not *the* supreme priority at lower levels, as it seemed to be among the executives. With slight changes in the order of priorities, the list is basically the same up and down the ranks of conservation professionals.

5

SUPPLY OF CONSERVATION EDUCATION AND TRAINING

On the supply side, we sought to analyze the training and education opportunities provided to conservation professionals and compare these offerings to expressed training needs. We researched programs available to tropical conservationists at universities and NGOs in the United States and United Kingdom, and investigated training "supply" in Madagascar, Indonesia, Peru and Brazil. A complete profile of programs interviewed can be found in Annex 3. A list of other relevant institutions— 34 universities and 20 organizations— can be found in Annex 4.

The first conclusion we reached in investigating the supply side is that there are myriad training programs offered by Northern universities and NGOs, and also by in-country institutions. Most programs focus in areas of natural science and resource management. In most developing countries there is usually one leading university where almost all conservation professionals receive their undergraduate training. In larger countries, like Brazil, there are several schools that turn out serious conservation talent. Most schools have rigid disciplinary boundaries, though a small handful are now offering multi-disciplinary advanced degrees under titles such as "Amazonian Studies," "Conservation Biology and Wildlife Management" and "Economic Management of the Environment."

In the US and Europe, environmental degrees have been offered for decades, and interdisciplinary programs have flourished in the past 10 years. A growing minority of these programs caters to developing country students. Leaders in international conservation education, such as Yale, University of Florida, Oxford and the University of Kent, are being joined by other schools where new faculty members bring international interests. A growing number of universities in the UK and some in the US are also trying to develop flexible or condensed degree programs that are more relevant to conservation professionals . With few exceptions, however, Northern university programs have had only limited success in attracting conservationists from globally important ecosystems.

US AND UK SUPPLIERS OF TRAINING

A large number of organizations and institutions in the US and UK provide training and capacity building for conservation practitioners from the developing tropics. Activities at the NGO level are so numerous that the supply of training becomes almost intractable. The good news is that there are many capacity-building programs out there, and a trend toward interdisciplinary and integrative approaches.

For the purposes of this study we have divided training into three categories (the last of which has been the most difficult to identify and track):

- Academic training
- Professional development (formal courses taken on topics relevant to profession but not part of an academic degree program)
- On-the-job training and mentoring (training provided that is specific to job responsibilities– short-term training to improve an employee's efficiency)

Tables 5 and 6 list the US and UK universities and organizations interviewed for the purposes of this study.

Table 5. University providers interviewed

University	Department/Program	Website
Cambridge University	Department of Zoology	http://www.zoo.cam.ac.uk/
Duke University	Nicholas School of Environment and Earth Sciences, Sanford Institute of Public Policy – Program for International Development Policy (PIDP)	http://www.env.duke.edu/ http://www.pubpol.duke.edu/
Harvard University	Kennedy School of Government (KSG)	http://www.ksg.harvard.edu/
Oxford University	Environmental Change Institute (ECI)	http://www.eci.ox.ac.uk/
Stanford University	Department of Biological Sciences, Center for Environmental Science and Policy (CESP), Interdisciplinary Graduate Program in Environment and Resources (IPER)	http://www.stanford.edu/dept/biology/ http://cesp.stanford.edu/ http://iper.stanford.edu/
University of California Santa Cruz (UCSC)	Environmental Studies Department	http://zzyx.ucsc.edu/ES/es.html
University of Florida	Tropical Conservation and Development Program (TCD), Program for Studies in Tropical Conservation (PSTC), College of Natural Resources and the Environment (CNRE), School of Forest Resources and Conservation (SFRC)	http://www.latam.ufl.edu/tcd http://www.wec.ufl.edu/entities/pstc/ http://web.cnre.ufl.edu/ http://www.sfrc.ufl.edu/

University	Department/Program	Website
University of Kent	Durrell Institute of Conservation and Ecology (DICE)	http://www.ukc.ac.uk/anthropology/dice/dice.html
University of Michigan	School of Natural Resources and Environment (SNRE)	http://www.snre.umich.edu/
Yale University	School of Forestry and Environmental Studies (F&ES)	http://www.yale.edu/forestry/

Table 6. NGO/Institution providers interviewed

Institution	Program	Website
American Museum of Natural History (AMNH)	Curriculum development program; Fellowship program and training workshops in Madagascar, Bolivia and Vietnam.	http://research.amnh.org/biodiversity/
BirdLife International	Increase technical skills of partners; Regional training programs to increase sustainability of local communities with programs in Africa, Asia and the Americas	http://www.birdlife.net
Center for Conservation Biology (CCB), Stanford University	Led by Paul Ehrlich at Stanford University. Fosters collaboration among scientists, social scientists, journalists, NGOs, government agencies, and business community. Capacity-building courses in conservation biology in Costa Rica and collaboration with Universidad Nacional Autónoma de México.	http://www.stanford.edu/group/CCB/
Center for Tropical Conservation (CTC), Duke University	Led by John Terborgh and Carl van Schaik at Duke University. Capacity building through research projects that unite environmental science and policy relevant to biodiversity and the sustainable development of natural resources in the tropics.	http://www.duke.edu/web/ctc/
Fauna and Flora International (FFI)	Capacity building through environmental education programs throughout the Americas, Africa, Asia/Pacific and Eurasia.	http://www.fauna-flora.org/
Institute of International Education (IIE)	Training and leadership development programs for professionals; Fellowship administrator; Academic scholarship support to international students	http://www.iie.org/
World Conservation Union (IUCN)	Capacity-building programs at many intervention levels to build sustainable institutions in the developing world for environmental protection.	http://www.iucn.org/
Organization for Tropical Studies (OTS)	Courses in conservation biology in Costa Rica, decision-makers courses in U.S., Peru, and Brazil.	http://www.ots.duke.edu/

Institution	Program	Website
Smithsonian Institution Monitoring and Biodiversity Center (SI/MAB)	Biodiversity assessment and monitoring courses; Environmental leadership courses; Conservation and Research Center	http://www.si.edu/simab/ http://www.si.edu/crc/
The Nature Conservancy (TNC)	Programs and materials to build capacity of local partners for biodiversity protection; Bi-annual training week for staff and partners in Washington, D.C.	http://nature.org/
Tropical Biology Association (TBA)	Conservation biology and ecology training programs in Africa for Europeans and Africans.	http://www.tropical-biology.org/home.html
United Nations Environment Programme - World Conservation Monitoring Centre (UNEP-WCMC)	Training in information management and biodiversity assessment tools for protected areas throughout the world. Courses take place in UK, also have courses in Latin America, Africa, and Asia.	http://ims.wcmc.org.uk/
The US Agency for International Development (USAID)	Global Environment Center: Global Conservation Program supports efforts of NGO partners; Biodiversity and Sustainable Forestry (BioFor) project provides technical assistance to forest biodiversity conservation.	http://www.usaid.gov/environment/
Wildlife Conservation Society (WCS)	Field-based professional development program with short courses in Africa, Asia and Latin America (some courses also held in US).	http://wcs.org/
World Bank Institute (WBI)/ World Bank Environment Department)	Environmental economics and environmental management courses.	http://www.usaid.gov/environment/
World Wildlife Foundation (WWF)	Many professional development and short courses for staff and partner organizations. Education for Nature program provides scholarships for graduate study abroad.	http://www.panda.org/ http://www.wwf-efn.org/
World Resources Institute (WRI)	Environmental think tank that works to build capacity of partner organizations.	http://www.wri.org/

History of Education and Training Programs

The first interesting general characteristic is the relative youth of many of these programs. The last twenty years has seen a surge of interdisciplinary conservation degree programs and capacity-building efforts at both academic and professional levels. The following figures illustrate this point.

Figure 7: History of university programs

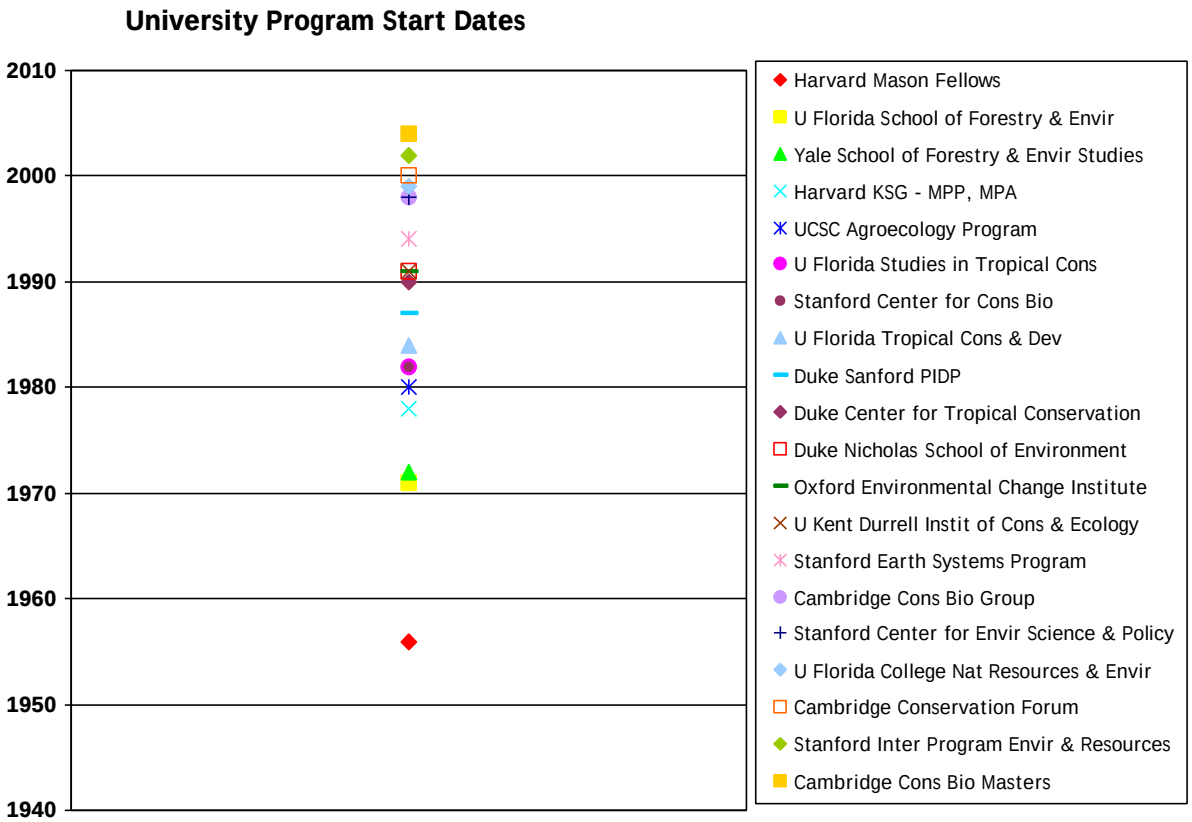
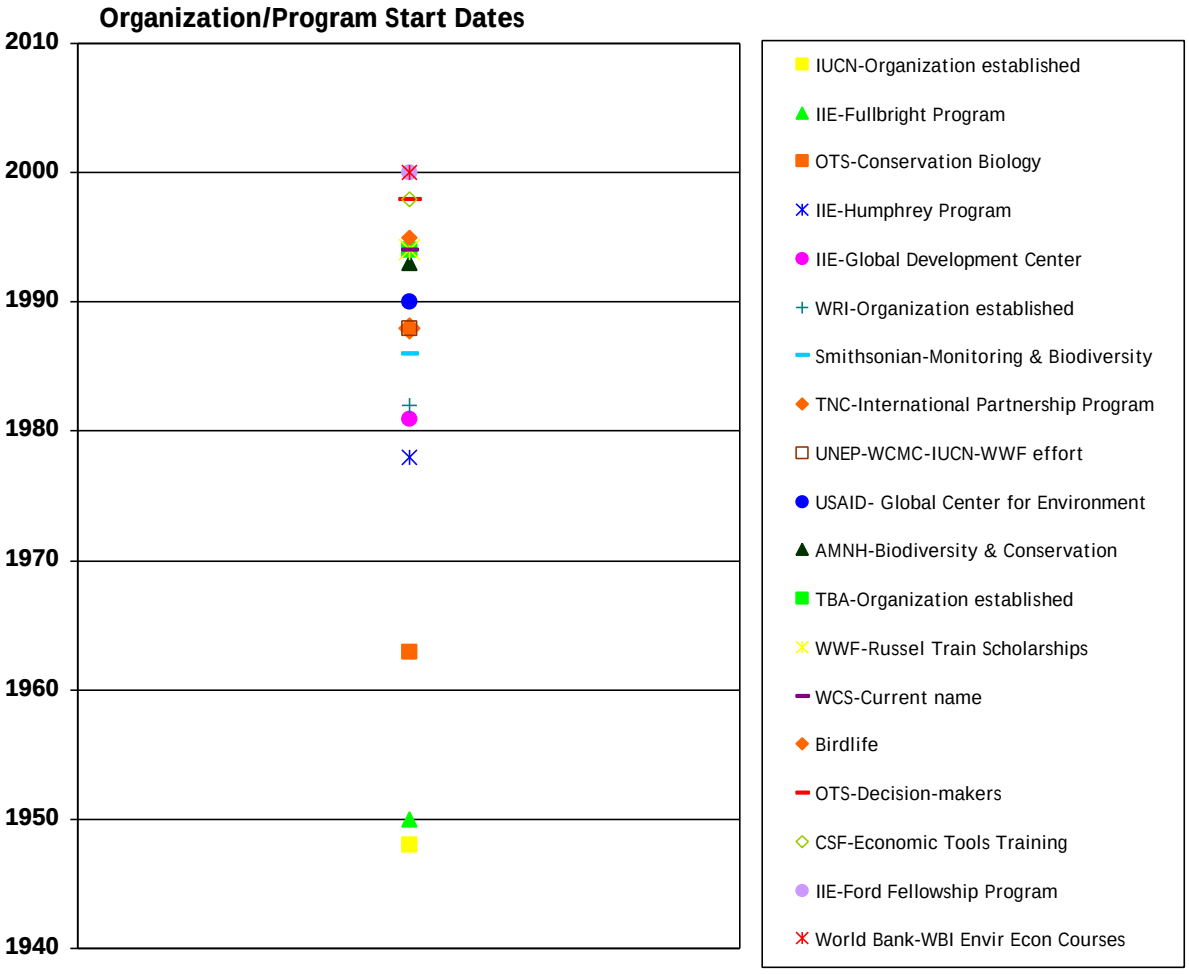


Figure 8. History of non-academic programs



University Academic Training

While the sheer number of programs makes it difficult to gain a sense of the larger capacity-building picture, there are a few salient characteristics based on information and impressions from our interviews that help to differentiate among programs. These include the focus of the program and the degree of service they provide to tropical conservationists.

Many universities in the US and UK have high quality environmental science and conservation programs, and they can be roughly separated by the service they provide and their target constituency:

- Practical resource management programs for conservation professionals offering technical skills (forestry schools, schools of resource management)
- Policy and high-level decision making and leadership training (interdisciplinary programs, economics, public policy schools, schools with international prestige)

- Elite academic and research training (ecology and conservation science programs)

Within these divisions, some programs focus on global scale processes and systems (e.g. climate change, ecosystem services, nutrient cycling, carbon markets, or international environmental treaties) and others focus on site-based issues and management (e.g., bush meat trade in Central Africa, agroecology in Andean highlands, community resource management, or marine reserve design). In addition, some programs are reaching students from tropical developing countries, while others are serving mostly US/UK and other developed country students.

The following diagrams divide relevant programs based on these characteristics. While by no means are these programs confined to these areas, and individual faculty and research may fall elsewhere, this qualitative diagram can provide an overall picture of various programs based on impressions and information obtained during this study. One generality that emerges from these diagrams is that the majority of programs targeting developing country students seem to have a practical science-based curriculum that addresses conservation issues at a site-specific or local scale.

Figure 9. University programs by training type and student body

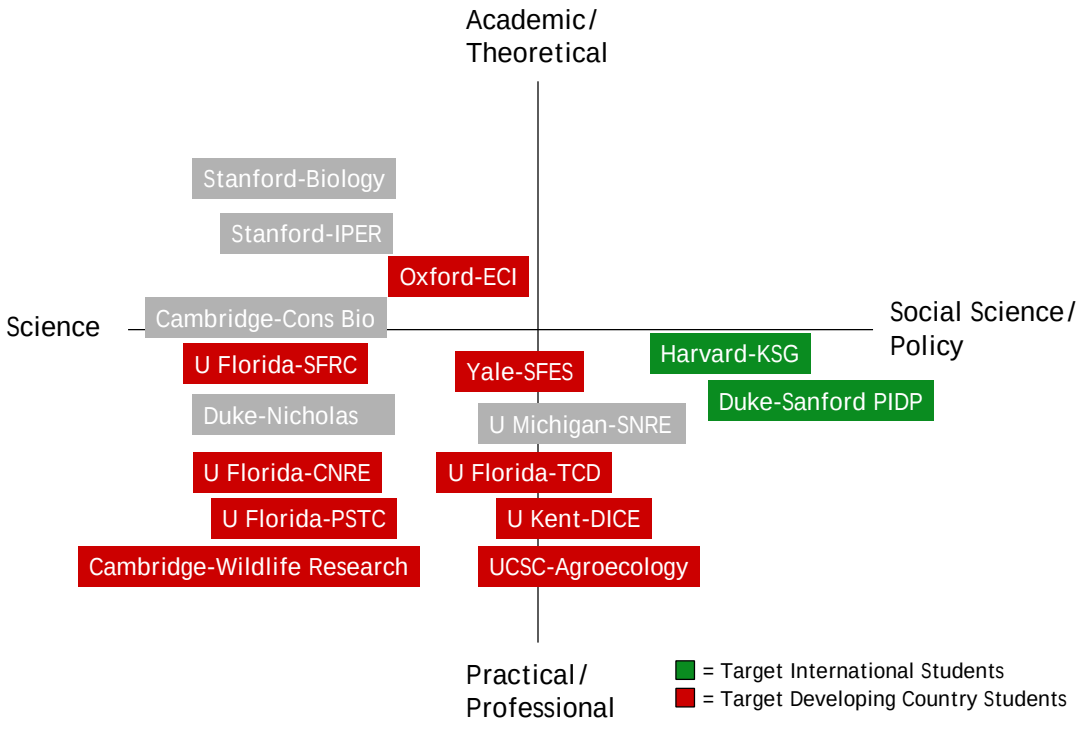
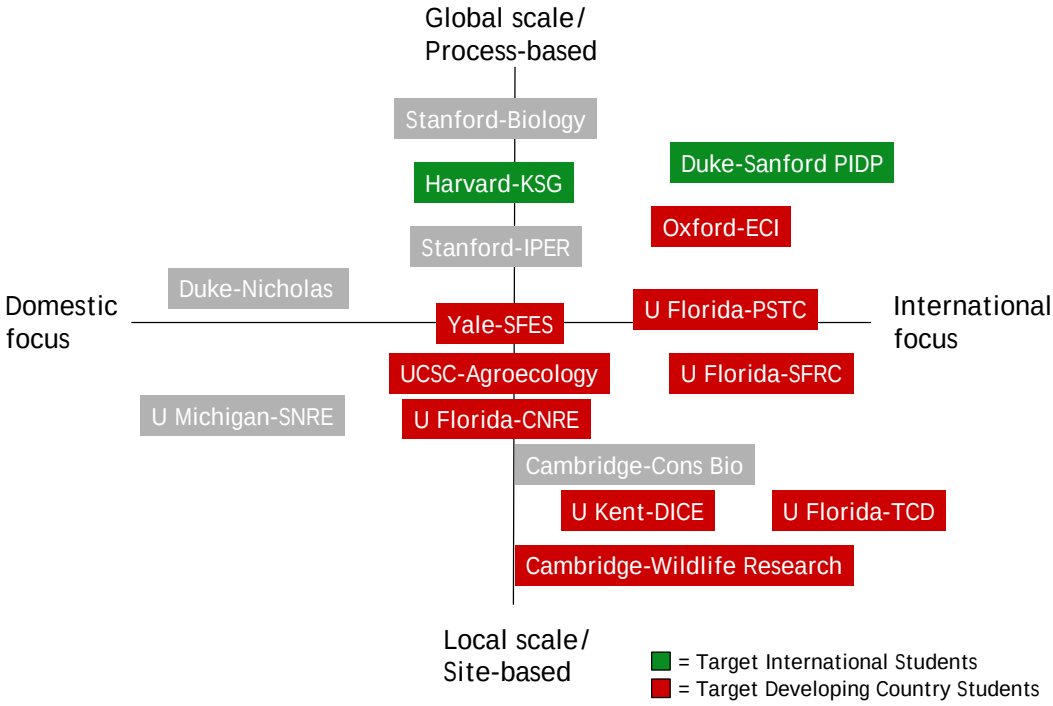


Figure 10. University programs by region and scale of focus



Service to Tropical Conservationists

University programs differ widely in their recruitment of students from developing countries. Reasons for this include:

- Some programs have a focus on domestic or developed-country laws and compliance issues.
- Most programs are prohibitively expensive for students from developed countries.
- Other programs, such as Harvard KSG, train a number of students from developing countries, but reach very few conservation professionals.

US universities are reaching more students from Latin America (Florida, UCSC, Yale) and Asia (Duke, Yale), while UK providers are reaching more Africans and people from Commonwealth countries (U of Kent, Cambridge). Geographic proximity and geopolitical history are strong determining factors, although there were students from a variety of countries in each program reviewed in this study. Many conservation practitioners from Southeast Asia, Micronesia and Melanesia are served by universities in Australia and the Pacific region (Australian National University, U of South Pacific).

Several university programs, such as Oxford's Environmental Change Institute (ECI) and the Sanford Program for International Development Policy (PIDP) at Duke

University, are moving towards creating more flexible opportunities for degree programs and professional development at a lower cost, such as one-year Master's programs (already offered by University of Kent) and distance learning.

An important factor for successful university programs seems to be the provision of strong advising and social networks. The University of Florida Tropical Conservation and Development program was not even a formalized program until very recently, yet by creating a forum for discussion, interaction and a supportive network for students from Latin America, it was able to create lasting collaborations and powerful learning experiences. Yale F&ES has been criticized for the opposite – providing a great deal of opportunity and choices but too little in the way of guidance and support to ease culture shock for students from developing countries.

Table 7. Students attending US/UK universities

University Program	From developing tropics	From Moore focus areas
Cambridge Zoology – CBG	0 out of 8 PhD students	0 out of 8 PhD students
Cambridge Wildlife Research Group (Dept. of Anatomy)	6 out of 12 (50%)	6 out of 12 (50%)
Duke Nicholas School	Unknown – 20% of 200 students international, mostly from Pacific Rim, some Latin America (LA)	Unknown – international students mostly from Pacific Rim, some from LA
Duke Sanford PIDP	10 out of 26 (38%)	4 out of 26 (15%)
Harvard KSG	160 out of 800 (20%)	30 out of 800 (4%)
Oxford ECI	6 out of 30 (20%)	0 out of 30
Stanford IPER	2 out of 7 (29%)	0 out of 7
UCSC CenTREAD	4 per year from LA	1 out of 4 (25%)*
U Florida TCD	8 out of 12 (67%)	8 out of 12 (67%)
U Florida CNRE	4 out of 25 (16%)	1 out of 25 (4%)
U Florida PSTC	29 out of 50 (67)**	7 out of 50 (14%)**
U Florida SFRC	14 out of 64 (22%)	2 out of 64 (3%)
U Kent	12 out of 25 (50%) of students are international, most from Eastern and Southern Africa and Southeast Asia	1 out of 25 (4%)
U Michigan	5 out of 204 (2%)	1 out of 204 (less than 1%)
Yale F&ES	12 out of 225 (6%)	3 out of 225 (1%)
Total:	**272 students (18%)**	**64 students (4%)**

* assuming that 25% of Latin American students are from Amazon/Andes countries
** assuming that two-thirds of the 43 international students are from Latin America and that 25% of them are from Amazon/Andes countries

Despite a large international student population at many of these programs, tropical conservationists from high-biodiversity wilderness areas are not accessing these programs in meaningful numbers. Based on fairly generous assumptions in the data in Table 7 above, less than 300 students from tropical developing countries are being trained per year at these programs, although they do comprise almost one-fifth of the

students in the programs. Further, only about 55 students from Moore focus regions are being trained per year in these programs, and they make up less than 5% of the students. The true number is probably smaller, since we counted anyone from a country partially in a Moore focus area (Indonesia, for instance), even though we had no way of confirming whether that person was a.) involved in biodiversity conservation and b.) working in an area of the country defined by the Foundation as a priority. Perhaps more importantly, many more students from tropical developing countries and Moore Focus regions apply to these programs without success due to lack of financial resources or academic qualifications.

Capacity-Building Efforts by Faculty

Despite the lack of formal collaboration between universities at the institutional level, many faculty work together conducting research and addressing conservation issues or as part of NGO initiatives. Faculty members at many Northern universities are also involved in conservation research and capacity-building efforts with developing country graduate students and research assistants, national and local academic institutions, national NGOs and local communities.

Two examples of faculty-driven efforts are the Center for Tropical Conservation (CTC) at Duke University and the Center for Conservation Biology (CCB) at Stanford University. John Terborgh founded the CTC over a decade ago and Paul Ehrlich created the CCB in 1984 to promote interest and scholarship in conservation issues. Neither Center receives extra financial support from their respective universities. The Centers provide Duke and Stanford graduate students and faculty members the opportunity to engage in conservation and research issues, but they also have a commitment to building the capacity of local students and organizations in tropical developing countries.

The CTC works primarily in the Manu Biosphere Reserve in Peru and fosters informal development of partner organizations and developing country students through scientific research activities. The CCB has worked with a number of Latin American universities including the Universidad Autonóma de México (UNAM). For a number of years the CCB also supported a successful integrated field course entitled "Design and Analysis of Projects to Manage Biological Diversity" for environmental professionals in Latin America needing research, project design and critical thinking skills. The course was given in partnership with NGOs, government ministries and universities in several Latin American countries. Although neither of these Centers has become a magnet for tropical students to Duke or Stanford, they represent important efforts by Northern university faculty and graduate students to share knowledge and experience with developing country students and institutions.

Non-Academic Programs

Conservation challenges themselves are varied and multi-faceted, and most institutions and organizations have chosen specific capacity-building niches within this complex terrain. Organizations can be broadly divided by whether they are service providers focusing primarily on training, or whether they support or provide training as a means to achieve a larger project or program goal.

Organization Focus:

Capacity-Building Programs

- AMNH
- IIE
- IUCN
- OTS
- CSF
- Smithsonian
- TBA
- UNEP-WCMC
- WBI/Environment Dept.
- WWF

Conservation Programs

- BirdLife
- CI
- FFI
- TNC
- WCS
- WWF
- WRI

Programs also vary by region and target audience. A number of the larger organizations are working at a global level, while others focus on one or two continents. A few organizations target one region specifically such as TBA in Africa and OTS in Latin America. Interestingly, we found no US or UK conservation organizations with a specific focus on Asia.

NGOs that focus on training their own staff and partners include BirdLife, CI, FFI, IUCN, TNC, WRI, WWF, CI and WCS. Training offered by AMNH, IIE, CSF, Smithsonian, TBA, UNEP-WCMC and USAID is accessible to conservationists from other organizations. Several organizations are training both staff/partners and conservationists from other organizations, including OTS, WWF and WBI/WB Environment Department.

Activities of organizations can be divided into broad categories based on the type of support they provide (a number of organizations fall into multiple categories):

- Specific skills

  Conservation biology training (OTS, CI), economics and policy training (CSF), GIS and information management (WCMC)

- Institution building

  Partner training and mentoring (TNC), organizational management (IUCN), and international business, human resources and financial planning (BirdLife)

- Awareness training for decision makers

  OTS decision-makers courses and IIE US-AEP program

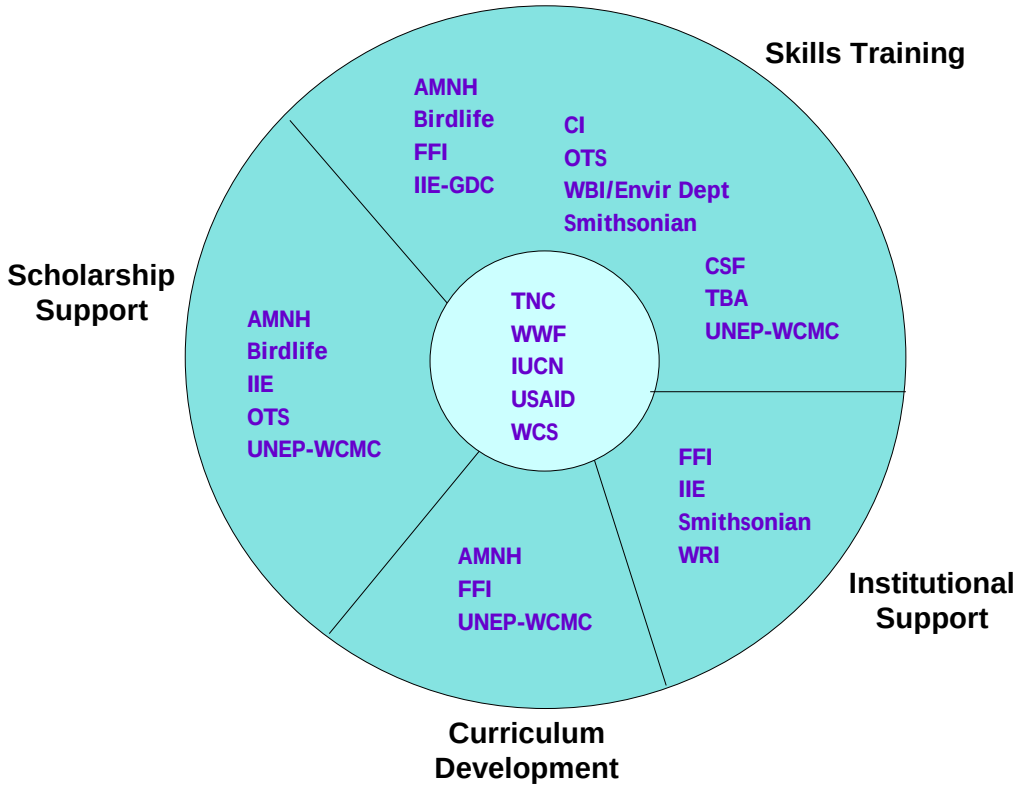
- Scholarship funding

  Russell Train Scholarship program (WWF), Fulbright, Humphrey and Ford Foundation Fellowship administration (IIE), and scholarship awards (WCS, TNC)

- Large and diffuse programs providing aspects of all of the above

  WWF, WCS, USAID, IUCN and TNC

Figure 11. Type of support provided by conservation organizations



These divisions can be further characterized by whether the training is targeted at individuals or institutions, and whether the training is given in formalized courses or on-the-job mentoring. The following diagrams help give a picture of this.

Figure 12. Type of training provided by conservation organizations

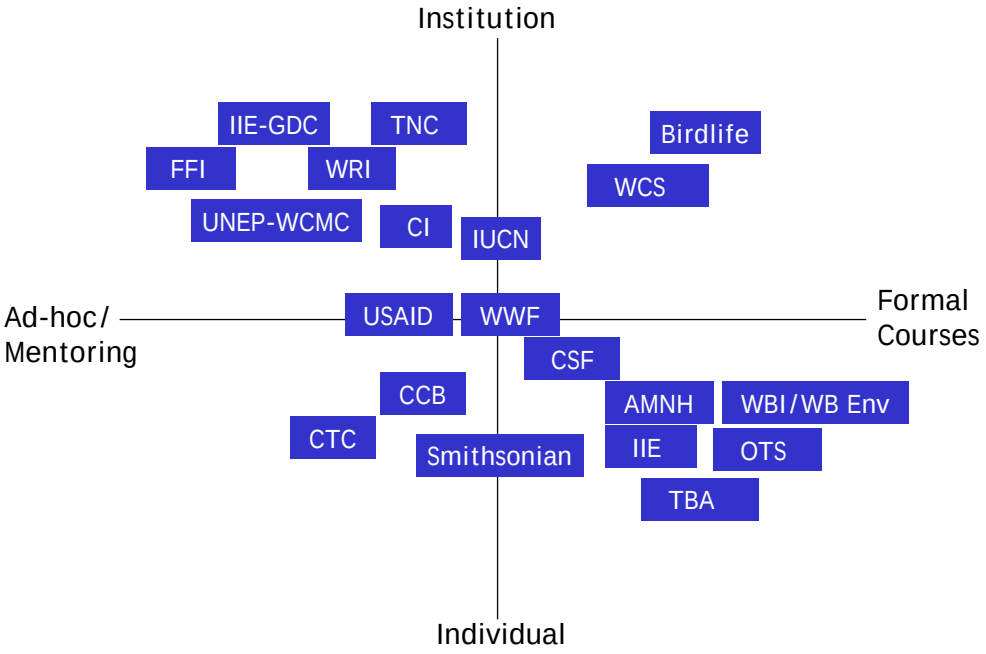
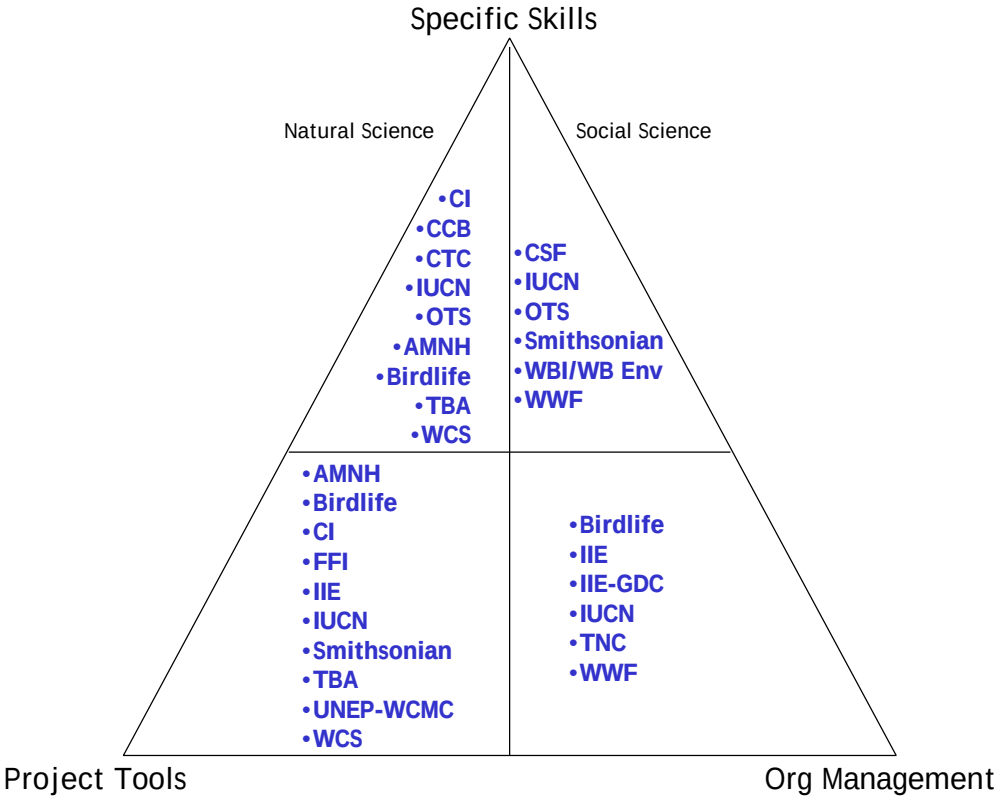


Figure 13. Categories of training topics offered by conservation organizations



Strengths of Existing Programs and Potential New Programs

OTS and Smithsonian are two organizations that provide rigorous training programs and are important capacity builders in the natural sciences. OTS has built a solid reputation over time and continues to look for ways to present new and innovative programs, and has built strong links with universities offering course accreditation for all courses. OTS is currently working to develop a Latin American based decision-makers course to train a large contingent of government leaders in Mesoamerica, the Tropical Andes, Brazil and Peru. Smithsonian is also interested in environmental leadership courses in Latin America, Africa and Asia/Pacific (working in partnership with TNC), as well as increasing course offerings in Africa and finding ways to link courses to degree programs.

There are a number of organizations reaching specific target audiences or providing specific skills training. TBA, for example, is targeting individuals across Africa with conservation biology training, while CSF is providing tropical conservationists with economics and policy analysis tools. UNEP-WCMC focuses on information management and GIS training and is currently working with WWF to provide training in GIS tools that will be used to identify priority ecoregions for conservation.

BirdLife International and IIE are two programs with strong organizational capacity, but lack the funding to expand their reach. BirdLife has an innovative program for institution building of partners located worldwide. Its four module course, "Building on Experience," lasts for one year and trains two leaders from each partner organization in financial, business and human resource management. Between modules, participants work together on assignments that are discussed in the following sessions. IIE provides a strong network across many countries and has a good reputation for a transparent and fair selection process in their grants administration. They have the institutional capacity to expand programs, as well as the desire to extend conservation training through a partnering program with an interested co-sponsor.

Large organizations such as WWF, TNC and IUCN are well established with a wide reach and potential for great impact, but their programs can be diffuse and uncoordinated. IUCN has its strongest presence in Africa and plays a significant role in institution building. TNC is emerging as a global institution focused on building capacity of partners, staff and local service providers in Asia/Pacific, where coordinated training and networking are lacking. WWF provides numerous training opportunities and scholarships for partners, staff and conservationists in general. WWF also trains faculty from universities in partner regions and is working on a university partnership program that would bring faculty members to the US for training.

There are clearly numerous organizations providing quality training to conservation professionals that varies from programmatic support to skills training to regional support. If the goal is to build specific skills, organizations focused on providing those skills will be more directly effective than supporting projects or programs of a larger organization working in that region. Likewise, if the goal is to build capacity in a specific region, it will be important to support organizations with the stated priority of capacity building.

Survey respondents identified WWF, CI, WCS, OTS and TNC (in that order) as the most important international institutions providing capacity building.

Links Between Universities, NGOs and Others

Over the past decade, collaboration has grown between universities and non-academic institutions. Examples include OTS and its university members, Cambridge University and the Tropical Biology Association, TNC and the distance-learning program at Tec De Monterrey, Beijer Institute and Goteborg University, Cornell and Winrock, University of Hawaii and the East-West Center, and University of Florida and a number of Latin American organizations. Large organizations like CI have a number of project-based collaborations with both in-country and northern universities. These arrangements represent one way to bridge the gap between formal and practical training and take advantage of faculty interests in conservation.

Most developing country students pursuing degrees at US and UK universities are dependent upon external support from NGOs, foundations and government programs. A number of NGOs provide scholarship support targeted at conservation professionals, including WWF, WCS, IIE, FFI and TNC. Foundations and government institutions, such as USAID, MacArthur, Ford, Pew, Compton, World Bank, Packard and Darwin Fund, also provide financial support for students, often targeting particular regions. The University of Florida has managed to secure a high level of funding to support tropical conservationists in Latin America through the Tropical Conservation and Development program. Similarly, the University of Kent has supported at least ten conservation practitioners per year from developing countries through scholarship support from NGOs, in-country government programs and UK government programs.

SUPPLY OF TRAINING IN FOUR DEVELOPING COUNTRIES

There were some interesting similarities between the supply of training in the four countries that were analyzed– Brazil, Indonesia, Peru and Madagascar. All four countries are offering both formal academic programs through local universities as well as non-academic professional development and on-the-job training programs.

While the four countries differ socially, politically and culturally, they shared certain limitations at the university level: 1) public universities are weak due to lack of public financial support; 2) field stations and field research opportunities are severely limited or non-existent ; 3) programs have difficulty updating information and staying on the cutting edge of conservation; 4) lack of interdisciplinary programs that incorporate socioeconomic disciplines, such as law, policy, economics, and negotiation and conflict resolution; and 5) poor job markets for graduates.

Field-based research and applying conservation learning to a local context are important long-term interventions in all four countries we studied. At the same time, a strong university program needs to be closely tied to resources, institutions and other academic departments in urban centers.

Most NGO training that is being offered in each of the focal countries is project driven. For the most part, trainings are sporadic and focus on subjects dictated by the needs of the project and/or external funders. Likewise, access to training is often limited to those directly involved in a given project. A strong demand exists for NGO training provided independent of projects and training institutions. Quality programs, both university and NGO, are currently driven by foreign funding. This is a major limitation to successful programs in Madagascar because the priorities of foreign donors change quickly and have prompted the formation of stable national conservation policies and priorities, leaving conservationists always one step behind. In Peru, the premier university for over a decade, La Molina, diminished in its effectiveness at training conservationists when funding dried up in the mid 90s. Likewise, funding is a major limitation to professionals who want to participate in formal training programs, especially staff of national and local NGOs.

Emerging from the authoritarian rule of Alberto Fujimori, Peru now has an increasingly strong civil society prepared to organize and receive training, whereas Indonesia is marked by a hierarchical structure rife with corruption and a lack of trust. In Madagascar, unlike Indonesia and Peru, there are a number of training providers outside of conservation NGOs but they are weak organizations with minimal funding.

BRAZIL REPORT

Summary

Training Needs:

- Monitoring and Evaluation
- Policy Analysis
- Protected Area Management
- Fundraising
- Conservation Biology
- Conservation Enterprise Development

Training Limitations and Gaps:

- Interdisciplinary training hasn't taken root at major universities, though several schools have established innovative programs and made advances.
- Short courses for professionals don't keep up with demand in many subjects.
- Very little applied conservation training is done outside life science departments.

Useful Interventions:

- Creation of one or two university hubs for conservation education, focusing on undergraduate and graduate students in conservation science/studies. Federal University of Minas Gerais has the best conservation biology program and could represent a good candidate for this conservation studies hub.
- Support for short course series run by the International Institute for Education in Brazil in subjects such as conservation economics, law, policy, business and communications.
- Help train protected area managers of new and old parks and reserves.

Conservation Challenges and Opportunities in Brazil

As the world's most biologically diverse country, Brazil has vast and varied conservation opportunities, but also the threats to match. Brazil's government burst on the world environment scene in the 1980s, portrayed as destroyer (in league with the World Bank) of the rain forest. Several events in the late 80s and early 90s shaped Brazil's environmental movement. The country's 1988 Constitution framed an important change in how nature is viewed, turning it from an open access resource to a resource belonging to society at large, while also partially devolving environmental authority from the federal government to states and municipalities. Also that year, the assassination of Chico Mendes, leader of Amazonian rubber tappers, forged a connection between social justice and environmental issues. Finally, the 1992 Earth Summit further popularized the environment and spurred the growth of Brazilian conservation organizations.

In the meantime, government subsidies for Amazon colonization have dried up. Tropical rain forests still dominate conservation agendas in Brazil, but the Cerrado woodlands, Pantanal's wetlands, offshore reefs and aquatic habitats are also high priorities, with NGOs and government agencies working to protect them. In this period, new NGOs have emerged and some grown to a substantial size. One of the biggest, the Socio-Environment Institute (*Instituto Sócio-Ambiental-ISA)*, grew up around indigenous and environmental issues in the Amazon, as well as conservation in São Paulo where the organization is based. Also in São Paulo, *SOS Mata Atlântica* emerged as the country's biggest membership organization, with an agenda of Atlantic Forest conservation. Several research-oriented organizations gained standing through their scientific and technical expertise, among them the Institute for Man and the Environment in the Amazon (IMAZON), the Amazon Institute for Environmental Research (IPAM), Biodiversitas Foundation, and the Institute for Ecological Studies (IPÊ). In addition to these regional and national groups, the operations of CI, WWF and TNC have all grown in Brazil over the last decade.

Brazil has tens of thousands of people working on environmental issues in one capacity or another. The Brazilian Institute for Renewable Natural Resources (IBAMA) boasts a staff of 9,000, certainly one of the largest environmental agencies in the developing world. Further, a number of state governments have capable environmental agencies. There is even conservation talent to be found at the municipal level. The general public is broadly sympathetic to conservation, thanks in part to a constant stream of television programs on the theme, but is not politically active on specific issues.

Conservation Education in Brazil

The best universities in Brazil are the elite Federal universities, as well as the state universities in São Paulo. Conservationists are still issuing mostly from biology and ecology departments, notably the Federal University of Minas Gerais, the University of Brasília, state universities in the south and also from forestry and agronomy schools such as the state agronomy university in Piracicaba, São Paulo and the Federal Rural University of Rio de Janeiro.

A common drawback in Brazilian education generally is an overemphasis on description to the detriment of analysis. There is still a vast challenge to be met in describing and classifying Brazil's biodiversity, but also a need for complementary training in conservation biology to ensure that taxonomists focus on pressing biodiversity issues. There is a solid group of undergraduate and graduate programs in Ecology in the country, and an organization that represents the interests of 14 of the best graduate programs. Few conservation professionals are trained in anthropology, economics, business and other relevant disciplines, though this imbalance is changing. With few exceptions, we found that interdisciplinary approaches to the environment are still uncommon. We also observed that universities have tremendous prestige in Brazilian society and influence in the national conservation community.

Undergraduate education is free at public universities. Some graduate programs are free, but students may secure scholarships to pay living expenses during graduate school. Having a scholarship is not a prerequisite for being accepted at a graduate program, and the number of fellowships available is always less than the number of qualified candidates. Two Federal agencies, the National Council for Scientific and Technological Development (CNPq) and the

Coordination for the Training of Higher Level Personnel (CAPES) are the leading providers of scholarships for graduate students.

It is common for students to work for several years before pursuing a graduate degree and also for them to continue working while doing their graduate research. Advanced degrees at some schools can take years, and many students— often as much as 50 percent— end up dropping out (e.g. University of São Paulo's Environmental Sciences program and the University of Brasília's Economics for Environmental Management program). On the other hand, at the Federal University of Minas Gerais graduate program (see below), the drop-out rate among more than 120 students has been less than five percent. Further, CAPES and CNPq, as well as the graduate committees of different programs are now strictly enforcing an upper time limit for completion of master's and doctoral degrees, two years for the former and four years for the latter. Students that go over the period lose their scholarships and are likely to be expelled from programs.

Capacity-Building Needs

Brazil was the only country for which we had a sample of more than 100 observations (n=105) from our training survey. While it still is not large enough for the absolute ranking to be statistically significant, it does suggest which topics are more and less important. The first table shows the perceived needs for the conservation movement in general, followed by tables showing conservationists 'views on their own short- and long-term needs.

Table 8. Priority subject areas for conservationists in general – Brazil

Subject	% who rated subject as a priority
Monitoring and Evaluation	39
Policy Analysis	39
Protected Area Management	39
Conservation Enterprise Development	37
Fundraising	37
Conservation Biology	36

Table 9. Priority subject areas for respondents, short-term – Brazil

Subject	% who rated subject as a priority
Fundraising	37
Monitoring and Evaluation	25
Policy Analysis	23
Negotiation	22
Protected Area Management	21

Table 10: Priority subject areas for respondents, long-term – Brazil

Subject	% who rated subject as a priority
Policy Analysis	28
Conservation Enterprise Development	23
Monitoring and evaluation	21
Conservation Biology	19
Economics	18

The same topics top the list, no matter how the question is asked. Differences in the percentages– and therefore the exact order of priorities– are not significant with a sample this size, with the possible exceptions of the short-term personal priority of Fundraising and long-term priority of Policy Analysis.

Providers of Conservation Training

Survey respondents were asked to identify the most important providers of conservation training in their country. In Brazil, respondents identified only two universities outside the country as important providers– Cambridge University and Yale University. Half of the Brazil respondents identified international institutions as important providers, including Conservation International, Conservation Strategy Fund, Ford Foundation, OTS, Smithsonian Institution, USAID and WWF. The top five providers within Brazil were identified as the International Institute for Education in Brazil (IIEB), Institute for Ecological Research (IPÊ), Boticário Foundation for Biodiversity Conservation (FBPN), University of São Paulo (USP) and University of Brasília (UnB)– listed in order of importance. IIEB is a significant service provider in Brazil and was identified by 40 percent of respondents as the most important provider.

University Level Training Programs

Brazil has a handful of top universities turning out conservation scientists and professionals. We look at the most significant contributors here.

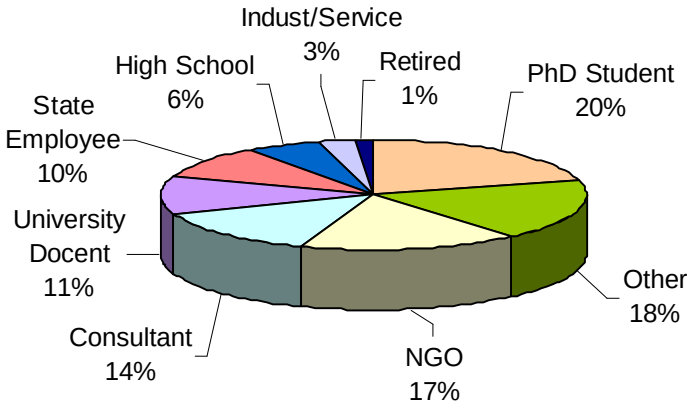
Federal University of Minas Gerais, Wildlife Conservation & Management Program

Among universities, the Federal University of Minas Gerais (UFMG) was the first to offer interdisciplinary training in the spirit of the environmental science programs that have proliferated in North America and Europe in recent decades. The UFMG graduate program in Ecology, Conservation and Wildlife Management (ECMVS) started in 1989 and is jointly managed by the Departments of Zoology and Ecology of the Biological Sciences Institute. The program has 33 faculty members and around 50 master's students and 50 doctoral candidates at any given time who are supported by the university and by scholarships from CNPq and CAPES. In its thirteen years of existence, UFMG has fed professionals into IBAMA, major national and international NGOs, the private sector, and university positions (see 14 below). The university also maintains strong ties to NGOs and government around applied conservation research.

The ECMVS Program is a pioneer in multidisciplinary training thanks to its collaboration with UFMG's Economics and Human Demography programs, which enables graduate students in

both fields to acquire skills in a number of disciplines. This partnership was made possible through major Brazilian government grants (CNPq and CAPES) as well as international programs. Among these is the United States Information Service's (USIA) Universities Affiliation Program, which has been used by UFMG and the University of Florida to conduct joint research and graduate training over a number of years.

Figure 14. Alumni placements from ECMVS Program, Federal University of Minas Gerais, Brazil



ECMVS also offers short-term courses to park managers on a periodic basis, as well as month-long field courses that serve UFMG students and those of many other universities in Brazil.

University of Brasília

University of Brasília is another leader in conservation-related higher education, mostly through its Ecology Department. It has offered Master's degrees since 1976 and PhD's since 1992, and has around 40 graduate students at a time. Among its 32 professors and researchers are academics with strong NGO ties and experience in applied conservation work. The University has a number of courses specifically focused on the Cerrado, the biome in which it is situated; it also has a unique program called Economics for Environmental Management within the policy unit of the Economics Department. This program is one of the few we found that combines economics with conservation research. The 15-20 students who finish the Master's degree each year are encouraged to pursue thesis research on current environmental issues, spanning a range of natural resource and pollution matters. The program has a formal arrangement for training students in Mato Grosso.

University of Brasília also runs the Center for Sustainable Development (*Centro para o Desenvolvimento Sustentável* – CDS), an interdisciplinary environmental studies program affiliated with the Federal environmental agency. The program does not focus exclusively on biodiversity conservation. The center grants around 30 graduate degrees every year, and produces numerous publications, some of which focus on biodiversity and natural resources.

National Institute for Amazon Research – INPA

Manaus-based INPA is not a university in the traditional sense, but we include it here because it does grant graduate degrees and has been one of the most important training grounds for conservation biologists. INPA is a federal government agency charged with conducting research for the conservation and development of the Amazon. The institute usually has around 15 graduate students. It is unique as an academic center focused specifically on the Amazon, with applied field research in both natural and social sciences, though emphasis is clearly on the former. INPA researchers have been world leaders on the subject of forest fragmentation thanks to the Biological Dynamics of Forest Fragments Project. This joint undertaking with the Smithsonian Institution involves research in a series of artificial forest patches created by deforesting surrounding land. In addition to degree programs, INPA runs a four-day course for Amazon "decision-makers," representatives from various sectors of society in the region. Participants tour a variety of environments near Manaus and gain insights into the ecological and social complexity of forests. A four-week course on the ecology of Amazon forests provides training in field research methods, using the forest fragments and nearby continuous forests.

University of São Paulo

Like most of the leading federal universities, USP delivers conservation education through its Ecology Department (Biosciences Institute), which has offered Master's degrees since 1987 and doctorates since 1993. It also has a unique interdisciplinary program, called the Program in Environmental Sciences (PROCAM). PROCAM admitted its first class of Master's students in 1990, with the first cohort of five PhD candidates following in 2000. Originally, a Master's class of 25 students entered every two years, but the program is now expanding. Its original orientation was toward the natural sciences, but a change in leadership in the mid-90s tilted the program toward social sciences, economics, environmental education, conflict resolution and agriculture. While PROCAM is an interesting initiative, it illustrates some of the pitfalls of interdisciplinary programs in an educational tradition marked by strict disciplinary boundaries. PROCAM was created outside the institutes and departments that make up the university, so it is independent, but also something of an orphan. The program has very little infrastructure and instructors are drawn from the various departments, but given no additional remuneration for what amounts to extra work.

Universidade de Campinas - UNICAMP

Unicamp, as it is universally called, has turned out conservation talent from its Agronomy school, the Biology Institute, and the environmental economics program within the Agricultural Economics Center (*Núcleo de Economia Agrícola).* There is some crossover between these programs, with biologists taking courses for credit in economics, but no formal coordination between the different disciplines. While this model may not offer the same mixing of disciplines as USP's PROCAM, it compensates with the stability of housing degree programs within existing departments, which are the fundamental political units of the university.

Other University Programs

- Federal University of Mato Grosso do Sul

  Runs an exemplary field course for masters students in the Pantanal in partnership with CI and EMBRAPA.

- University of São Paulo, São Carlos campus

  The Center for Environmental Studies has a strong biology graduate program and has fed many people into EMBRAPA's (Brazilian Agricultural Research Corporation) Pantanal research center, which is a major research agency for decision makers in the region.

- Universidade Federal de Pernambuco, Programa de Educação do Meio Ambiente

  Base for interdisciplinary program run by a coalition of universities in the Brazilian Northeast.

Non-University Providers of Training

International Institute for Education in Brazil – IIEB

Brasília-based IIEB is the leader in non-university conservation training in Brazil. Though the name doesn't give it away, all of IIEB's work is related to conservation and sustainable development. It was incorporated as a Brazilian NGO in 1998 after eight years as a project of the State University of New York and World Wildlife Fund. It is well organized and respected and has worked with all the major environmental agencies and organizations in the country. Virtually all of IIEB's $1.2 million budget comes from two bilateral donors: USAID and the Dutch government. All of its programs combined have served around 4,500 people, with a nearly even split between NGOs, government and academics. IIEB is unique among organizations we reviewed in its dedication to training people from other institutions. As an outward-looking service provider it is widely appreciated and in constant demand.

IIEB has three main approaches. First, it provides short courses in a variety of subjects including conservation economics (in partnership with Conservation Strategy Fund), environmental law, environmental policy, communications, and green business development. Most of these courses are around two weeks in length and offered every year. Each has around 20 participants, selected through a competitive process by an inter-institutional committee in Brasília. The economics course and business course both have follow-up components, which help participants apply tools learned in the trainings. IIEB implements the business course follow-up itself, while Conservation Strategy Fund handles follow up for the economics sessions.

The second area of work is institutional development for environmental organizations. IIEB offers customized packages, matched to each group's institutional weaknesses and usually implemented by consultants. IIEB has assisted around 80 organizations with this program.

IIEB also provides a small number of scholarships for individuals to pursue graduate studies, both abroad and within Brazil, at schools such as Yale SF&ES and University of Brasília.

Boticário Foundation for Biodiversity Conservation - FBPN

The Boticário Foundation runs the Center for Training in Biodiversity Conservation at the *Salto do Morato Natural Reserve* in Paraná. With partners, the FBPN training center offers a wide variety of courses:

- Environmental education in protected areas

- Park guard training
- Biodiversity assessment
- Protected area management
- Ecotourism
- Trail planning, construction and maintenance
- Nature education and interpretation
- Conservation biology

FBPN has trained around 750 people in 31 different courses and has worked with partners such as the *Universidade Livre do Meio Ambiente* (Unilivre) and *Fundo Brasileiro para a Biodiversidade* (FUNBIO). For every opening in its courses, the center receives 2.5-3 applications. Operating costs for the center are covered by donations from the *O Boticário* company and other corporate donors in Brazil.

Institute for Ecological Research – IPÊ

Based in Nazaré Paulista, São Paulo state, IPÊ is one of the leading regional NGOs. It has sustainable development projects and research in the Pontal de Paranapanema region in western São Paulo, and also around the Ilha de Superagui where São Paulo and Paraná meet. IPÊ's facilities in Nazaré include a classroom and lodging set up for short courses. IPÊ's center focuses on conservation biology, wildlife management, sustainable development and environmental education.

IPÊ is offering nine courses in 2002:

- Conservation Biology and Wildlife Management
- Conservation Medicine
- Statistics for Conservation Biology
- Remote Sensing for Conservation Biology
- Global Ecological History
- Environmental Economics and Carbon Markets
- Permaculture, Agroforestry and Organic Agriculture
- Media and Environment
- Environmental Education

Five of the courses last three days, two last 10 days, one six days and one runs for 33 days.

IPÊ is a solid organization with good infrastructure, stable professional staff, years of experience and good relationships with international donors. Fixed costs of the training center are covered, so tuition fees are relatively low and accessible to the target public. On the other hand, the offerings are somewhat eclectic and a couple may be of questionable conservation value. Also, in contrast to IIEB, most of IPÊ's courses are only a few days, enough to give people very general notions of a new subject, but not to gain hands-on proficiency.

Other Non-University Providers:

- Unilivre
- CI-Brazil

Capacity-Building Recommendations

Brazil has the advantage that conservation education need not be built from the ground up, and incremental investments there can have a significant return because basic structures are in place and the intellectual "raw material" is there. The federal university system is strong, but structurally hampered in integrating disciplines. Brazil also has the benefit of being culturally an adaptable country, where new ideas are readily assimilated.

While environmental professionals are emerging from a number of different disciplines, dedicated focus on biodiversity conservation is confined to ecology and biology departments. With few exceptions, these departments are resistant to interdisciplinary approaches that reach outside the natural sciences. One exception is the UFMG program described above.

In our judgment, it makes sense to invest in a program within a university department (unlike USP's PROCAM) so that it is robust in resources and political support and can outlive external financing. Further, it makes more sense to teach natural scientists skills outside their discipline than it does to try to teach others dedication to the conservation cause. It is undoubtedly useful to teach some non-biologist decision-makers about biodiversity, but not necessarily at the university level, where one doesn't know who the future leaders will be. Further, of the subjects that registered as top Brazilian priorities in our survey, conservation biology is perhaps the most difficult to teach outside a degree program, notwithstanding the efforts of IPÊ and Fundação Boticário. But a successful program will have to have a commitment on the part of economics, geography, and social science centers within the university and financial arrangements that allow sharing of faculty and joint course offerings. Another strategy for working around disciplinary barriers is to use visiting faculty from abroad or from other universities to bring non-traditional curriculum into the host center. In our view the leading candidate for such a center is the Federal University of Minas Gerais.

The function of this conservation education hub would be to prepare professionals with a set of skills matched to the multi-faceted conservation challenges they face. But just as important, it would draw more young talent into undergraduate programs with funding for field research, internships, strong orientation from faculty and graduate students, and even opportunities for study abroad. Giving young people excellent academic opportunities, links with professional organizations and contact with nature are three key elements in building the movement from below.

The best model for professional training is the one currently implemented by the International Institute for Education in Brazil. IIEB focuses on skills most lacking in the education of conservationists, with solid, consistent courses and a minimum of latching onto fashionable, but ultimately short-lived subjects. The organization has good counterpart funding from bilateral donors, but is institutionally vulnerable to shifting political winds in just two countries. It needs

to diversify funding, and has room for expansion, particularly in the array of skills that contribute to policy success. There is strong demand, for example, for regional versions of its courses, adapted to Brazil's very different biomes. IIEB could also do more in the way of follow-up technical support to its trainees, an area for which funding is generally scarce. Its partnership with CSF is an example in which follow-up work has had clear policy and conservation impact.

INDONESIA REPORT

Summary

Training Needs:

- Conservation biology training and increased opportunities for interdisciplinary training
- Resource and policy-oriented economics training for conservationists, along with "awareness" training for policy makers

Training Limitations and Gaps:

- Conservation has not been established as a major priority
- Conservation must compete against other university programs
- Financial resources for university programs and NGOs are limited
- Tuition rates are high at public universities
- There are limited prospects for stable and well-paid employment in conservation

Useful Interventions:

- Strengthen and expand conservation programs at academic institutions
- Provide skills training for further development and overall effectiveness of conservationists (i.e. economics, policy, conservation biology)
- Incorporate conservation training into curriculum at a young age to raise awareness of issues and show that it is a viable profession
- Provide networking and apprenticeship opportunities

Conservation Challenges and Opportunities in Indonesia

Indonesia comprises 75% of the Sundaland Hotspot, one of the world's top five biodiversity hotspots covering 1.6 million square kilometers with 25,000 plant species, 60% of which are endemic. The area runs a high risk of losing its diversity unless immediate conservation action is taken. Years of political instability, deforestation and development planning have thwarted the protection of Indonesia's diverse ecosystems. The country is experiencing an exceptionally rapid rate of deforestation (especially in Sumatra and Kalimantan) and destruction of the world's most biologically diverse coral assemblages.

Environmental and Socioeconomic Threats

The greatest environmental threat in the region is forest depletion, which has been exacerbated by increasing population pressure, spreading agricultural projects, and decades of problematic forest policies. Some of the Indonesian islands have population densities that are the highest in the world. The Indonesian Transmigration program, in an effort to decrease population pressures, moved people from the more crowded islands to those less populated, which has

negatively impacted forests. But the leading cause of deforestation has been logging, as well as the growth of the tree-crop sector, especially oil palm and rubber. A stated government objective is to overtake Malaysia as the world's largest producer of oil palm products.

Indonesia's forest policies of the last 30 years have created myriad challenges for political reformers and conservationists. After independence, the central authority in Jakarta placed major forests under state control and ownership, overriding almost all traditional land tenure systems. Logging concessions were granted covering more than half the country's total forest area. The Government of Indonesia continues to look to forested areas to provide foreign exchange, a policy that has contributed to the conversion of more than 17 million hectares of natural forest in the last 12 years.

Poor socioeconomic conditions also pose a threat to conservation work. There are many impoverished communities living adjacent to or even inside of protected areas. Almost all of these communities depend on local resources for their livelihoods. They have few income-earning options, little participation in major land-use decisions, and little awareness of conservation or resource management issues. There is also an acute need for cultural awareness and sensitivity given the large variety of different ethnic groups that inhabit the country's remote and biologically diverse areas.

Political and Institutional Impacts

After 35 years of authoritarian rule that began at independence, Indonesia is at a historical juncture that began following the fall of former president Suharto's regime. The closed and repressive political regime left in its wake a critical need to develop a functioning civil society, governance and institutional structures. It left a legacy of hierarchical decision-making processes that discouraged public discourse or participation, and gross inequities in relation to land tenure and political power.

Political and institutional reform relevant to conservation efforts has begun with moves to decentralize institutions that influence resource allocation and nature conservation. Politicians at district and provincial levels now wield great potential power with almost complete authority over the use of forests and reefs. Nevertheless, in some cases this new legal power is trumped by previously established power structures founded on corrupt and covert political moves. An ability to discern local politics and successfully design conservation interventions accordingly is in great need.

There is a critical need for greater human, financial and technical resources in government to carefully plan resource allocation and conserve areas with high biodiversity. Inadequate governmental capacity is greatest in the provinces where levels of authority and need have increased dramatically following decentralization. Corruption and nepotism remain key forces in shaping governance, political decisions, and allocation of natural forests, minerals, fish stocks and other natural resources.

Conservation Opportunities

Despite these challenges, some positive things are happening. First, there is a growing awareness of environmental issues, especially as they relate to socioeconomic welfare, wealth distribution, and emerging opportunities for enhanced self-determination at the provincial, community and

individual levels. Second, resource users in the remotest parts of the country are beginning to organize themselves and successfully counterbalance large-scale developments that are poorly planned, facilitated by corruption and environmentally disastrous. Third, prospects for a growing and informed environmental constituency are good, and local leaders are struggling to inform and reform district-level politics and procedures. Several district heads in Kalimantan, Sumatra and Papua are engaging with the conservation community and making public commitments to environmental reforms. Individuals and groups are also seeking more information about political decisions, which may lead to greater transparency, especially at the local level.

Recent reforms have created improved opportunities for conservationists to work with communities that may have an interest in conservation. Decentralization requires local governments to consult with communities prior to major land-use decisions and tenure issues. In an effort to take advantage of these reforms, conservation professionals are working to develop their own capacity. This entails working to understand complex local politics and cultural norms, collect and utilize baseline socioeconomic and biophysical information, interact and build trust with local government and communities, and design long-term conservation interventions.

Capacity-Building Needs in the Short- and Long-Term

The conservation challenges outlined above directly shape human capacity-building needs in Indonesia. Some of the bottlenecks in overcoming these challenges include a lack of political support for ecosystem conservation, limited economic understanding among conservationists, weak development and conservation policies, scarce technical and financial resources and insecure local job markets.

In order to increase political support for ecosystem conservation, it is first necessary to increase the ranks of conservationists. Often there are simply too few environmental professionals to allow for the type of participation in making development policy that is needed. These professionals must understand complex political conditions at the district level to make resource allocation decisions. This includes understanding and enactment of environmental and development policy and law. However, there appear to be no law programs that cater specifically to environmental concerns. Integrating quality economic analysis into conservation efforts is greatly needed, as are basic skills in management and administration.

Capacity-building needs in Indonesia include the following:

- Interdisciplinary education at the university level
- Expanded training in conservation biology
- Resource economics training for students of economics
- Expanded environmental law programs at in-country law schools
- Basic training in policy-oriented economics for biologists and resource managers
- Internships and expanded employment opportunities in the conservation field that offer on-the-job training
- Consolidation of lessons learned in the management of protected areas

- "Awareness" training for non-environmental policy makers with important portfolios but little knowledge of biodiversity
- Media training to increase general support for conservation and to mobilize public sentiment on specific issues
- Training for judges where lack of knowledge is the true obstacle to implementation of environmental laws
- Training in mechanisms for international investment in direct protection of ecosystems

Active Conservation Organizations, Agencies and Professionals

Seventy NGOs (local, national and international) involved in conservation were identified in Indonesia. While it is difficult to estimate the number of conservation professionals in Indonesia, it is clear that this number is extremely small relative to the size of the population and the quantity of areas deemed critical to biodiversity conservation.

Conservation efforts in Indonesia are focused on eliminating illegal logging, reducing excess capacity in wood processing industries and curtailing encroachment, poaching, and other degrading activities that affect existing protected areas. Efforts to manage fisheries, stop destructive fishing practices, and protect coral reefs are growing rapidly. Non-governmental organizations are faced with the challenging task of not only working toward conservation, but also attempting to fill at least some of the critical institutional and governance gaps.

Providers of University Level Training

The poor system of education at all levels in Indonesia is a result of post-independence politics, governance, and socioeconomic factors discussed above. The top-down structure that has been employed for over 30 years has discouraged honest and open discourse and hampered the development of critical thinking skills. Relative to the population size, there are very few opportunities inside Indonesia for the type of university-level training and education necessary to the conservation field. Opportunities that do exist are primarily in the area of life sciences.

Four universities were interviewed that provide education focused on conservation (see Annex 5B for more information on each university):

- Bogor Agricultural Institute (IPB), Department of Forest Conservation
- University of Indonesia (UI), Department of Biology
- Papua State University (UNIPA), Biodiversity Study Center
- Gadjah Mada University (Yogyakarta), Department of Forest Conservation

In general, all these programs are small components of larger programs and attract small groups of dedicated individuals. While these programs are beginning to impact the growing conservation field, most of the prominent Indonesian conservationists received their academic training elsewhere. Most received formal training in a more conventional discipline such as law or economics and decided to pursue a career in conservation years after completing university degrees.

No degree programs were identified that focus on the economic, social, legal or cultural dimensions of biodiversity conservation, although some degree programs offer coursework in these areas. There is an undersupply of conservation education tailored specifically to Indonesian contexts and needs, and little conservation awareness is cultivated at the primary education level. Consequently, there are relatively few conservation practitioners (especially over the age of about 40) and a small, nascent, and fragmented environmental constituency acting for change.

Bogor Agricultural Institute (IPB), Department of Forest Conservation

Bogor Agricultural Institute is a distinguished university for Agricultural and Forestry studies. The department of forest conservation appears to be the most successful in Indonesia at producing a substantial quantity of conservation professionals. Students acquire a broad base of knowledge and skills and can specialize in one of three different tracks: 1.) wildlife management; 2.) flora and fauna management; and 3.) recreation and ecotourism.

University of Indonesia (UI), Department of Biology

UI is one of the most distinguished Indonesian public universities. Coursework and research requirements are generally more theoretical compared to IPB. Students draw from other relevant coursework at the university, including environmental law, economics and ecology. Most graduates go on to work as professionals in the conservation field.

Papua State University (UNIPA), Biodiversity Study Center

Papua State University is located in remote Manokwari with faculties of economics, linguistics, agriculture, fisheries, forestry and natural sciences. Several determined individuals have developed "Study Centers" in biodiversity, environment and fiscal decentralization. Yet these are nascent and completely project-based with uncertain prospects for becoming longstanding programs. The biodiversity conservation center focuses on applied approaches and is primarily known for providing on-the-job training for students who have nearly completed their regular studies at the university. Focus areas of applied work include conservation science, dendrology, botany (including medicinal plants), general biology and forestry.

Gadjah Mada University (Yogyakarta), Department of Forest Conservation

In 1978 the university established a small conservation program, the Department of Forest Conservation, within the forestry faculty. The interest in this department is small relative to other departments under the forestry faculty due to a small lecture capacity. The department's curriculum is focused on study of forest ecosystems, watershed management, biodiversity, natural resources management, and wildlife and conservation areas management.

There are numerous bottlenecks that keep these institutions from having a greater impact on capacity building of conservationists. First, conservation has not been established as a major priority, so there are only a few small programs focused on conservation. As a result, few Indonesians learn about conservation as a professional pursuit through the course of their university experience. Second, conservation must compete against other university requirements, such as language and military training. Third, there are limited financial resources for existing programs, to the degree that lecturers must secure another source of income in order to survive.

Fourth, tuition rates are high at public universities– annual costs range from US$500-1000, a figure that is very large compared to average national per capita income. And finally, there are limited prospects for stable and well-paid employment without a graduate degree from a foreign institution.

Non-University Capacity-Building Organizations

The role of NGOs in Indonesia is changing as their funding increases and greater expectations are placed on them. The international donor community has greatly increased the share of available technical assistance and funding that is allocated to NGOs in the last five to ten years. The breadth and depth of conservation efforts is expanding and a greater capacity to participate in reform is being created, but with it are expectations that the conservation NGO community will move forward where government has failed. These expectations can be overwhelming and result in unrealistic plans. NGOs currently have neither the financial nor human resources required to realize the type of dramatic reforms necessary to curtail deforestation, eliminate destruction of coral reefs and facilitate sustainable economic growth.

Indonesian conservation NGOs require greater resources in order to address primary tasks directly related to conservation, not to mention efforts related to conflict resolution, local politics and governance reform. To take greatest advantage of all the new money and attention, NGOs will need a new strategy, one that is strongly predicated on building and broadening the human resources at their disposal.

Formal professional development and on-the-job training opportunities for conservationists are virtually nonexistent outside the university setting, though virtually all conservation NGOs are working to build human conservation capacity on an informal basis. The largest organizations send members from their national offices to workshops, training courses and a variety of meetings with capacity-building components. For example, economists from several national offices of Conservation International may meet in a central location to learn the use of analytical tools. Smaller and locally-based NGOs have fewer options; they attend workshops of larger International NGOs when possible, and are often expected to develop their own capacity by working with larger organizations or applying for small grants.

NGOs focus on work at the local and national level. At the local level, they are helping communities, often without assistance from government. This includes helping communities better understand laws and regulations, organize themselves to map their areas, devise environmental management plans, and lobby local government. NGOs are also involved with finding ways to increase the inadequate budgets of local government agencies tasked with local-level law enforcement, land-use zoning and resource management. At the national level, NGOs often work with the Ministry of Forests, as well as agencies responsible for spatial planning, environmental quality and nature conservation.

The strengths of NGOs are outlined as follows:

- Disseminate information on the most pressing issues related to biodiversity conservation
- Engage central government and some local entities on conservation issues.
- Learn and apply new skills under challenging circumstances

- Persist in an opaque political environment that may be punctuated by moments of intense civil strife and conflict

Weaknesses of NGOs include the following:

- Poor strategic planning and operational management
- Reluctance to propose the type of large-scale programs needed to reach a critical mass
- Unproductive competition and reluctance to share information; there is a paucity of long-term partnerships and the type of collaboration that facilitates sharing of skills and information necessary for human capacity building.
- Weak presence at target conservation sites and insufficient knowledge of complex local political, economic and social conditions
- Poor networking and fundraising capabilities; funding is often not performance based and activities often driven by donors without adequate in-country input

Important Providers of Conservation Training Outside Indonesia

The proportion of university-educated Indonesians that also have degrees from foreign institutions is small. Our best guess is that a small minority of individuals (less than 10 percent of the population) hold a college undergraduate or graduate degree, and about 5 percent of university degree holders have at least one degree from a foreign institution. This means that the number of degree holders would equal 20 million or fewer, and about 1 million Indonesians would hold foreign degrees. Indonesians involved in conservation work that studied abroad appear to have acquired degrees that are clustered around forestry, natural resource management, agricultural economics and environmental studies.

Training opportunities (not necessarily formal degree programs) for Indonesians outside the country include: Johns Hopkins; RARE Center for Tropical Conservation in collaboration with University of Kent; Conservation Strategy Fund for training in economics for conservation; Ford Foundation funding for training related to conservation; MacArthur Foundation grants for in-country training on conservation; Packard Foundation grants for conservation related activities; and University of Wisconsin School of Forestry.

Capacity-Building Interventions

Short-Term Interventions

Strengthen and expand conservation and related programs at academic institutions:

1. Facilitate curriculum reform and expansion
   - Leaders need to be convinced to give conservation and related efforts better representation and higher priority when modifying required national curricula and allocating funds and effort.
   - Central authorities that influence national academic policies need more information on the importance to Indonesia of more and better-trained conservation professionals.

- Curriculum design should take into account the role of these professionals and the conservation challenges they will face

2. Invest in the capacity and increase the size of lecture staff
   - Conservation leaders at universities need access to better funding and technical assistance in order to build their existing programs to increase student awareness of conservation as a growing profession, accommodate a larger proportion of interested students, and develop programs that are more comprehensive, well recognized, and linked to actual conservation activities in Indonesia.
3. Invest in physical infrastructure and learning materials (books, field equipment)
4. Enhance access by students to strengthened programs (address bottlenecks described above)
5. Facilitate better links with the conservation NGO community and relevant government agencies to promote collaborative field activities, complementary training and workshops, and a system for exchanging and sharing information
6. Design a network of strengthened academic institutions to be a key component in an overall strategy for developing the conservation profession in Indonesia

Consolidate and enhance existing resources:

1. Support and formalize existing training venues, which are currently a variety of ad hoc opportunities
2. Augment general skills of existing conservation professionals with skills that are essential to further development and overall effectiveness.
   - Most conservation professionals in Indonesia entered the field after completing all university training and did not receive any formal education and training in conservation. They are usually forced to try and acquire necessary skills and information later in life while performing the tasks of a demanding job.
   - Needed skills include strategic planning, self-governance, environmental governance, environmental justice, conservation interventions, management and administration, and communicating ideas, concepts and information.
3. Address the most pressing topical issues
   - A top priority is understanding and participating in politics at the provincial and district levels.

Long Term Interventions

Develop a comprehensive long-term strategy for developing conservation professionals, which includes the following:

1. Status of conservation needs to be elevated to compete against other professions that draw the brightest and most committed university students. This would include improved university programs, more and better paying jobs, and improved/more frequent coverage in the press.
2. Indonesians are struggling with reform issues that have huge conservation dimensions. These dimensions need to be articulated and communicated in a way that will: 1.) Show local people that their action will make a difference; 2.) Provide support to the local conservation leaders that are struggling to reform district-level political decision-making; and 3.) Define the leadership role of conservation professionals in this process.
3. High-ranking officials, judges, and leaders in general need easy, credible, and well-established access to resources that will help them gain a better understanding of environmental issues.

MADAGASCAR REPORT

Summary

Training Needs:

- Technical skills training (protected area and natural resource management, project design, monitoring and evaluation, communications)
- Policy-oriented training (environmental economics and policy)
- Fundraising and organizational management

Training Limitations and Gaps:

- Funding limited
- Subjects limited and training infrequent
- Not enough practical tools for field conservation
- Courses not well advertised
- Information and methodologies presented not up to date
- Not adapted to needs of the country
- Too theoretical, not enough practical application

Useful Interventions:

- Improve existing training programs– frequency, locations, quality of content and instructors.
- Create a conservation training center within the country to focus specifically on Malagasy ecosystems and endemic species, and provide a wider variety of courses to conservation professionals. Create a network to publicize conservation training activities and foster dialogue.
- Collaborate with training centers and universities abroad to exchange experiences and new innovations, and to establish student and faculty exchanges.
- Develop annual workshops for conservation professionals to update their skills.

Conservation Challenges and Opportunities in Madagascar

Madagascar is renowned for its unique biodiversity. It is also one of the most threatened conservation priority areas on the planet. Between 75 to 85 percent of the island's plant and animal species are endemic. Often referred to as a 'little continent,' it covers 590,000 square km. and has approximately 12,000 species of plants.

Environmental Threats

Some of the major threats to biodiversity within the country include slash and burn agriculture, logging, pasture fires, erosion and siltation, introduced species invasion and the advance of the agricultural frontier. For example, uncontrolled burning by early immigrants for pastureland has

had dramatic effects on native biodiversity. Likewise, imported agricultural methods, such as slash and burn agriculture, cattle grazing and rice production, are destructive. As population increases, these threats become more significant. Introduced species brought to the island as pets, food sources or for pest control have harmed bird and reptile populations and negatively impacted ecosystems.

Institutional Limitations

Conservation organizations within the country also face internal problems, limiting their ability to address critical threats to the environment. These problems include insufficient national and government funding sources to support conservation projects and a lack of consistent conservation policies. Further, there is no clear consensus on appropriate methods to assess, evaluate and conserve natural areas.

Conservation Opportunities

Despite these challenges, Madagascar is committed to conserving the country's resources. Ten years ago the Malagasy government collaborated with local and international NGOs to create a national plan and strategy to address some of these issues. They established the National Plan for Environment, the National Office for Environment and the Protected Area Management Association to conduct environmental activities in the field. The country is emerging from seven months of political turmoil with a renewed commitment and motivation to conserve forests and other natural resources. The government and the World Bank have made conservation a priority and the country is entering into its third phase of conservation programs. More importantly, individuals and institutions within the country are committed to strengthening the capacity of conservation practitioners to build the movement from the ground up.

Capacity-Building Needs

In order for conservation organizations in Madagascar to address environmental threats within the country, they must first address the issue of increasing their own individual and institutional capacity to identify, assess and mitigate these threats. Interviews were conducted with 15 conservation organizations to better understand their limitations and training needs. Through discussions with these organizations, three areas were identified as limitations to personal and organizational effectiveness: 1.) insufficient capacity of the staff, 2.) poor collaboration with stakeholders, and 3.) inadequate funding and supplies.

Among these 15 organizations, 80 percent stated that the biggest problem with executing activities in the field was the insufficient capacity of staff members. This includes deficiencies in organizational management, technical skills, communication skills, and project design and implementation. Organizational management includes human resources, both quantity and quality, and project management skills. Technical skills are needed in areas such as protected area management, project design, natural resource management, monitoring, environmental policy and economics, impact studies, marketing and ecotourism. Communication skills can also be grouped within technical skills training.

Conservation organizations identified the greatest priority for training as natural resource management, followed closely by project design and management and communication. Protected areas management, monitoring, and environmental policy and economics were also

identified as important training areas. Needs were assessed for the organization overall, not for specific individuals.

Table 11. Training needs by field of study - Madagascar

Needs By Field of Study	Rank
Natural resource management	1
Project design and management	2
Communication	2
Protected area (ecosystem) management	5
Monitoring	5
Environmental policy and economics	5
Planning	6
Impact studies	6
Marketing	7
Human resources management	7
Human development	7
GIS	7
Ecotourism	7
Community-based management	7
Mapping and remote sensing	8
Forest management plan formulation	8
Database management	8
Biological farming	8
Agricultural skills	8
Statistics	10
Research methods	10
Networking within the local context	10
Negotiation	10
Language	10
Governance	10
Fundraising	10
Computer skills	10

The second problem area was poor collaboration with stakeholders, including local communities, government, local or national NGOs and partner organizations. Among those organizations interviewed, 73 percent identified stakeholder collaboration as a problem. This lack of collaboration is due in part to poor communication skills, an area that can be improved through better staff training in strategic communication. These skills are essential in order to forge partnerships at the government level and enforce conservation laws and policies.

Finally, 33 percent of those interviewed identified the lack of funding and supplies as a limitation to their work. Malagasy conservation programs depend primarily on foreign support for funding and materials. This dependence constrains organizations and keeps them from becoming sustainable institutions. Institutions can access different fellowship programs and grants to

supplement foreign support, but this requires training in fundraising, which was not identified as a training priority among the conservation organizations interviewed and is not offered by training institutions.

Fundraising and institutional governance fell toward the bottom of the list, yet they are areas mentioned in interviews as a limitation to immediate effectiveness. They are also important to ensure long-term viability of conservation programs and institutions. Likewise, data management, statistics, research methods and computer skills also rank near the bottom, even though it seems that methods of data collection, analysis and management are some of the major weaknesses of conservation organizations and are the source of many problems with projects. There appears to be a divergence of visions between field teams and management. Field teams are trying to improve implementation activities in the project region or village. Often, the office teams are looking at ways to increase funding and organizational management, rather than focusing on skills needed in the field.

According to participants of local trainings, critiques of current courses include the following:

- Inadequate practical application
- Subjects limited and training infrequent
- Insufficient advertising
- Outdated information and methodologies
- Material not adapted to needs of the country

Active Conservation Organizations

Table 12. Conservation organizations and agencies interviewed - Madagascar

Organization		Type
MICET	Madagascar Institute for Tropical Ecosystem Conservation	National NGO
WCS-Madagascar	Wildlife Conservation Society-Madagascar	International NGO
WWF-CAF	World Wildlife Fund Community-Based Forest Management Project	International NGO
MFG	Madagascar Fauna Group	International NGO
LDI	Landscape Development Intervention/Chemonics International in Fianarantsoa	International NGO
WWF Andringitra	WWF Andringitra project	International NGO
ONE	ONE National Office for Environment	National Agency
Pact	Pact Madagascar	International NGO
SAGE	Support Services for Environmental Management	National Agency
CI-Miray Moramanga	Conservation International - Miray Moramanga	International NGO
ADRA	Adventist Development and Relief Agency	International NGO
ANGAP	National Association for the Management of Protected Areas in Fianarantsoa and Ankarafantsika	National Agency

ONE, SAGE, Pact, ANGAP, and WWF-CAF are organizations that are national in scope only. CI, WWF, LDI, MFG, MICET, and ADRA work locally and regionally. In addition to conservation work, these organizations also provide training within their own organizations and to local institutions in the field. These 9 NGOs and 3 government organizations include the major players in conservation in Madagascar and comprise a representative sample. There were no national data available on the total number of people working in conservation.

The average staff size in these organizations is about 50 people, with a rough breakdown of staff including experts (10 percent), senior staff (13 percent), field staff (40 percent), foreign experts (two percent), administrative staff (27 percent) and other (eight percent). Staff members with backgrounds in biology and forestry are generally considered the "experts" on issues such as biodiversity, ecological monitoring, natural resource management and forestry, while those with an economics and management background tend to compete for monitoring positions. Economists are also recruited for ecotourism programs.

Providers of Training

Conservation training in Madagascar can be broken down into three types: academic, professional (degree programs) and on-the-job professional development training. Academic training includes formal degree programs from high school through university education and advanced degrees (Master's and PhD programs). Professional training focuses on topics relevant to practitioners and leads to a professional degree. Professional programs can last two to three years, depending on the institution. On-the-job professional development training can take place at any point in time in a practitioner's career and entails short-term training programs lasting anywhere from one week to two months to improve an employee's efficiency. The duration of trainings varies between institutions and by the type of training offered.

Academic institutions, many of which are funded by the government, are considered the most important providers of conservation training in Madagascar. In the past five years, NGOs and private organizations have also been allowed to provide educational training. NGOs and private institutions contribute actively and significantly to professional and on-the-job training in different areas of Madagascar, but their topics are rarely focused on conservation programs or agricultural techniques.

For this study, 12 organizations that provide conservation training were interviewed, including national institutions (most often universities) and NGOs (see Annex 5c for details on institutions). The training opportunities available at these institutions are broken down into 17 fields of study and 43 different courses within those fields of study. The training centers offer anywhere from four to 27 different courses. Among those interviewed, there is nearly a 50/50 split between university providers and NGO providers as far as trainings offered by field of study.

The most frequently provided courses include natural resource management, computer skills, communications and education, forestry and forest economics, GIS and natural sciences. These subjects are available in five of the 12 training centers. For advanced training, the following programs are only offered at the university level: forestry, natural sciences, forest economics, natural resource management, marine biology and fisheries. Among the 12 training centers, 10 offer two or more types of training (academic, professional or on-the-job). Professional training

is available in nine centers and on-the-job training is offered by 11 centers. Academic training is offered by five universities and one NGO (Training Center for Community Development - CCDN).

Natural resource management is the most widely available course, and it has also been identified as the most needed. Likewise, communications and economics were listed as important areas for training and are offered consistently. Courses in computer skills are among the most frequently offered, but the subject is near the bottom of the list of needs mentioned in our interviews.

While project design and management, protected areas management and monitoring were frequently mentioned as areas where more training is needed, there currently are no specific training programs at the academic or professional level in these subjects. However, courses are taught on these subjects within other conservation programs. There are project design and management courses within forest economics, environmental economics, forest management and natural resource management programs. Protected area management is a course taught in the following programs: conservation, natural resources management, natural sciences and ecology, marine biology and forestry. Monitoring is taught in natural resources management, forest economics, environmental economics, conservation and GIS.

The costs associated with training depend on the length and type of training. In general, participants or their employers cover their own costs for the training, including course fees, lodging and travel. For academic training, tuition fees are approximately $20 per year. Students are eligible for a small government stipend (approximately $5/month), but they are responsible for finding their own funding sources for research. Professional degree programs also vary by subject and institution and can range from $50 to $100 per course, or $500-$1000 annually. On-the-job training fees can range from $50 to $500 depending on the duration, location and tools used during the course. For academic training, participant fees cover 10-15 percent of annual training costs, while participant fees at NGO training centers cover up to 100 percent of training costs.

While funding can be a limitation for student participation in training programs, another limitation is the difficulty graduates have in finding well paying jobs once they complete a program in conservation or a related field.

The average number of participants in training courses is 15. Demand for professional degree programs exceeds the number of spots available. The most frequently targeted groups include field staff, staff of conservation organizations and partner organizations. Other targeted groups include mid-level technical staff and qualified senior-level staff. Education level is the first criteria used for selection for training (68 percent of institutions look at this), followed by work history and ability to pay (42 percent).

The government provides minimal support to academic training programs. Many academic departments work in collaboration with a foreign academic institution, international NGO or international organization to increase funding support and sustain operations. In some cases, academic departments partner with multiple organizations that contribute funds or supplies. Academic partners and funders include: World Wildlife Fund, FMH (Swiss Medical Association), American Museum of Natural History, University of Michigan, MacArthur Foundation, German cooperation-GTZ, Japanese Foundation, Cornell University and Duke University. Professional

and on-the-job training partners include: French and British aid agencies, the Center of Development and Environment of Bern University, University of Indian Ocean, University of Bordeaux, and the Polytechnic College of Antananarivo.

Partner organizations contribute to general funding support and the implementation of new programs, such as GIS with the Training Center for Global Information Systems and Environment (CFSIGE) and marine biology with the Halieutic Institute of Marine Science (IHSM). Support is also dependent on the partner's goals. For example, WWF, Malagasy Fauna Group and Missouri Botanical garden fund some students to do research within the scope of biodiversity. The Swiss and German governments are interested in creating a new university program in forestry, land management and rural development, and the French are interested in creating a GIS and environmental program.

University Level Training Programs

There are six academic institutions that offer conservation training in Madagascar, two of which are high-school level and four of which are university level. All four universities offer degrees at the Bachelor, Master and PhD level, as well as post-doctoral programs, professional degrees and on-the-job training. The Halieutic Institute of Marine Science (IHSM), The Faculty of Natural Sciences (FNS), and the *Ecole Supérieure des Sciences Agronomiques* (ESSA) are the most important academic training centers for conservation professionals. The fees and tuition for these universities are low because they are state-funded. Programs offer training in various aspects of conservation such as biology, forest management, ecosystem conservation, genetics, biochemistry, fisheries, aquatic systems, botany, ecology, GIS and remote sensing, communication and soil sciences. Degree programs are not interdisciplinary in nature, such as environmental management or environmental science, but are focused more specifically on conservation, biology, forestry or ecology.

Graduate training programs in Madagascar are of high quality in comparison to those available elsewhere in the region. The strength of this in-country training is largely due to the wealth of knowledge of Madagascar's ecoregions: dry forest, moist forest, mountain forest, spiny forest, wetland, savannah and coastal. However, one of the pitfalls of being trained locally is the lack of prestige associated with local universities. Furthermore, the government does not provide enough funding to facilitate faculty exchanges to share the country's knowledge with foreign universities. One of the weaknesses of national universities is that they do not have the tools and resources to stay up-to-date in their knowledge and field research, and as a result many of the courses are based on theories alone. Universities also lack basic resources such as books and professional journals, and the Internet is relatively new and very expensive to use.

NGO Providers of Conservation Training

Organizations such as CCDN, Savaivo, Feedback, Fafiala, Communication Agency (AGECO), Libanona Ecology Centre (CEL), Center of Professional Forestry Training (CFPF), and CFSIGE are the most well known NGOs for conservation training. Both Savaivo and CFSIGE are national in scope, while the others provide local training. Trainings are driven by demand and tend to be sporadic. In the majority of the training centers, academic faculty or organization staff actually give the trainings. Occasionally local or foreign experts are used.

Savaivo is the most important provider of natural resource management, conflict management and environmental impact studies training. Working in collaboration with the Center for Development and Environment of Bern University, Savaivo is able to keep their trainings up-to-date following global and regional advances in methods, approaches and technologies. Other key training institutions include CFSIGE for GIS and environmental impact studies, ESSA for forestry, the Faculty of Natural Sciences for ecology, biology, genetics and biochemistry, IHSM for fisheries and marine biology, and Management of Natural Resources and the Environment (GRENE) for environmental studies.

International institutions, such as USAID, the Swiss cooperation, WWF, CI, United Nations Food and Agriculture Organization (FAO), IUCN and the World Bank occasionally organize workshops. USAID is the most important organization offering international workshops.

Important Providers of Conservation Training Outside Madagascar

A small number– approximately two to five percent of personnel in each office– have received education and training from universities outside of Madagascar. Some conservationists are trained by their organizations in affiliated universities outside of Madagascar. For example, botanists are often trained by Kew Gardens in London, Missouri Botanical Garden, or at SUNY campuses. Some anthropologists are trained at Duke University and Stonybrook University. Some biologists go to German and Japanese Universities to study lemurs, specialists in natural resource management study at Cornell University and Bern University in Switzerland, and ocean biologists train in Japan. In some instances, students receive fellowships or are funded by US, Japanese, Swiss or German bilateral agencies.

Capacity-Building Interventions

Human Capacity-Building Interventions

1. Improve existing training programs: increase the frequency of trainings and number of training centers; improve the quality of available courses and topics; and provide training for trainers.
    - Create a multi-purpose training center within the country to focus specifically on Malagasy ecosystems and endemic species, as well as to provide a wider variety of courses to conservation professionals. Secure a funding source that can sustain the activities inside the national training center.
    - Establish a field station for research activities and hands-on training modeled after successes such as the OTS La Selva Biological Station in Costa Rica.
    - Create a network system to publish training centers' activities for dissemination to other institutions.
2. Collaborate with training centers and universities abroad to exchange experiences and new innovations, and to provide student and faculty exchanges.
3. Develop annual workshops for conservation professionals to update their skills.

Short Term Interventions

1. Organize trainings or national workshops on natural resource management, project design, monitoring and evaluation, protected area management, communications and fundraising. Currently, these are priority programs for conservation institutions in Madagascar. The training should be conducted in collaboration with local, national and international NGOs.
2. Provide technical tools for local trainers, either through training or publications, to improve the quality of programs. Books, current publications, information from other countries for shared ideas, and teaching tools would be helpful.
3. Create a network system to exchange information between professionals and conservation institutions.

Long Term Interventions

One long-term intervention that deserves consideration in Madagascar is the creation of a multi-purpose national training center, alluded to above. This center would regularly provide a variety of trainings for university students and professionals. Certain practical skills could be taught in an associated area of forest managed by the center (similar to Yale and Harvard forests). The center would work with NGOs, universities and relevant government entities to define goals and priorities, and would require the approval of the Ministry of Education. It is an open question whether this center would function best as an independent entity, or in association with one of the country's existing institutions.

PERU REPORT

Summary

Training Needs:

Training is needed at professional, technical, and local resource user levels in the following areas:

- Resource management, including management of forests, water and protected areas
- Organizational development, including administration, finance, communications and project management
- Policy, economics, resource valuation and environmental education

Training Limitations and Gaps:

Available training in Peru is insufficient for conservationists, especially in rural areas, where programs are nascent, sporadic or tied to particular projects. University programs lack practical application and funds for field research and case studies. Professionals and consultants used for projects are politically entrenched. Conservation professionals with strong training have actively sought training within and outside Peru, and though some find support, funds are far from adequate to train all qualified candidates. Many must invest in post-graduate training despite a weak and uncertain job market in conservation.

Useful Interventions:

- Short-term training in forest management, water management, policy, economic instruments and environmental education for professionals, technicians and local users
- Decentralize education and training to rural areas of the country where conservation initiatives are taking place
- Develop a center for conservation training with associated field stations

Conservation Challenges and Opportunities in Peru

Peru is a country of diverse terrain and habitats. Remarkably, Peru contains 84 of 103 identified ecosystems and 28 of 32 climates in the world. Peru has been declared one of the 12 "megadiverse" countries in the world because it houses 15 percent of identified global biodiversity within its borders. Peru is the origin of the Amazon River and home to 13 percent of Amazonian tropical forest. It ranks second in Latin America in terms of forested area and over 60 percent of the country is covered in tropical forest. More than 4,200 species of native plants are used by people in Peru, and the country is also home to wild genetic varieties of some of the world's most important crops, including potatoes, corn, beans and tomatoes. Peru boasts a similar diversity of human cultures and languages, with 44 distinct languages, 42 of which are found in the Amazon basin region.

Environmental Threats

Peru is facing myriad threats driven largely by development pressures and urbanization. Forested areas face habitat fragmentation from logging, agriculture and cattle ranching, oil and mining,

and colonization. Freshwater and marine environments are also being compromised by overexploitation, agriculture, industrial development, unsustainable tourism and terrestrial contamination, and lack the same protection status afforded to many terrestrial areas. In addition, there is no comprehensive strategy or coherent set of policies for development of Amazonía on the basis of appropriate technology and ecologically adapted crops. There is also little support for the development and appropriate management of tourism in natural protected areas, especially in the Amazon region.

Institutional Framework

Peru has a number of organizations related to environmental protection and biodiversity conservation that are in the governmental, civil society and NGO sectors.

Government

CONAM, the National Environmental Council, coordinates state policy regarding the environment and is charged with the design and implementation of the National Biodiversity Strategy. INRENA is the country's National Institute of Natural Resources and has jurisdiction over renewable natural resources and the environment, including forests, protected areas, wild flora and fauna, water, soils and biological diversity. Within INRENA, the National System of Natural Protected Areas (SINANPE) is the body responsible for park management. INRENA is also responsible for developing and promoting sustainable resource use, conservation of biological diversity and protection of wildlands, integrated watershed management, and establishing strategic alliances among resource use stakeholders. PROFONANPE, National Fund for Natural Protected Areas, is administered by a legal entity of national and international institutions. Within the Ministry of Fisheries, the Peruvian Institute of the Sea (IMARPE) evaluates and monitors fishing and coastal resources. The Institute of Peruvian Amazonía Research (IIAP) is an autonomous organization charged with research and evaluation of Amazon natural resources.

Table 13. Government departments associated with environmental issues - Peru

Government Departments
CONAM – National Environmental Council
Ministry of Foreign Relations
Department of Environment and Sustainable Development
Ministry of Agriculture
INRENA – National Institute of Natural Resources
INIA – National Institute of Agricultural Research
SENASA – National Agrarian Health Service
CONACS – National Council of South American Camelidaes
Regional Agricultural Extension
Ministry of Fisheries
IMARPE – Peruvian Institute of the Sea
IIAP – Institute of Peruvian Amazonía Research

Civil Society

Peru, like a number of Latin American countries, has a strong civil society and has no fewer than 500 NGOs active in the arenas of environmental conservation and natural resource management. These organizations maintain a strong network and high level of collaboration via entities such as the Peruvian Environmental Network (RAP), and the Environmental Forum. Various other organizations such as indigenous peoples and their federations, the national timber confederation, and associations of producers, fisheries and agriculture are active stakeholders in environmental and conservation issues.

Political Framework

In recent decades, Peru has actively set aside tracts of rain forest as national park reserves and begun regulating gas and mining industries. Peru currently has 54 protected areas within SINANPE. The Manu Biosphere Reserve, the Tambopata-Candamo Reserve/Bajuaha-Sonene National Park, and the Pacaya-Samiria National Reserve are three of the largest protected rain-forest areas in the world. INRENA oversees management of the protected areas system, enforces logging regulations and (in theory) replants Peru's Amazon forests. A handful of international and Peruvian environmental and conservation groups, such as the Peruvian Foundation for Nature Conservation (ProNaturaleza), Conservation International, World Wildlife Fund, the Amazon Conservation Association and the Rainforest Action Network are active in Peru, working on reforestation and sustainable forestry projects. Public investment into protected areas has increased, manifested in part by the creation of a national fund for protected areas administered by PROFONANPE. Peru has also moved towards developing participatory management plans and integrated conservation and development projects.

Peru has participated in over a dozen international treaties and agreements aimed at environmental protection– from the Convention for the Protection of World Cultural and Natural Heritage in 1972 to the International Convention on Plant Genetic Resources in 2001. The Convention on Biodiversity is the first agreement that has resulted in significant development of strategies for biodiversity conservation in Peru. This treaty has formed the backdrop for a process of discussion among various stakeholders, including the public and

private sectors, community groups and NGOs. Most of the conservation strategies currently being implemented are public policies for better use of natural resources, including legal mechanisms, institutional initiatives, conservation of natural areas, and protection of cultural heritage. Peru has also recently established a National Program of Conservation and Sustainable Development of Wetlands.

Peru has a fairly substantial legal framework for environmental protection in the national constitution and in national legislation. In 1990, Peru developed a national Legal Code for Environment and Natural Resources, which includes laws pertaining to natural resource management, protected areas, wildlife management, medicinal plants and biodiversity conservation. Since 1993, the State determines national environmental policy and is obligated to promote the conservation of biological diversity and natural protected areas. However, a lack of coordination among various local, regional and national bodies responsible for resource management prohibits effective implementation of this relatively robust legal framework concerning resource management and conservation.

Capacity Building

Conservation is immature as a profession in Peru, and within the country conservation offers a poor job market for recent graduates and young professionals. This review of current educational and training opportunities found that available opportunities are insufficient to build the capacity of conservation practitioners and organizations to develop and implement conservation projects appropriate to local contexts.

Because there are only a few places to receive conservation training, most professionals have little experience in developing conservation projects. The education offered in-country is mostly homogeneous and only focused on a few disciplines (biology, forestry), with few or no applied and integrated offerings such as monitoring and evaluation, environmental policy, environmental economics, ecological anthropology or sustainable development. Graduate programs that might bridge these gaps are rarely implemented properly due to a lack of resources.

Existing capacity-building initiatives in conservation offered by local governments, NGOs and universities are often piecemeal, temporary and limited to people already working in conservation rather than those who desire to enter the profession. These capacity-building courses need to be reformulated and restructured to offer a more integrated and multidisciplinary focus that combines the technical and practical aspects of conservation. Permanent, stable offerings of these courses in an academic and professional setting will accomplish the task of both recruiting and training a generation of conservation leaders who will be professionals in not just natural sciences, but also fields of economics, social sciences, politics, law, academics and conservation.

Capacity-Building Needs

Skills needed for effective protected areas and natural resource management include biodiversity monitoring and evaluation, environmental economics, public policy, conservation biology and site-based conservation. The success of resource management is also dependent in part on community participation in conservation projects and forming partnerships with civil society. Institutions also need to be strengthened via training in management and strategic planning,

administration, accounting, project management, information and database management and communications. Academic and technical institutions offering conservation training and tools also need support and strengthening. Finally, there is a countrywide need to strengthen basic ecological science research and economic valuation.

Interviews with 20 organizations determined primary capacity-building needs as:

- Forest management
- Water resources management
- Resource use planning policy
- Economics and resource valuation
- Environmental education

University Level Training Programs

Peru has 33 public and 45 private universities, with departments of biology, forestry, fisheries, agriculture and social sciences at the undergraduate and graduate levels. The majors offered most frequently are accounting and administration. In terms of professional careers, education programs have the most alumni. In total, there are over 265 master's programs and 52 doctoral programs offered by universities in Peru. The table below shows areas of specialization divided into categories.

Table 14. Degree program areas of specialization - Peru

Subject	Master's Programs	PhD Programs
Social sciences and humanities	48%	75%
Engineering/technology	17%	2%
Natural and physical sciences	16%	15%
Medical sciences	12%	6%
Agricultural sciences	8%	2%

There are 56 university programs in Peru related to conservation and sustainable development, 46 of which are at the master's level. See Annex 5d for a full list of university programs. Environmental management programs are in great demand due to their practical application. Most programs offered are in the area of natural science focusing on conservation biology, ecology or natural resources., There is a fairly steep quality gradient from universities in Lima to those in the provinces due to financial limitations and a shortage of qualified people involved in developing new training programs for conservation. Rigid disciplinary boundaries of current programs also fail to incorporate and address the relevant environmental, social and economic aspects of conservation issues.

There is also an unmet demand for master's programs in areas such as environmental law, natural resource economics and valuation. These needs are partially being met by projects or short courses offered by NGOs such as the Peruvian Society for Environmental Law or by government programs such as scholarships for resource valuation research offered by the Biodiversity and Sustainable Forestry Project (USAID – INRENA). Several new conservation

Master's programs were developed in the latter half of the 1990s, including programs in more interior regions of the country. Some universities have developed programs that are more interdisciplinary in content or specialized such as the Amazonian Studies Master's program at Universidad Nacional Mayor de San Marcos (UNMSM).

Public universities are severely limited in terms of funding. As a consequence, they lack the resources to attract and retain quality professors, run field labs and courses, or update their curriculum based on new knowledge and methods. Due to the low pay and lack of support for basic or applied research, a number of professors of environmental programs, especially those with foreign training, have left these universities to work for NGOs or as consultants– often outside the country. In an effort to alleviate the financial crunch, a number of universities have increased the tuition for their Master's programs, which has limited access by many professionals who depend on the low cost of public education. The development of strong Master's programs has often depended on external support from international organizations or universities, and most of this aid has been concentrated in universities in Lima. Provincial programs are still nascent and under-funded, but offer some exciting programs to local conservation professionals (at lower costs since they do not have to travel to Lima). Private universities have more diversified programs, albeit at a higher cost. The majority of these programs have been made possible by collaborations with foreign universities, including faculty and student exchanges and scholarship support.

As part of this study, some of the most important universities offering programs in environment and conservation were interviewed:

- Universidad Nacional Agraria – La Molina (UNALM)
- Universidad Nacional Mayor de San Marcos (UNMSM)
- Universidad de la Amazonía Peruana (UNAP)
- Universidad Nacional San Antonio Abad del Cusco (UNSAAC)

Universidad Nacional Agraria – La Molina

UNALM has one of the oldest programs (15 years) focusing on conservation, and has trained a generation of conservation professionals in Peru. The Lima-based program is divided into three specialties: protected area management, wildlife management and biodiversity conservation. As a public university with low costs, it is accessible for many students and professionals. Graduates of this program have also gone on to develop and support similar Master's programs or are key actors in public and private conservation-related organizations. Until the beginning of the 1990s, the Master's program had financial and technical support from a Canadian foundation. Since funding dried up, the program has suffered a lack of teachers, consultants and resources for field studies, curriculum development and scholarships. Low state-funded teacher salaries make other jobs more attractive, and the professors who have stayed do consulting projects to supplement their incomes, leaving them little time for students, field work or research proposals. The Master's degree began to see competition from universities in the interior in the early 1990s, but, graduates from this program still have an advantage in landing important government and NGO jobs, and some have even started their own organizations. The UNALM Master's is an accessible and popular program due to its high quality and low cost. UNALM is working to

restructure the content, recruit new teachers, and secure a financing plan with cooperative agreements.

Universidad Nacional Mayor de San Marcos

UNMSM offers degrees in biology, environmental sciences and Amazonian studies. It has one of the best natural history collections in the country at the Javier Prado Museum of Natural History. The Amazon studies program is a new Master's program supported by the MacArthur Foundation for professionals working in the Amazon region. This funding allows people working in more remote areas to access education and capacity-building opportunities, and also funds research. It uses a multidisciplinary approach, connecting human development with nature, and has direct application to Amazonian policy development. However, funding limitations preclude permanent staff in favor of part-time instructors and consultants and a somewhat ad-hoc curriculum. Classroom training takes place in Lima, with fieldwork located throughout Peru's Amazon region. Participants are selected in part based on their professional involvement in conservation projects with major NGOs or government.

The program has a strong sustainable development focus and is more solidly rooted in the social rather than the natural sciences, though it does achieve a mix of the two that is very unique among South American universities. Prior to the MacArthur grant, students were not able to attend all classes because many had to work full time in the absence of scholarships. One drawback of the arrangement with MacArthur is that funds go into the university's regular financial system and are therefore slow in being deployed.

Universidad Nacional de la Amazonía Peruana

UNAP is the only graduate program addressing Amazon conservation issues that is actually located in the Amazon region. It collaborates with foreign universities and organizations such as the Organization for Tropical Studies (OTS) to offer graduate courses in Tropical Amazon Ecology. These courses draw upon experts from elsewhere in Latin America who have extensive fieldwork experience. Invited professors from La Molina and San Marcos also teach in these courses. Funds from OTS are key for the development of the courses and enable participation by many professionals.

UNAP's main strength is its outstanding infrastructure. It has modern facilities and technology such as Internet that otherwise are rare in these remote areas. The installations are also very good, and there is actually an administratively separate center for graduate studies, which is unique in Peru. The school's main weakness (and strength, in a way) is its location in Iquitos. Few academics are willing to live there because prospects for consulting work are limited and they are far from the halls of power. That makes UNAP dependent on visiting professors and even funds from Lima. Similarly, students given the choice would much rather do degrees at La Molina or San Marcos and take advantage of UNAP for a field course (like the OTS course). The school is very attractive, however, to people who are already living in Iquitos and working in conservation. UNAP does have the added advantage of a partnership with the University of Kent.

Universidad Nacional San Antonio de Abad de Cuzco (UNSAAC)

This university in Cuzco is an established university program with years of experience, and one of the more important provincial universities. It offers a Master of Ecology and Natural Resources, and has access to biological field stations in the high Andes plateau and in the southeastern Amazon that give it a strong field training component in multiple ecosystems. Like other Peruvian universities in the interior of the country, the program depends on the teaching support of professors from other programs such as San Marcos and La Molina, and support from national and international researchers who offer short courses, workshops and conferences. Like most universities in Peru, it is also faces financial limitations in developing its programs.

Non-University Providers of Training

A number of public organizations and NGOs, both national and international, provide conservation training. Most of these are concentrated in Lima. As part of this study, we interviewed the institutions listed below in Table 15.

Table 15. Non-university providers of conservation training - Peru

Organization	Type	Location
National Environment Council (CONAM)	Government	Lima
Institute of Natural Resources (INRENA) General Directorate of Natural Protected Areas (DGANP)	Government	Lima
Institute of Natural Resources (INRENA) General Directorate of Forests and Wildlife	Government	Lima
Research Institue of the Peruvian Amazon (IIAP)	Government	Iquitos
Project to Strengthen the National System of Natural Protected Areas (FANPE)	Government Project	Lima
National Fund for Natural Protected Areas (PROFONANPE)	Government Project	Lima
Project for Conservation and Management of Biodiversity and Fragile Ecosystems (BIOFOR) – INRENA	Government Project	Lima
United States Agency for International Development – Peru (USAID-Perú)	International Development Agency	Lima
World Wildlife Fund - Peru Office (WWF-Peru)	International NGO	Lima
International Resources Group (IRG)	International NGO	Lima
Conservation International – Peru (CI-Peru)	International NGO	Lima
The Nature Conservancy – Peru (TNC-Peru)	International NGO	Lima
Peruvian Society of Environmental Law (SPDA)	National NGO	Lima
Econews Peru	National NGO	Lima
Peruvian Foundation for Nature Conservation (Pronaturaleza)	National NGO	Lima
Peruvian Association for the Conservation of Nature (APECO)	National NGO	Lima

Organization	Type	Location
Foundation ACEER – Amazonian Center of Environmental Education and Research	National NGO	Iquitos
Center of Conservation Data (CDC) - Universidad Nacional Agraria La Molina (UNALM)	University Center	Lima

These organizations can be broken down into four types based on their role in conservation training:

1. Grant funds: USAID-Peru
2. Disburse and receive funds: TNC, FANPE
3. Disburse funds, receive funds and implement projects: CONAM, BIOFOR, PROFONANPE, IRG, WWF, CI
4. Receive funds and implement projects: INRENA, IIAP, APECO, Pronaturaleza, ACEER, SPDA, Econews

The first type is key in providing funds and identifying organizations for developing and implementing capacity building. The organizations in the second group both secure funds and identify appropriate organizations for disbursal. For the third and fourth grouping, implementation is the focus and finances are most restricted. These organizations measure the success of their programs in various ways, including evaluations through surveys, information and results from projects, and the ability to raise funds from outside sources or from participants. Most organizations are also trying to develop quantitative and objective measures of the success of their training programs.

The majority of conservation capacity-building programs in Peru are on-the-job training programs, and 73% of organizations interviewed had occupational training programs to ensure that the skills learned would have immediate application. Participants in these courses are mostly involved in conservation and sustainable development projects, and can directly apply the knowledge they have learned to their work. However, the content of these training programs are often project-driven and therefore constrained by the immediate goals and needs of current projects, and are often restricted to the staff or key actors of the projects.

Over half of these organizations also offer professional short courses, workshops and seminars on topics such as forest management, ecology, environmental law, environmental economics, environmental education and research methods. These courses depend a great deal on the interests and financial resources of the organizing institutions.

Conservation training courses have been in existence for an average of 11 years (ranging from 1 to 23 years) and most last for about 3 days (ranging from 1 to 20 days). The frequency of programs is sporadic and depends on the availability of funds. The audience for these courses is principally staff of government agencies or conservation NGOs and associated organizations. Courses are aimed at graduate students (64 percent), undergraduate students (59 percent), mid-level technical personnel (50 percent), and field specialists (36 percent). The most common course topics offered include natural resource management, protected areas management, and organizational policies and management.

Many organizations compile materials already in existence, while some can afford to prepare special materials for a given course. Most combine articles and case studies to integrate both theory and practical applications into the courses. For the most part, courses are organized within the scope of a particular project being implemented by the organization. Professional and academic courses usually take place in Lima, which makes them more difficult to access for professionals working in the field. However, in recent years universities in the interior of the country have been able to offer courses with the support of various international organizations.

Organizations offering the courses usually assume all the costs (food, lodging, instruction, materials, etc.) and also offer subsidies for travel depending on available resources. Course instructors are from the organizations offering the course, as well as external consultants and foreign experts, mostly from the US or UK.

Capacity-Building Interventions

Education and training available in Peru are insufficient for conservationists, especially in rural areas. Programs are nascent, sporadic or in response to particular interests of capacity-building organizations and particular projects. University programs lack practical application and funds for field research and case studies. There is also some difficulty in bringing new blood into the movement, as the cadre of professionals and consultants used for projects is fairly fixed and politically entrenched. Conservation professionals actively seek training both within and outside Peru, and have received support from NGOs or other sources to pursue further training, or have been involved in various projects that have provided training opportunities. Many must invest in post-graduate training despite a weak and uncertain job market in conservation.

Conservation professionals in Peru need frequent, regular training opportunities that focus on biodiversity conservation and offer courses from a variety of disciplines including basic sciences, resource management, economics, policy and law, and social and cultural studies. Universities need to develop interdisciplinary conservation curricula at the graduate and undergraduate levels. Training for resource users often focuses on technical aspects and lacks any focus on sustainability or conservation.

Financial and human resources for conservation training are concentrated in Lima and are not oriented at actual resource users or community leaders in rural areas, but instead to university graduates who act via campaigns, political negotiation and lobbying to affect actions of resource users. Technical training for resource users often lacks a focus on sustainability and conservation. Current approaches to training also lack participation and integration of local and indigenous knowledge and experience.

Short Term Interventions

1. Decentralize education and training to increase access in rural areas of the country where conservation initiatives are taking place.
    - Programs in key regions need to be brought up to the same level of frequency and quality as programs in Lima.
    - Achieving this goal will require strong commitment and participation by both conservation organizations and national universities.

2. Expand short-term training opportunities in the following:
   - Resource management: forests, water, protected areas and natural resources
   - Policy, economic instruments, resource valuation, and environmental education for professionals, technicians and local users

Long Term Interventions

1. Develop a center for conservation training with field stations accessible to professionals working in the field. This center should build on the expertise of current university programs.
2. Consider supporting some of the new programs of universities such as UNAP or resurrect La Molina's program. UNAP would be a good candidate for a major training center because it is in the Amazon and with adequate funding could draw talent from Lima. Further, as a university it enjoys greater autonomy than an agency like IIAP, which for all its strengths, is a government agency subject to political whims.

6

SHOULD THE MOORE FOUNDATION INTERVENE?

Now that we have looked in detail at the expressed education and training needs, existing training programs, and the situations in four selected countries, we ask the question, is this a problem the Moore Foundation should address? On the one hand, most conservationists we surveyed had advanced degrees and on average had participated in three trainings over the last five years. Further, almost all the conservation organizations and agencies we researched claim to be doing some sort of training. These facts raise the question of whether there is indeed a problem to be addressed.

We believe that there is a problem, but that it is a more manageable problem than we expected. First, truly interdisciplinary university conservation education is still rare, and nonexistent in most countries. Second, the quality of instruction in many countries is low due to insufficient funding. Third, instruction is often dominated by memorization, leaving graduates without critical thinking and problem solving skills. Fourth, conservationists from high-biodiversity wilderness areas are not accessing education programs abroad in large numbers, primarily deterred by tuition costs. Fifth, instability in the conservation job market still makes this a risky career path. Sixth, there are real gaps in professional development offerings related to long-term priorities and in the area of policy analysis in particular.

MOORE FOUNDATION

In a practical sense, this report is a guide for the Moore Foundation, which faces a wide array of possibilities for investing in tropical conservation education and training. Our goal is to recommend the highest impact interventions that are also coherent with the structure and orientation of the Foundation. In this respect, the Foundation's salient characteristics are the size of its endowment, the size of its staff, the specific focus of its environment program and the nature of other program areas.

Size

The Moore Foundation has a large endowment and a comparatively small staff. MacArthur Foundation, with an endowment on roughly the same scale, has around 180 employees, 45 of which are program staff ranging from Associate to Vice President level. The numbers for Moore are one-third of MacArthur's – 60 employees with 15 program staff. The Moore Foundation's

size means that it can make (and has already made) grants large enough to be influential at universities. Small staff size argues for working with a re-granting mechanism to implement some of the smaller elements of this strategy, such as scholarship and apprenticeship programs. Small staff size also argues for limiting the overall number of grants and looking for areas of overlap with the Science and Higher Education programs.

Environment Program Focus

The Environment program aims to protect biodiversity— first and foremost in tropical wilderness areas, but also in rain forests of the Northern Pacific Rim. Key strategies that apply particularly well to conserving tropical wilderness include: 1) expanding protected areas, and 2) minimizing big development projects. The former strategy can be furthered by training investments in conservation biology and protected areas management, among others. The latter requires training in policy analysis, economics, negotiation and communications, plus the scientific tools to inventory biodiversity. With the exception of communications, all these topics were rated among the most important in our survey.

The other key aspect of the program's orientation is a scientific, technical approach to environmental problems. The Center for Biodiversity Conservation funded through CI shows a dedication to building a critical mass of technical expertise in priority countries and regions. Therefore in reviewing the universe of capacity-building options, we will highlight those that build *technical* capabilities in the tropics.

Finally, our recommendations take account of the Foundation's Science and Higher Education programs and, where possible, seek opportunities that will further goals of more than one program area. Universities figure prominently in this strategy, as do scientific and technical training programs for conservationists.

7

RECOMMENDATIONS

Build the Movement From the Bottom,
Strengthen it From the Middle and Top.

This statement encapsulates our findings in one sentence. It reflects the fact that the conservation movement needs more people and more skills for those individuals already involved. Conservation is part career and part cause, so the best way to swell its ranks is to attract young people as they make life choices. People already in the movement often have education that is limited to one discipline, and are handicapped in their ability to confront the social, economic, biological and political factors wrapped up in environmental problems. Others have degrees from universities woefully understaffed and ill equipped, and therefore unable to provide quality education. These professionals need the chance to build their skills, both in short courses and degree programs.

To build and strengthen conservation movements in the tropics we suggest four interlocking initiatives:

1. Create regional university hubs for interdisciplinary conservation education.
2. Get outstanding tropical conservationists into US and European graduate programs with targeted scholarships, and back to the field with prestigious apprenticeships.
3. Fill skill gaps with in-stream professional development training.
4. Provide training in protected areas management.

The details of each of these recommendations are discussed below.

FIRST TIER RECOMMENDATIONS

1. Create regional hubs for conservation education at leading universities in the developing world. Invest in truly interdisciplinary conservation studies programs.

Rationale:

- The cost of in-country education is much lower because of basic economic differences and because leading universities are usually state supported.
- Almost all developing country conservationists obtain undergraduate education in-country, even those "stars" who go on for advanced degrees abroad.
- Students need access to the ecosystems of global concern for fieldwork.
- Drawing talented teens into the professional conservation movement is the key to expansion.
- Exposure to nature in formative years will produce conservationists with personal commitment.
- Interdisciplinary training provides critical thinking skills.
- Support for these university programs will help build in-country excellence at the PhD and faculty level in conservation biology and environmental science, which are the foundation of many conservation interventions.
- Survey results showed a broad-based demand for training in the area of conservation biology, while no other subject area rated nearly as high.
- There is opportunity for convergence with the Foundation's Science and Higher Education programs.

Estimated Cost:

$10 million a year for five university hubs. As a very rough estimate, we project that investments averaging $2 million per year over 15 years would be adequate for each developing country school.

Details:

This recommendation builds on the reality that most tropical conservationists now come from one of a select group of in-country universities, and the fact that these schools are still struggling to provide high-quality, relevant curriculum for conservation. Further, these existing centers often have a disciplinary tradition in forestry, agronomy or biology that hampers implementation of interdisciplinary education. The regional hubs envisioned here would allow students to specialize in a particular discipline, while acquiring basic knowledge of several others and learning synthetic problem-solving skills.

A hub needs spokes to connect it to the rest of the world and these connections would be of several sorts. Connecting them to other schools would be faculty, graduate students and post-doctorate exchanges with foreign universities. The hub would also need a modern field station, laboratory and facilities, with funds to support research and hands-on learning. Our in-country surveys found the lack of field research opportunities to be one of the greatest deficiencies in

conservation training. Depending on the location of the university hub, there might be satellite biological field stations in more remote areas that support field courses and research by students and faculty from throughout the region. Students would connect to field realities and nature through these new field research and internships opportunities. Links with conservation organizations would allow universities to contribute to solving environmental problems with research. Within the university, connections would have to be forged among departments to ensure the interdisciplinary nature of programs. Further, schools would be supported to adopt the joint-degree model used in the US to mate disciplinary content with professional training in business, public policy and law. Funds would also provide for general upgrading of programs to keep them up to date on advances in the conservation field. Funds for scholarship support would help ensure that no students are discouraged from pursuing conservation careers due to financial concerns.

The success of university training hubs depends on a number of factors, among them the readiness of target universities to adapt. In Madagascar and Peru, we examined possibilities of creating a new "blank slate" training center to avoid the entrenched customs and disciplinary boundaries of existing schools. But any center will necessarily depend on the people and programs of existing institutions, and a stand-alone training center carries certain risks of winding up an orphan agency with no political protectors. Therefore, using an existing university structure should be the first option explored before creating an entirely new and independent entity.

2a. Expand access to graduate programs in the US and Europe through highly targeted scholarships. Attach conditions and incentives for graduates to return home.

Rationale:

- Conservationists from tropical wildernesses and other global biodiversity priority areas are not attending Northern graduate programs in large numbers.
- The cost of study abroad is the main obstacle to developing-country students.
- There are few, if any, scholarships that specifically target conservationists from globally important ecosystems.
- Northern universities already have excellent faculty, programs and infrastructure , so large institutional grants are not needed to develop programs attractive to conservationists.
- Education at top schools abroad confers prestige, builds an international network, facilitates access to international funds and gives students world-class training. Tropical countries need a pool of conservation leaders with these advantages.
- Graduates can often land more attractive jobs in the US or Europe. Non-return is particularly common among PhD's.
- There is opportunity for convergence with the Foundation's Science and Higher Education programs.
- One grantee could handle the entire process.

Estimated cost:

Graduate tuition and expenses at US and UK universities run from $20,000 to $35,000 a year. If the Foundation provides new fellowships for 50 conservationists a year at an average of $30,000, and 80 percent of them are two-year Master's students (the rest PhD's), the annual cost would be $4.5 million annually (with 150 recipients at any given time). Add $200,000 annually for an agency such as the International Institute of Education (IIE) to run the fellowship program. Total = $4.7 million annually, scalable down or up.

Details:

This program would be a "Fulbright for Nature." The Foundation and its partners would designate regions eligible for scholarships and specify universities in the US, Europe and Australia where scholarships could be used. The application process would be handled by a third party with expertise in this area, such as IIE (which handles Fulbright), and would involve a set of field advisors. Most scholarships would be for terminal Master's degrees and joint degrees, with some for PhD's. Both conservation scientists (natural and social science) and conservation practitioners would be targeted in order to strengthen the foundations and the implementing capacity of the environmental movement in developing countries. Scholarships would be contingent on a pledge of return to work in-country for a certain number of years. Among good candidate schools are Yale, University of Florida, University of Kent, Duke (Sanford), Oxford, Cambridge and Harvard (KSG).

2b. Create prestigious biodiversity apprenticeship program for new graduates to work with conservation organizations in their home countries.

Rationale:

- Some of the most important training happens on the job.
- Conservation is still a risky career choice. Prestige and starter opportunities will draw more people into conservation careers and ensure that talented graduates go to work for conservation organizations.
- First jobs can determine the rest of a career path.
- Apprenticeships will lower the cost and risk for organizations to build staff and create results that can in turn be used to raise funds to make staff expansion sustainable.

Estimated cost:

$1.1 million a year for 50 apprenticeships.

Details:

The purpose of this apprenticeship program would be to channel the best conservation talent directly into conservation organizations, smoothing budgetary bottlenecks and creating a prestige-based attraction for new graduates. The program would be very competitive, much like the US Government's Presidential Management Internships or the World Bank's Young Professionals program. Another example is the American Association for the Advancement of Science Fellows program. All three of these programs are used by agencies to screen and ultimately hire professionals. The biodiversity apprenticeships would be open to recent graduates of overseas or

in-country graduate programs. Organizations would be required to provide the apprentice a mentor and a substantive job related to his or her studies. Apprenticeships would last for a year, giving time to complete a project and allowing mentor and apprentice the chance to decide whether or not to pursue a long-term relationship. The program would be implemented by a non-profit grantee agency that would act as a matchmaker between organizations and prospective apprentices.

3. Fill skill gaps with in-stream professional training. Focus on subjects that can be taught in short modules, such as economics, policy analysis, negotiation, business skills and biological monitoring.

Rationale:

- Our survey identified needed skills that are not being adequately provided in university programs and can be supplied more cost-effectively in short-term formats.
- Many conservationists do not have access to professional training because of high costs or because training is only open to staff of certain projects.
- Very little training is happening in areas identified as crucial over the long-term, especially skills to influence policy.
- Proven courses exist but are still only available on a very small scale.
- There is opportunity for convergence with Science and Higher Education programs.

Estimated cost:

$2.4 million per year for 40 short courses. Our experience implementing short courses has revealed a cost of approximately $50,000 for a two-week training for 20 people. We have also found that CSF is a low-cost implementer, so we use a unit cost of $60,000 to generate this budget estimate.

Details:

Ideally, conservationists would have thorough university training in all key subjects, but this is impractical, would leave them no time to actually do conservation work, and in any case is an over-investment. There are a number of skills that lend themselves to a short-course format and were found to be in short supply in our research. Among the most remarkable gaps is the area of public policy analysis, a topic that rated high on the demand side no matter how we posed the questions on training needs. It rated as the top long-term need by a comfortable margin. Nonetheless, only five percent of the courses taken by our respondents over the last five years were in this subject.

The analysis portion of policy work involves analyzing changes in economic well being of different sectors of society resulting from public decisions. Further, it requires organizational and political analysis to determine the feasibility of good policy alternatives, and finally, negotiation, communication and leadership skills to implement change. From the basic economics through to communication, these are skills readily taught in short courses.

Other areas that rated high in our survey and should be considered in a portfolio of short courses include enterprise development and biological monitoring (captured under the rubric of monitoring and evaluation). Training in Geographic Information Systems (GIS) did not rate high in our

assessment, but might be considered on the strength of past successes. Another area that should be considered is conservation biology/ecology for non-scientist conservationists.
Both NGOs and universities can effectively implement short courses. Organization for Tropical Studies (ecology, leadership), Conservation Strategy Fund (economics, policy, negotiation), International Institute for Education in Brazil (policy, law, communications), and the Wildlife Conservation Society (GIS, ecology, wildlife management) represent but a few of the NGOs effectively implementing short courses.

Almost all the Northern universities we interviewed have professional development or executive education courses, but few focus on environmental issues, and when they do they target developed country participants. The courses are designed to generate revenue for the university, so tuition costs are usually beyond the reach of conservation organizations. A number of university faculty are individually involved in delivering short courses in developing countries, in collaboration with local universities or NGOs. If northern universities had funding, they could offer more short courses relevant to conservation issues in tropical developing countries and make them accessible to conservation professionals in those countries.

4. Provide training in protected areas management.

Rationale:

- Protected areas management registered as a top priority on both an emergency and on a long-term basis in our survey.
- Few degree programs or professional training exist specifically for protected areas management.
- Protected areas are the foundation of wilderness conservation efforts and a central biodiversity strategy of the Moore Foundation.
- There are broad opportunities to expand protected areas if parks are well managed over the next few years.
- Strong management is needed at the park level in a world of decentralized threats.

Estimated cost:

Unknown. CABS 'current research on park management costs will help inform cost estimates.

Details:

Our survey did not reach park staff in a significant way. The only comprehensive look at this topic was Pitkin's 1995 study of parks in Eastern, Central and Southern Africa. She found that protected area managers 'top priorities were skills to improve relations with surrounding communities and to better serve park visitors. After those came a laundry list of internal management skills, but not much in the way of natural science or policy— topics important to the conservation professionals that made up our respondent pool. An ongoing CABS review of Peruvian and Ecuadorian parks is finding that the top demand is for conflict resolution to smooth relations with surrounding communities— similar to the African research. Care should be taken in extrapolating these findings too broadly without some further investigation in tropical regions.

Another area that warrants consideration is practical training in conservation biology for park directors and professional staff. This sort of training can be provided by NGOs or university partners with research activities in the parks.

Training can be done either as formal degrees or in-service. Africa's wildlife colleges in Cameroon and Tanzania offer the best examples of degree programs, though as of Pitkin's study, they were in decline due to funding shortages. In Latin America and Asia, options that deserve consideration are creating several such schools or augmenting some of the existing programs to a level that they are respected regional centers for protected area management. In either case, degree training in this field could be rolled together with our first recommendation— the creation of university hubs for conservation education. Curricula would necessarily be interdisciplinary.

Short in-service training should definitely be employed in this arena. Wildlife Conservation Society's six week training in francophone Africa and Organization for Tropical Studies 'eight-week Wildlands Management training in Costa Rica may provide useful models. One of Pitkin's key recommendations is to provide in-service training *at* the parks. She reasons that perks are often concentrated at park service headquarters, drawing the best talent away from the front lines. The people who desperately need the skills in an era of decentralized threats are the people who live and work in the parks.

SECOND TIER RECOMMENDATIONS

The following two measures are interventions that are promising but did not fulfill our criteria as completely as the set of four recommendations described above.

1. Provide NGO institutional capacity building.

Rationale:

- Among highest-rated topics were fundraising, monitoring and evaluation and project design.
- Poor organizational infrastructure and competence is widespread and a major bottleneck to effective action by NGOs.
- Not a first-tier opportunity because, with the exception of fundraising, there is already a lot of training in these areas, particularly monitoring and evaluation.
- Not a first-tier opportunity because there is no overlap with Science and Higher Education programs.
- Not a first-tier opportunity because accounting/finance and IT/computer skills rated as low training priorities in our survey.

Estimated cost:

Unknown.

Details:

Most of this report focuses on building the capacity of individuals. This recommendation points to the need to strengthen organizations. These two concerns are not entirely separable because organizations are made up of people, who take their skills with them wherever they go.

Management infrastructure, standard operating procedures and strategic focus are all areas in which training can take hold within groups and persist when key individuals leave. We think having more competent and effective NGOs is a necessary condition of conservation over the long run, but placed it as a second-tier recommendation because there is not as much convergence with the Foundation's other program areas, and there is increasing investment in this area by other donors.

2. Awareness training for powerful officials. Set up prestigious training tours that put powerful people in contact with nature.

Rationale:

- The real decision makers are not the "choir" of the conservation movement that the rest of these recommendations seek to help. Sensitized about nature, top officials could have an enormous positive impact on conservation outcomes.
- Prestige and firsthand experience are more effective than classroom experiences. We can't "teach" other people our values and priorities if they don't have their own epiphanies.
- Not a first-tier priority because the best way to do this work is informally, with big conservation groups organizing VIP nature tours.
- Existing decision-maker courses don't often reach high-level decision-makers; it may not be possible to get this audience to a formal training.

Estimated cost:

$1 million a year for 10 training tours. A typical two-week CSF course costs around $175/person/day including everything except airfare. That figure could easily double or triple with the cost of fancy accommodations, remote transport and university overhead. The course should be five days at the most. Assuming that costs triple, the course would run between $50,000 to $75,000 for 20-30 people. Add $25,000 for initial course design and recurrent expenses of $20,000 to maintain the "club" of trainees.

Details:

All of the other recommendations in this report are aimed at upgrading the skills of conservationists. People who don't fit that label make most of the important decisions that affect ecosystems. Training them to be more sympathetic to biodiversity could be another element of the Foundation's capacity-building work. Three elements would be needed to make this kind of training effective: prestige, contact with nature and economic arguments. Having a prominent university or corporation run the session could imbue prestige. Contact with nature should be guided by field biologists in places that are spectacular, offer recreation and are generating some economic benefits. Economic arguments should focus on: 1) low costs of biodiversity conservation, 2) win-win outcomes where inefficient development schemes are avoided, and 3) economic benefits of conservation. Participants in the sessions could be inducted into a special club, with periodic updates on conservation exploits.

Education and Training
For Tropical Ecosystem Conservation

ANNEXES 1-3

A Report Sponsored by The Gordon and Betty Moore Foundation and the Center for Applied Biodiversity Science, Conservation International

Authors: John Reid, Kim Bonine, Robyn Dalzen, Bernard Randrianarisoa, Cecilia Rivas, Chris LaFranchi and Leonardo Hasenclever

Conservation Strategy Fund

December 2002

ANNEXES

Annex 1

SURVEY INSTRUMENT

EXPANDING CAPACITY BUILDING FOR TROPICAL CONSERVATION

This is a survey that has been created by Conservation Strategy Fund (CSF), the Gordon and Betty Moore Foundation and Conservation International (CI) in an effort to research opportunities for investment in education and training for biodiversity conservation. The Moore Foundation is a newly created private foundation that will begin making grants in 2003 in several areas, including environment. CI is an organization dedicated to biodiversity conservation, working in more than 25 countries around the world. CSF provides training and field assistance to conservation professionals in the areas of economics and public policy analysis.

We appreciate your taking the time to fill out this short questionnaire, which will be used to guide funding strategies. To everyone who responds to the survey, we will e-mail summary results of our analysis. Your responses will be kept confidential.

This survey takes 7-10 minutes to fill out and can be found online at www.conservation-strategy.org. In the event of a problem with the online survey, please fill out the survey below and send it via email to survey@conservation-strategy.org.

RESPONDENT INFORMATION

1. Name:

2. Age:

3. ☐ Male ☐ Female

4. Country of origin:

5. Countries where doing conservation work:

6. Name of organization/employer:

7. Type of organization:
   - ☐ Government
   - ☐ Non-Governmental organization
   - ☐ Academic institution
   - ☐ Private company
   - ☐ Independent consultant
   - ☐ Other (please describe):

8. Job title of person answering the survey:

9. Your educational background:

Degree	Subject (biology, forestry, law, etc.)	Institution	Year completed
Bachelor			
Master			
Doctorate			
Post-doctorate			

10. From whom did you first receive this questionnaire?

11. By what means did you receive it?
   - ☐ Email
   - ☐ Post
   - ☐ Other (please explain):

TRAINING NEEDS

12. What training (outside university degree programs) have you received in the past 5 years? Select from the list below and limit to the five most important: *EXAMPLE: A 3-week training course in project design and monitoring and evaluation given by a university that the respondent considered to be quite useful to their work would be entered as in the first row below.*

Course Topic(s) (Choose a number from the list below. List more than one number if multiple topics)	Course provider(s) (list all that apply) 1 = national NGO 2 = international NGO 3 = academic institution 4 = government 5 = other (describe)	Course duration 1 = less than 1 week 2 = between 1 week and 1 month 3 = between 1-2 mo 4 = greater than 2 mo	Degree of usefulness to conservation work 1 = not useful at all 2 = not very useful 3 = somewhat useful 4 = quite useful 5 = extremely useful
EXAMPLE: 9, 10	*3*	*2*	*4*

Training/education types:

1 Basic natural sciences (e.g., ecology, biology)
2 Conservation biology
3 Forestry
4 Sociology/anthropology
5 Economics
6 Law
7 Policy analysis
8 Research methods
9 Project design
10 Monitoring and evaluation
11 Protected areas management
12 Conservation enterprise development
13 Negotiation/conflict resolution
14 Lobbying
15 Communication and outreach
16 Organizational management and administration
17 Fundraising
18 Information technology/computer skills
19 Accounting and financial management
20 Other (please describe)

13. How did you apply the training to your conservation work (check all that apply)?

- ☐ General understanding
- ☐ Research/analysis
- ☐ Influence/formulate policy
- ☐ Project design
- ☐ Program or project evaluation
- ☐ Proposal for funding
- ☐ Negotiation
- ☐ Development of training program
- ☐ Information network/exchange
- ☐ Other (please explain):

14. What kind of academic and professional training are most needed among conservationists in your country? Using the list of training types under Question 12, rank the top five in order of importance (1 = most important):

Rank	Training/education type
1	
2	
3	
4	
5	

15. What training or education do <u>you personally</u> (as distinguished from conservationists in general) need the most to succeed in your conservation work? Using the list of training types under Question 12, rank the top three in order of importance (1 = most important):

Short Term (within next 2 years)

Rank	Training/education type
1	
2	
3	

Long Term

Rank	Training/education type
1	
2	
3	

16. Excluding university education, how many days per year are you willing to spend receiving training?

17. What institutions (non-profit organizations, universities, development banks, etc.) do you consider the most important providers of conservation training in your country?

Organization name	Organization type 1 = NGO 2 = Academic 3 = Government 4 = Other (specify)	Training type(s) (select #'s from list under Question 12. Select all the relevant training types each institution provides)

18. List up to three languages you speak well enough to participate in training given in those languages.

1	
2	
3	

19. Any additional comments:

20. Your email address:

21. Your organization's general delivery email address:

THANK YOU!

Annex 2

SURVEY DATA

SURVEY DISTRIBUTION

The organizations listed in this table distributed our survey. The right column shows the percentage of all respondents who received the survey from each source.

Survey received from whom	% of respondents
CSF	12%
IIEB	10%
OTS	10%
Yale F&ES	7%
CI	5%
IUCN	5%
U. of Florida	4%
BirdLife	3%
ELAW	3%
WCS	3%
Goldman	2%
Cambridge	2%
USAID	2%
SSC	2%
WWF	2%
Internet	1%
IPE	1%
Moore Foundation	1%
Smithsonian Institute	1%
NEOORN-L	1%
Profound	1%
Global Greengrants Fund	0%
UNDP-Vietnam	0%
Other sources	22%
Total	**100%**

SURVEY RESPONDENTS

Respondents are listed below by country where working.

Country where working	% of respondents
Africa (regional work)	0.6%
Argentina	1.9%
Asia (regional work)	0.2%
Australia	0.4%
Bangladesh	0.4%
Belize	1.5%
Bhutan	0.4%
Bolivia	5.8%
Botswana	0.4%
Brazil	19.8%
Bulgaria	0.6%
Burkina Faso	0.2%
Cambodia	0.4%
Canada (international work)	0.4%
Caribbean (regional work)	0.4%
Central Africa (regional work)	0.2%
Central America (regional work)	1.7%
Chile	1.1%
China	1.1%
Colombia	5.1%
Costa Rica	2.3%
Cuba	0.2%
Dominican Republic	0.2%
Democratic Republic of Congo	0.2%
Ecuador	4.3%
El Salvador	0.4%
Estonia	0.2%
Ethiopia	0.6%
Europe	0.2%
France	0.2%
French Guyana	0.2%
Gabon	0.4%
Germany	0.2%
Ghana	0.6%
Global	1.5%
Greece	0.2%
Guatemala	0.9%
Guyana	0.4%
Honduras	0.9%
India	1.9%
Indonesia	3.2%
International	0.2%
Kenya	0.8%
Lao	0.2%
Latin America	1.5%
Liberia	0.2%

Country where working	% of respondents
Madagascar	0.9%
Malawi	0.2%
Malaysia	1.3%
Mali	0.2%
Mauritius	0.2%
Melanesia	0.2%
Mexico	4.0%
Micronesia	0.4%
Moldova	0.2%
Mongolia	0.2%
Mozambique	0.2%
Nepal	0.8%
New Zealand	0.4%
Nicaragua	0.4%
Nigeria	0.2%
Norway	0.2%
Pacific Islands	0.8%
Pakistan	0.4%
Palau	0.2%
Panama	1.5%
Papua New Guinea	1.9%
Paraguay	1.7%
Peru	3.4%
Philippines	1.7%
Poland	0.2%
Puerto Rico	0.9%
Russia	0.2%
Senegal	0.8%
South Africa	0.8%
Southern Africa	0.2%
Sri Lanka	0.6%
Suriname	0.4%
Switzerland	0.2%
Tanzania	1.9%
Tropical	0.2%
Uganda	1.9%
Ukraine	0.2%
United Arab Emirates	0.2%
Uruguay	0.6%
USA (international work)	2.6%
Venezuela	1.1%
Vietnam	1.1%
West Africa (regional work)	0.2%
Zambia	0.2%
Zimbabwe	0.2%

Professional Profile of Survey Respondents

The type of organization respondents worked for is listed below.

Organization type	% of respondents
NGO	52%
Academic	18%
Government	16%
Other organization	7%
Independent consultant	5%
Private business	2%

Training Time

The right column shows the number of days respondents were willing to spend training according to job title.

Training by job title	Days willing to spend
CEO/Executive Director	25
Consultant/Advisor	28
Program Manager/Director	29
Program Coordinator/Associate	29
Consultant/Advisor	28
Education/Professor	28
Scientist/Specialist	30
Researcher	31
Student/Fellow	40

Training Needs of Respondents

The percentages in the right column indicate the proportion of all respondents who ranked each topic among the top priorities.

General training needs	% of respondents
Conservation Biology	54%
Monitoring/Evaluation	41%
Fundraising	37%
Project Design	35%
Protected Area Management	35%
Policy Analysis	33%
Negotiation/Conflict Management	31%
Research Methods	29%
Enterprise Development	28%
Other	21%
Communications/Outreach	19%
Economics	17%
Org Management/Administration	17%
Sociology/Anthropology	15%

General training needs	% of respondents
Basic Natural Sciences	14%
Law	12%
Accounting/Finance	8%
IT/Computers	8%
Lobbying	8%
Forestry	6%

Personal short-term training needs	% of respondents
Fundraising	32%
Monitoring/Evaluation	24%
Project Design	24%
Negotiation/Conflict Management	21%
Conservation Biology	19%
Protected Area Management	19%
Policy Analysis	18%
Enterprise Development	17%
Research Methods	16%
Org Management/Administration	13%
Other	13%
Communications/Outreach	12%
Economics	8%
IT/Computers	8%
Lobbying	7%
Basic Natural Sciences	5%
Law	5%
Sociology/Anthropology	5%
Accounting/Finance	4%
Forestry	4%

Personal long-term training needs	% of respondents
Policy Analysis	26%
Enterprise Development	20%
Economics	19%
Conservation Biology	18%
Negotiation/Conflict Management	18%
Protected Area Management	16%
Monitoring/Evaluation	15%
Org Management/Administration	15%
Fundraising	13%
Sociology/Anthropology	13%
Communications/Outreach	12%
Law	11%
Other	11%
Lobbying	9%

Personal long-term training needs	% of respondents
Project Design	9%
Research Methods	8%
Accounting/Finance	5%
IT/Computers	5%
Basic Natural Sciences	4%
Forestry	3%

Supply of Training

The following table lists the frequency of past course subjects taken by respondents.

Course subject	% of total subjects
Other	11%
Conservation Biology	10%
Monitoring/Evaluation	9%
Project Design	8%
Research Methods	8%
Basic Natural Science	7%
Economics	5%
Negotiation/Conflict Management	5%
Policy Analysis	5%
IT/Computers	4%
Communications/Outreach	4%
Org Management/Administration	4%
Protected Area Management	4%
Fundraising	4%
Sociology/Anthropology	3%
Enterprise Development	3%
Forestry	3%
Law	2%
Accounting/Finance	1%
Lobbying	1%

Green = training frequency consistent with needs identified in survey
Yellow = training identified as needed but not being adequately supplied

Providers of Training

Respondents listed the important providers of conservation training in their country, which totaled over 550 institutions. The following table lists these institutions by organization type.

Provider organization type	% of respondents
NGO	38%
Academic	39%
Government	16%
Other	7%

Annex 3

US AND UK SUPPLIERS OF TRAINING

This Annex contains detailed information on the following universities and other organizations and institutions interviewed for this study. Conservation Strategy Fund, author of the study, and Conservation International, one of the sponsors of the study, are not included in this collection of profiles.

UNIVERSITIES

- Cambridge University, Zoology Department
- Duke University
  - Center for Tropical Conservation
  - Nicholas School of Environment and Earth Sciences
  - Sanford Institute of Public Policy – Program for International Development Policy (PIDP)
- Harvard University, John F. Kennedy School of Government
- Oxford University, Environmental Change Institute (ECI)
- Stanford University
  - Interdisciplinary Program in Environment and Resources (IPER)
  - Center for Conservation Biology
- University of California at Santa Cruz (UCSC), Environmental Studies
- University of Florida
  - Tropical Conservation and Development (TCD), Center for Latin American Studies
  - College of Natural Resources and the Environment (CNRE)
  - Program for Studies in Tropical Conservation (PSTC)
  - School of Forest Resources and Conservation (SFRC)
- University of Kent, Durrell Institute of Conservation and Ecology (DICE)
- University of Michigan, School of Natural Resources and Environment (SNRE)
- Yale University, School of Forestry & Environmental Studies (F&ES)

OTHER INSTITUTIONS

- American Museum of Natural History (AMNH), Center for Biodiversity and Conservation
- BirdLife International
- Fauna and Flora International (FFI)
- Institute for International Education (IIE)
- Organization for Tropical Studies (OTS)
- Smithsonian Institution, Monitoring and Assessment of Biodiversity Program (SI/MAB)
- Tropical Biology Association (TBA)
- The Nature Conservancy (TNC)
- United Nations Environment Program, World Conservation Monitoring Center (UNEP-WCMC)
- United States Agency for International Development (USAID)
- Wildlife Conservation Society (WCS)
- World Bank Institute (WBI)
- World Conservation Union (IUCN)
- World Resources Institute (WRI)
- World Wildlife Fund (WWF)

University Profiles

CAMBRIDGE UNIVERSITY

Contact: Andrew Balmford, Senior Member, Conservation Biology Group

Cambridge University has one school that is particularly relevant to conservation practitioners, the Conservation Biology Group housed in the Zoology Department. Other programs that are somewhat relevant include the Committee for Interdisciplinary Environmental Studies in the Geography Department, the Wildlife Research Group in the Anatomy Department, the Department of Land Economy and the Department of Biological Anthropology. Cambridge also houses the Tropical Biology Association (TBA), an independent NGO providing training primarily in Africa and Europe (see TBA profile under NGO section).

ZOOLOGY DEPARTMENT

The Department of Zoology is a large, multidisciplinary department with a wide range of research groups. The most relevant group to conservation professionals is the Conservation Biology Group (CBG) established in 1998, which works closely with practitioners to ensure both that the research is practical and relevant and that science contributes to management decisions. The research of the Conservation Biology Group spans a wide range of issues, but focuses on trying to discover the key threats to biodiversity and the main actions needed to reverse its decline. Research includes projects and studies on the overall patterns of biodiversity loss, the impacts of land-use change, exotic species, overexploitation and climate change, as well as the identification of priority areas, species and activities for conservation. Projects are spread throughout the world in areas such as Australia, Belarus, Madagascar, Myanmar, Papua New Guinea, the Philippines, Russia, Tanzania and Uganda. The group is a postgraduate group with PhD students and post-doctoral fellows who most often learn about the program online and then approach the group directly about membership. Positions are also advertised.

CBG collaborates closely with conservation practitioners. Two of the Senior Members are there on temporary leave from local NGOs. There are also four post-docs from RSPB, BirdLife, WWF-US and WCS. This is a very unusual arrangement for the university, but is central to the group's philosophy of doing relevant conservation science. The Conservation Group is also involved in building ties and networking with other universities and conservation organizations through their work with the Cambridge Conservation Forum (CCF) and annual Student Conference (SCCS) (see descriptions below). Both of these programs aim to forge links between scientists and practitioners. CCF creates these networks among established professionals and SCCS among early-career professionals.

FACTS ABOUT THE PROGRAM

Program Details	
Degrees offered	Zoology Dept: MPhil in Biological Sciences, PhD (research degrees); undergraduate degree
Student body	Zoology Dept.: 225 total for 2002—4 MPhils; 95 PhDs; 126 Undergraduates CBG: 8 PhDs, 2 Post-docs, 2 Visiting Fellows and 2 Senior Members. None from developing countries in tropics.
Cost	US$30,000 for overseas students studying on a 12 mo. academic yr.
Average assistance to developing country student	Gates Cambridge Trust Award—applicants may apply from any country other than the UK; Cambridge Trust Awards—awards offered by country (number offered varies by region)
Faculty	Zoology Teaching staff: 26
Areas of research (Conservation Biology Group)	o Conservation priorities across Africa o Sustainability of bushmeat hunting in central Africa o Priority setting in Uganda o Extinction risk from overexploitation of tortoises in Madagascar o Sustainability of crayfish harvesting in Madagascar o Effects of road disturbance on stone curlews in southern England o Long-term changes in eggshell thickness of European birds o Conservation and farming in the tropics o Costs of conservation
Countries Represented	No tropical developing countries represented currently—see bottlenecks below
Additional information	Zoology: http://www.zoo.cam.ac.uk/ CBG: http://www.zoo.cam.ac.uk/zoostaff/cbg/index.html

Cambridge Conservation Forum (CCF)

The Cambridge Conservation Forum was launched in 2000 to build links between Cambridge, other universities, researchers and conservation organizations. The aim of CCF is to build relationships between people and organizations, increase awareness of and local expertise on conservation issues, and encourage joint initiatives between universities and organizations. Currently 10 schools and departments from Cambridge University and 21 NGOs and organizations are participating. Some of the participating organizations include BirdLife, CI, FFI, IUCN, RSPB, TBA and UNEP-WCMC. The CCF sends out monthly e-newsletters to members advertising events, conferences, publications and jobs.

Student Conference on Conservation Science (SCCS)

The Student Conference on Conservation Science at the University of Cambridge is an opportunity for students and practitioners to make connections between research and the practical application. Participants have the opportunity to listen to lectures from leaders in research and development work, as well as student presentations from a wide range of work in economic, social and biological aspects of conservation in a broad range of countries and regions. Workshops are also presented in areas such as GIS and remote sensing, working with communities, how to write a scientific paper, and turning science into conservation on the ground.

The conference, hosted by the Zoology Department, was started three years ago and is held in March each year, lasting three days. In 2002, there were 200 people in attendance, including 120 postgraduate students from 34 countries and staff from 23 international and UK conservation agencies and NGOs. The conference fee is US$47 exclusive of

accommodation and meals. The conference is sponsored jointly by CI's Center for Applied Biodiversity Science, RSPB, English Nature and Cambridge Department of Zoology.

Future Plans of Conservation Biology Group

- Continue to build capacity via securing long-term support for SCCS, especially for developing country delegates.
- Strengthen the base of the group to better support one or two developing country PhD students. According to a senior member, attracting such students without this support is not helpful.
- In collaboration with the Geography Department and the Cambridge Program for Industry, develop a low cost, high-volume Master's by Study (MSt) program to train large numbers of conservation professionals, mostly using distance learning. The group recently secured funding for an 18-month pilot, and are currently evaluating gaps in existing programs, developing a curriculum, and looking for long-term support. They plan to roll out the program in 2004.

BOTTLENECKS FOR TROPICAL STUDENTS

- Principal constraint is the small number of long-term senior-level posts. With more positions, they could attract more funding and support more students.
- Prohibitive cost of educating developing country students. There are currently no PhD students from developing tropical countries participating in the CBG. Supervising developing country PhD students is difficult, tuition costs are high at $30K per year, and no money is available to bring candidates in for interviews.

OTHER PROGRAMS

Committee for Interdisciplinary Environmental Studies (CIES)

The CIES program, housed in the Geography Department, was established to create links across disciplines within the University's environmental research community and to increase understanding of environmental issues. CIES is undertaking an initiative to provide IT-based forms of learning on environmental issues with the hopes of offering Cambridge students and academic staff access to more information concerning sustainability and environmental issues. Aside from providing already existing materials, the program plans to provide a number of innovative strategies such as computer supported collaborative learning, field-based studies, problem-based learning in small groups, interactive simulations and dynamic modeling of environmental phenomena.

Department of Biological Anthropology

The Department of Biological Anthropology is within the Department of Archaeology and Anthropology and offers MPhil (11 students 2000-2001) and PhD (28 students 2001) programs, as well as undergraduate study. It is unclear how many of these students come from developing countries or Moore focus regions. Biological Anthropology covers a wide range of topics, incorporating elements from archaeology, ecology, conservation, zoology, genetics, psychology, medicine and health. It includes all aspects of human biology, and looks

at interaction between humans, their societies and their environments. The departments regularly welcome colleagues and scholars from all around the world, creating an international research atmosphere.

Department of Land Economy

The Department of Land Economy offers multidisciplinary programs in law, economics, environment and natural resource management. The environment research group, Cambridge Research for the Environment (CRE), has projects in areas such as economic instruments for biodiversity conservation, evaluation of set-aside schemes in agriculture, legal and economic evaluation of genetically modified organisms, intellectual property rights and technological progress, and regulation of the water industry.

Program Details	
Student body	40 undergraduate, 50+ PhDs, (Unknown MPhils)
Degrees offered	MPhil (general), MPhil in Environmental Policy, PhD, as well as 3-year undergraduate degree
Cost	University tuition ($30,000/yr.)
Faculty	40 teaching and research staff
Areas of research	o Environment Research Group o Urban and Regional Studies Group o Property Research Group o Center for Rural Economics Research
Countries represented	Unknown
Alumni	The Cambridge University Land Society (CULS) is a 600-member alumni group network that provides links, resources, and opportunities for collaboration for past and present members of the Department. The network also publishes a newsletter and has four meetings per year.
Additional information	http://www.landecon.cam.ac.uk/

Wildlife Research Group

The Wildlife Research Group is housed in the Department of Anatomy and focuses on the socioecology and conservation of tropical rainforest primates and other wildlife in Malaysia, India, Indonesia, Bangladesh, Vietnam and Brazil. The programs offered include PhD and MPhil programs, with opportunities for graduates to do field work. The program has a research and teaching staff of 10, and currently has 12 graduate students from Brazil (6), Mexico (2), Canada, New Zealand, India and Bangladesh. Research Studentships are available to students from governments of tropical countries, as well as Commonwealth Scholarships, and Wildlife Conservation Society and Fauna and Flora International scholarships.

Other Programs

- African Studies Center, http://www.african.cam.ac.uk/
- Development Studies, http://www.devstudies.cam.ac.uk/
- Earth Sciences, http://www.esc.cam.ac.uk/
- Latin American Studies, http://www.latin-american.cam.ac.uk/
- South Asian Studies, http://www.s-asian.cam.ac.uk/

DUKE UNIVERSITY

Contacts: Karen Kirchoff, Director of Career Services, Nicholas School; Randy Kramer, Nicholas School Professor; John Terborgh, Nicholas School Professor, Director of Center for Tropical Conservation (CTC); Jonathan Abels, Program Director of Duke Center for International Development, Sanford Institute of Public Policy

Duke has two schools most relevant to conservation professionals: the Nicholas School of Environment and Earth Sciences and the Sanford Institute of Public Policy. Both schools offer a practical environmental management and policy focus, and are starting to develop innovative long-term distance learning and professional development opportunities. Duke also houses the independent Organization for Tropical Studies (OTS), of which many other universities are members.

NICHOLAS SCHOOL OF ENVIRONMENT AND EARTH SCIENCES

The Nicholas School has a practitioner focus on natural resource management. The School has an active career services office and invests time and money in experiential internships and the professional placement of its students. In addition, the School has an office of continuing and executive education, Due to cost, location and a domestic regulatory focus, these programs may be less accessible or relevant to developing country professionals. Graduate students have access to the Marine Lab Center, Duke Forest, Wetland Center, and to courses and opportunities at other universities in the Research Triangle (University of North Carolina, North Carolina State).

Graduate Programs

The main focus of the program is natural resources management. Only six percent of the 1999 Nicholas School graduating class went on to academic positions or further degrees—most graduates pursued careers in consulting (36 percent), government (22 percent), and NGOs (18 percent). Nicholas School also offers students special professional workshops for practical skills development. Past workshops include Corporate Environmental Management, Ecosystem Management, Environmental Advocacy, Green Accounting, ISO 14000 Implementation, Land Acquisition, NEPA: Preparing EIA's, and Preparing an Effective Proposal: Translating Ideas into Solutions.

Research centers include 1.) Duke Forest; 2.) Duke University Wetland Center, which coordinates research and teaching on wetland management in US and abroad and is also involved in the Everglades-Pantanal Initiative of the Florida Center for Environmental Studies; and 3.) Duke Marine Lab, which provides education and research in basic ocean processes, coastal environmental management, marine biotechnology and marine biomedicine.

Program Details	
Student body	95-100 graduates/yr (approximately 200 Master's students total) o 20% international (some students from Pacific Rim and Latin America; most international students in the Resource Economics and Policy program, many of Pacific Rim students are in Coastal and Toxicology programs) o 20% PhDs – around 50 total
Cost	$33,000/yr - Tuition is $22,000/yr plus books, living expenses and transportation. Flexibility for flat fees for professional Master's programs.
Financial assistance	No financial assistance from Nicholas School for Master's program. Apparently School used to receive USAID money to train Africans, but these funds are no longer available. International students from Pacific Rim mostly have family support, while most Latin American students have private support. Some international students involved have funding through the DCID program at Sanford (see below). Some money is available to bring international students to summer courses at Duke Marine Lab.
Degrees offered	Research: Master and PhD programs in various departments. Professional: Master of Environmental Management (MEM) and Master of Forestry (MF). Can be obtained concurrently with business, law, public policy or education. Nicholas School grads 2002: o Coastal Environmental Management 33% o Resource Economics and Policy 33% o Resource Ecology 23% o Environ Toxicology and Risk Assessment 7% o Water and Air Resources 4% o Forest Resource Management 1%
Faculty	80-90 faculty with primary appointments with Nicholas School
Countries where most engaged	Faculty research strong in Costa Rica and Indonesia. Faculty and students engaged in research projects in Venezuela, Peru and Costa Rica through Center for Tropical Conservation.
Curriculum	o Practical interdisciplinary curriculum in natural resource management, science and policy o Focus on sophisticated policy instruments and technical management within US regulatory structure o Strong in oceans and coastal issues, marine management, big picture policy issues, multi-national treaties, and science of fisheries
Capacity building	Encourage internships (98% of students do them) and workshops for students to gain practical skills. Most capacity building targeting developing countries occurs via faculty research.
Alumni	Less than 10% pursue academic careers or further degrees. Most graduates pursue careers in consulting, government and NGOs.
Performance measurement	Track graduates; look at number of graduates entering fields relevant to their degree (almost 100% for class of 2002); strong career services center.
Potential programs	o Strong in GIS (working with TNC to house conservation data library for Southeast US) – could potentially take this overseas and build capacity o Professional extension courses in oceans and coastal management, resource economics and policy o Courses relevant to developing country practitioners o Sabbatical incentives for research and activities related to capacity building o Expand and strengthen long-term distance learning opportunities (e.g. U Missouri email network of peer groups) with possible satellite campuses in Frankfurt or Singapore o General and tuition scholarships for international students (often students can get support for everything but tuition) o Extend executive education to developing country professionals? There is no easy way to do this – it would require longer courses, different content, different instructors, and money to bring people here or develop courses overseas. Better to connect faculty instructors to NGOs already doing courses (OTS, WWF, IUCN, CSF, etc.)

Center for Tropical Conservation

John Terborgh founded the Center for Tropical Conservation (CTC) to focus the activities of Duke faculty and students concerned about tropical biodiversity. For over twenty years he has also directed the Estación Biologica Cocha Cashu (EBCC) in the lowland tropical forest of the Manu Biosphere Reserve in Peru. Partner organizations are Parks Watch (watchdog activist network conducting "audits" of tropical parks) and The Wildlands Project (developing American wilderness recovery strategies). CTC gathers and disseminates pertinent information and promotes and coordinates research relevant to biodiversity and the sustainable development of natural resources. The Center aims to integrate environmental science and environmental policy and develop policy reforms. Capacity-building activities consist of informal development of partner organizations and developing country students involved in scientific research activities. CTC strongly encourages students to hire assistants who are students from local and national universities. Seventeen research activities are currently underway at Cocha Cashu, ranging from primate behavior to forest dynamics.

Executive Education

(Administered through the Center for Environmental Education at the Nicholas School.)

Senior Professional Program (SPP)

SPP is a flexible Master's degree program for practitioners that targets professionals with at least five years of work experience in an environmental field and who are admitted to the Nicholas School as part-time candidates for either the Master of Environmental Management (MEM) or the Master of Forestry (MF) degree. The professionals spend one semester at Duke enrolled in regular graduate courses. The remaining 15 or more units required for the MEM or MF may be earned either through intensive courses, independent study and research, or a Master's project. Candidates have five years from the date of acceptance to complete the credit requirements.

Executive Education Courses

Program Details	
Participants	Practicing professionals and graduate students (mainly from US) who are pursuing careers in natural resource management and policy.
Duration	Two- to five-day intensive sessions offered throughout the year.
Cost	About $950 for a 4-5 day course (average of $220 per day for instruction, materials and lunch and participants must cover travel, accommodations and other food).
Financial assistance	None apparent – is an income generator for the school.
Courses offered	o Applied training in environmental management issues, mostly relating to US government policy and regulations—GIS, wetlands management, regulation implementation, stream restoration, forest appraisal, ecological risk assessment o Custom courses based on client desires o Sponsor workshops, conferences and seminars
Instructors	Mostly experts in relevant fields, some Duke faculty
Location	Existing courses on Duke campus; custom courses can be onsite or offsite; clients include Duke Power Company, NC Wildlife Resources Commission, The Nature Conservancy, World Bank and the US Army Corps of Engineers.
Countries where most engaged	Domestic focus

PROGRAM IN INTERNATIONAL DEVELOPMENT POLICY (PIDP)

DUKE CENTER FOR INTERNATIONAL DEVELOPMENT, SANFORD INSTITUTE OF PUBLIC POLICY

Duke Center for International Development (DCID) was created in 1985 to focus on policy problems related to international development and provide a mechanism for collaboration among scholars, professionals and technical experts. The DCID Program in International Development Policy (PIDP) targets mid-career professionals from developing countries and countries in transition. This program provides interdisciplinary training in policy analysis related to long-term social and economic development. PIDP was started in 1987 by Bill Ascher (now at Claremont McKenna) to cross boundaries of academic, technical, managerial and professional training. PIDP Fellows have included economists, urban planners, environmental activists, engineers, lawyers, agronomists, legislators, diplomats and researchers. Fellows have gone on to careers in their home countries and international agencies at senior levels as public officials, policy analysts, independent researchers and leaders of NGOs.

Program Details	
Degrees offered	o MA in International Development Policy (1-year option for Fellows with post-grad degrees or at least one year of relevant graduate-level coursework) o Certificate in International Development Policy—two-semester non-degree program, but most students opt for degree o Certificate of graduate training—short-term training during one semester (4 courses)
Student body	Target mid-career professionals who are leaders, policy makers and high-level decision makers; currently have about 35 students from 21 different countries—students from Asia, Europe and former Soviet Union, and Latin America, with a few from Africa. A minimum of 3 years work experience is required for admittance (five years preferred). Over 50% of students from governments, also many students from non-profits. 2000: 26 Fellows from 17 countries (38% tropical developing countries, 15% Moore focus regions) o Asia and Southeast Asia – 40% o Eastern Europe and former Soviet Union – 32% o Latin America – 20% o Africa – 8% 2001: 35 fellows from 21 countries (34% tropical developing countries, 11% Moore focus regions) o Asia and Southeast Asia – 40% o Eastern Europe and former Soviet Union – 37% o Latin America – 17% o Africa – 6%
Cost	Duke tuition – about $33,000/yr for tuition plus expenses
Financial assistance	Majority of Fellows secure own financial support (employer, government, foundation or other funding agencies). DCID offers 3-5 partial scholarships and one full scholarship each year. They also provide extensive information for prospective students on sources of outside funding, and they have arrangements with institutions for partial scholarships (e.g. State Department for former Soviet Union students, Venezuelan and Korean students get national government support). Also attract students with development bank support (WB Young Professionals Program, WB-Japan Joint Program, IDB and ADB) and Rotary scholarships (5 students per year). The Japan Institute for Development Economics sponsors 15 Japanese and 10 developing country students to spend one semester or more at Duke.
Curriculum	PIDP Seminars, courses from schools throughout University, plus a summer

Program Details	
	internship. Smaller, more flexible and more personalized program than Harvard's MPP program (which has about 800 students). Small seminars and workshops focus on development-related topics and economic, political and institutional analysis – e.g. economic analysis of development, institutional design for managing the environment, managing project cycle for sustainable development, policy analysis of development, and development and environmental policy. Past internships include World Bank, TNC, UNDP, government ministries, IDB, Institute for Int'l Cooperation and UNICEF. Credits are transferable between Sanford, Nicholas, Law, and other Schools.
Faculty	27 faculty members from Sanford and other Schools (Law, Nicholas, etc.). Four faculty members that comprised the Public Finance Group at Harvard Institute for International Development (HIID) have relocated to DCID.
Countries where engaged	Based on students—Eastern Europe and former Soviet Union, Pacific Rim (Japan, Taiwan, China, Indonesia)
Capacity building in addition to degree programs	o International Executive Education initiative started in 2001 with overseas workshops in collaboration with research institutions/universities and on-campus summer programs. 1. Summer executive education program targets international mid-career professionals. Relevant 2002 summer courses include Project Appraisal and Risk Management (4 weeks, $9600). Other courses are Tax Analysis and Revenue Forecasting (4 weeks, $8,000) and Financial Management ($7500, 19 days). Tuition does not cover travel or meals. 2. In-country courses to train critical mass of people in these skills (user pays). Current programs are being developed for Malaysia, Sri Lanka, Ghana, Chile, Paraguay and Peru. Have already held courses in Taiwan for senior civil servants on strategic planning and international competitiveness. o Four 4-week environmental programs in economics are held in the summer with Nicholas school targeting international government officials from around the world. Tuition is $9500. o Provide several weeks of training at Universidad Americana Asunción. o Sanford Commission promotes peace and conflict resolution in Central America.
Performance measurement	Track alumni and look at success of placement in leadership and high-level policy position in home country or international organization. Very professional oriented.
Potential programs	o Increase numbers of African students (faculty formerly at HIID may facilitate this). o Make executive programs financially accessible to NGO sector. o Increase name recognition of Duke abroad in Africa, Asia (know about Harvard, Yale, Colombia, Princeton). o Create overseas and distance learning opportunities like MBA program. o Provide more funding for students from developing countries.

OTHER PROGRAMS AT DUKE

Students can get concurrent degrees at Nicholas, Law, Business or Public Policy. Additional programs at Duke relevant to conservation professionals include the following:

Latin American & Caribbean Studies

Center coordinates graduate and undergraduate education in Latin American and Caribbean Studies, and promotes research and dissemination of knowledge about the region. The Center offers two certificate options for graduate students plus a certificate for undergraduate students.

African & African American Studies

The African & African-American Studies Program is designed to establish coordinated interdisciplinary study of the history and culture, social and economic issues, and the political institutions and processes that have shaped the experiences of people of African ancestry.

International Studies

Organizes interdisciplinary initiatives including research programs, conferences and courses that focus on the study of global concerns, such as economic globalization, international law, new regional security issues, rethinking approaches to area studies, and globalization and the arts. Funding for the Center for International Studies is supported by the US Department of Education, Andrew W. Mellon Foundation, Ford Foundation and other donors.

DEGREE OF SERVICE TO TROPICAL CONSERVATIONISTS

Nicholas School Master's programs mainly target US students planning careers as environmental professionals. But the framework is in place to admit more students from the developing world, and there appears to be interest from faculty focused on tropical conservation issues. Faculty research and activities are focused on capacity building in various countries (Latin America, Indonesia). The Senior Professional Program degree structure is very relevant to needs of developing country conservationists.

Executive Education courses at Nicholas School mostly serve government officials (note close proximity to DC) and domestic conservation managers. The course content is not as relevant outside the US and other countries with highly developed regulatory structures. The CTC directly builds the capacity of local students and conservation organizations in Peru through research assistantships.

DCID targets environmental leaders from the developing world. PIDP is a very strong, personalized program in management and analytical skills needed by the conservation movement, especially at higher levels. Now that Harvard's Institute for International Development has been downsized (and renamed) and a number of faculty have moved to DCID, this program has moved up a notch as a leader in international development policy among US programs. PIDP is also trying to develop flexible programs, such as one-year degrees and distance learning opportunities that cater to the needs of environmental professionals in developing countries.

Combined curricula and degrees with Nicholas, Fuqua School of Business, and other departments make Duke a school with significant potential for conservation professionals. The current focus of programs is not on the tropics, but there are many resources and faculty relevant to tropical conservationists.

POTENTIAL FUTURE PROGRAMS

- Nicholas: Expand Senior Professional Program model to create more flexible professional Master's degree programs for environmental professionals from developing countries, including 1 year programs and distance learning opportunities.
- Nicholas: Post-doc and faculty exchange with tropical universities.

- Nicholas: Create professional extension courses in ocean and coastal management, GIS, resource economics and policy for developing country practitioners.

BOTTLENECKS FOR TROPICAL STUDENTS

- Limited financial support for international students from developing countries. Currently only those who can pay or secure outside funds can attend. The majority of students are coming from more developed countries in the Pacific Rim (Japan, Taiwan, Singapore). PIDP is trying to recruit students and match them with funding.
- Nicholas: Lack of relevant professional programs for natural resource management in the tropics.
- Duke lacks name recognition in target countries, especially in Africa and Asia.

FUNDING NEEDS

- General and tuition scholarships for developing country students (often students can get support for everything but tuition).
- Development of flexible Master's and professional development programs relevant to developing country practitioners via Sanford or Nicholas.
- Support for faculty involvement in capacity-building overseas.

POTENTIAL INVESTMENTS

- Scholarships for students from Moore focus regions to attend PIDP.
- Sponsor post-doc and faculty exchanges for top tier folks from hotspot regions to learn cutting edge science, skills and techniques.
- Support CTC research by Latin Americans in Manu.
- Develop entrepreneurial MS programs within Nicholas School and PIDP for developing country practitioners modeled after MBA programs that are part in residence and part distance learning (interdisciplinary, short courses, Internet learning, satellite campuses, etc.

OVERALL IMPRESSION

Duke has all the resources of a leading research institution, especially in coastal and ocean management, technical monitoring, economics, policy and business management. A number of faculty members are leaders in their respective fields (ecology, policy, economics, etc.) and are working internationally. The university offers relevant opportunities for environmental scientists, high-level decision-makers and environmental managers.

At the Nicholas School, Master's programs are focused on practical and applied management, with a number of top-tier research faculties involved at the global environmental level. The School offers excellent interdisciplinary training emphasizing systems analysis using science, economics, policy and risk analysis, with opportunities to combine courses and degrees from various schools. Nicholas School and its various centers, with the exception of CTC, have a

strong focus on professional training and practical technical tools for ecosystem management within US legal, regulatory and policy structure. These are not always relevant to the realities of conservation professionals in the developing world. Nicholas is a good candidate school for exchanges of faculty, post-docs or environmental managers to learn certain techniques in a specific area of resource management and environmental science and policy (especially coastal and resource economics). In the past they have mainly had international students who can pay from Pacific Rim and Latin America.

DCID at Sanford offers opportunities for developing country conservation and public sector leaders through their PIDP Master's Program. PIDP also affords opportunities for developing country leaders to obtain top tier technical and science skills from courses at Nicholas School, Fuqua Business School and the Law School. However, most theses from the past few years are on development and not conservation or environment. PIDP appeals to high-level decision makers in developing countries, and focuses on many of the leadership, finance, economic, policy and governance needs of developing country organizations (a major bottleneck to receiving World Bank grants is lack of financial management capacity, according to Alberto Ninio, a lawyer at the Bank). This program is probably not as relevant for field-based conservation practitioners.

It costs more money to send a student to Duke than to a state school, but they receive unique exposure and experience at a top-tier institution. Duke Schools (Sanford, Nicholas, Business, Law) are open to non-traditional ideas and flexible distance learning opportunities for environmental professionals, e.g. Senior Professional Program and PIDP program. They are ready to extend the business school model (4-5 ways to earn a degree) to environmental management.

HARVARD UNIVERSITY

JOHN F. KENNEDY SCHOOL OF GOVERNMENT

Contacts: Bill Clark, Harvey Brooks Professor of International Science, Public Policy and Human Development; Calestous Juma, Fellow, Science, Technology and Public Policy Program

GENERAL DESCRIPTION OF PROGRAMS

The Kennedy School of Government (KSG) supplements its generic curriculum in policy analysis and public administration with thematic teaching and research in a variety of areas. One of them is environment. Environmental specialists at KSG have considerable depth in the areas of pollution and energy and less renown in ecosystem conservation issues. The exceptions to this are Bill Clark, who has done "big think" work on global sustainability issues, and Calestous Juma, who, though a biodiversity specialist, has focused most recently on the areas of biotech and the Biodiversity Convention (which he directed) rather than field conservation.

FACTS ABOUT THE PROGRAM

Program Details	
Degrees offered	o Master in Public Policy (MPP), Master in Public Administration (MPA), Master in Public Administration/International Development (MPA/ID), Master in Public Administration (MPA/MC)—mid-career program o Doctor in Public Policy, Doctor in Health Policy, Doctor in Social Policy, Doctor in Political Economy and Government o Executive Programs—high-end short courses aimed at corporate and government officials
Student body	MPP: 360 MPA: 100 MPA/ID: 120 MPA/MC: 210 160 students overall from developing tropics or subtropics
Cost	US$47,941 for tuition and fees, room and board, books and supplies, personal expenses and health insurance; US$54,214 for international students in the MPA/MC program
Average assistance to developing country student	(Numerous fellowship opportunities listed on their website)
Additional information	http://www.ksg.harvard.edu/

DEGREE OF SERVICE TO TROPICAL CONSERVATIONISTS

While KSG has a good track record of bringing students from developing countries, it has had little success in attracting tropical conservationists. As of Spring 2002, there were 160 students from countries in the developing tropics and subtropics (30 or so from countries partially in the three Moore focus regions). KSG now has one of the preeminent graduate

programs in international development. Nonetheless, it is virtually unknown in the conservation world in developing countries. From 1997-2001, there were only three degree-program students from conservation-oriented institutions in countries that contain biodiversity "Hot Spots," as identified by Conservation International. The school lacks ties to conservation NGOs and fundamentally shies away from green issues, which are less intellectually compelling than (and not as well funded as) pollution from a policy standpoint.

BOTTLENECKS FOR TROPICAL STUDENTS

KSG identified bottlenecks

Clark argues that hiring Calestous Juma gave the Kennedy School a true biodiversity specialist for the fist time. Prior to that, there was no one to attract students interested in biodiversity, no one to teach classes in the subject, and no one to design appropriate executive programs.

CSF identified bottlenecks

- No one at the school focusing on valuation of ecosystem goods and services
- No one (after Ricardo Godoy left) with field conservation experience
- Limited consulting work in conservation for CID (formerly Harvard Institute of International Development)
- Ecosystem conservation policy not as interesting as pollution, energy and water regulation
- No conservation mafia; tropical conservationists don't know anyone who's been there
- Extremely limited financial aid for Master's program
- Extremely high quantitative skills standard for MPA/ID program
- Economics tells us that deforestation often maximizes welfare
- Fancy policy instruments (tradable permits) often unworkable in the tropics
- Institution building focuses on institutions that can pay (finance, judiciary, infrastructure agencies, not parks agencies)
- Highfalutin money-making school with small endowment

POTENTIAL INVESTMENTS

Despite its near complete lack of track record, KSG could make a couple of important contributions:

- Invite the school to compete for the conservation scholarships that are one of the four main recommendations of this report.
- Offer an Executive Program in conservation policy analysis—perhaps in partnership with CSF and OTS. KSG can teach the generic tools well (decision theory, negotiation, organizational analysis), but will need lots of guidance on making the content relevant to an NGO and environmental agency audience. Benefits include attracting higher-level people and learning from their expertise; disadvantages include high cost, institutional inertia and stretching away from their agenda.

OXFORD UNIVERSITY

ENVIRONMENTAL CHANGE INSTITUTE

Contacts: Rob Whittaker, Acting Director of ECI; Terry Dawson, ECI Research Fellow; Ian Curtis, ECI Development Officer

GENERAL DESCRIPTION OF PROGRAMS

The Environmental Change Institute (ECI), established in 1991, is within the School of Geography and the Environment in the Life and Environmental Sciences Division at Oxford. ECI is Oxford University's center for research and teaching on the environment and sustainability. ECI is formally a Research Unit of the School of Geography and represented through the Faculty of Anthropology and Geography.

ECI was established to organize and promote interdisciplinary research on the environment and to contribute to management strategies for coping with future environmental change. The breadth of research topics covered by the ECI encompasses four strands of sustainability: lifestyle, natural resource, industrial and ecosystems. ECI also coordinates and promotes environmental work across the University. ECI faculty members play a leading role on international and national committees and contribute evidence to major international bodies. ECI collaborates with other academic centers and a wide range of organizations, including government, business, industry and NGOs.

Since 1994 ECI has offered a one-year Environmental Change and Management MSc for leaders from all over the world. ECI's MSc is one of the most popular science graduate courses at Oxford in terms of number of applicants per place available. The 2001 MSc class has students from 18 countries and a wide variety of disciplines (economics, ecology, law, Latin American studies). Each year ECI receives about 250 applications from 55 countries for 30 placements. Almost one in three of the 2001 MSc class already has a Master's degree. Students can take courses from many different specialists and departments at Oxford, including Continuing Education, Educational Studies, Geography, Management, Plant Sciences, Socio-Legal Studies, Transport Studies and Zoology. Oxford considers itself the world leader in terms of African studies, and ECI trains many African environmental leaders. PhD students working in ECI are administratively enrolled through existing doctoral programs such as Geography and Zoology.

FACTS ABOUT THE PROGRAM

Program Details	
Student body	Target mid-level professionals with prior experience; average age is 30. 2001 Class: o 16 PhD students o 30 MSc students: 90% (27) international 40% (12) developing country (E and S Africa, former Soviet Rep, South Asia) 20% (6) from tropics and sub-tropics 0% Moore focus regions

Program Details	
Cost	$31,000 total per year: $11,250 tuition + $4300 university + $3500 college = $19,000 + living expenses (estimated at $12,000 for 12mo)
Average assistance to developing country student	No funding available from ECI—bias is towards students from developed countries who can afford to pay. o 11 out of 12 developing country students received outside scholarships, mostly from British Chevening or Rhodes; 4 out of 6 students from tropics and sub-tropics have Rhodes scholarships; only 4 out of 15 students from UK, US, Europe and Japan received outside scholarships. o UK Darwin fund also gives support to students from high biodiversity countries with few resources. Many other UK support programs are targeted at Commonwealth countries.
Degrees offered	MSc in Environmental Change and Management Research Programs (from website): o Biodiversity and Terrestrial Ecology o Climate Change & Demand for Water o Climate Resources and Society o Environment and Development o Land Degradation and Rehabilitation o Lower Carbon Futures o Modeling and Management of Carbon Cycles o Vulnerable Communities
Faculty	30 researchers
Countries where most engaged	Faculty research—Madagascar PhD Dissertations—Costa Rica, China, MSc Dissertations—Zambia, Cambodia, Malaysia, Pakistan, India, Madagascar, Uganda, Zimbabwe
Capacity building in addition to degree programs	Many field research projects of faculty and students involve local level people and institutions. British Council supports Forestry Department exchange with Nigeria.
Curriculum	Focus on how present and future changes in the local and global environment may be managed. Three central themes: o Current issues and their driving forces (population, energy, land use) o Managing the environment (law, ethics, economics and policy) o Methods and techniques for environmental management (modeling, survey, assessment, computing) Problem-based curriculum—e.g. Energy and the Environment, Ecological Ethics, Business and the Environment, Coastal Environmental Management, Environmental Indicators, Land Degradation, etc. Unlike some professional Master's, all MSc students are required to write a dissertation.
Alumni	Of 160 MSc Alumni: o 31% Further study (mostly PhD) o 25% Business o 22% Government and related o 13% NGO o 9% Research and Education Of 160 MSc Alumni: o 76% (121) international o 14% (22) from developing countries o 8% from tropics and subtropics (including China) o 2% from Moore focus regions (S. America) o Other countries: China (3), Guyana, Pakistan (4), South Africa (3), Tanzania, Chile (2), Mozambique, Thailand (2), Bolivia, Brazil, India, Kenya, Ecuador
Measuring success	o Number of applicants for MSc program o Number of graduates at important environmental events such as COP6

POTENTIAL PROGRAMS

ECI wants to make universities instrumental in the environmental movement the way they are in medicine and business. The program sees a need to create a global network of environment schools that focus on interdisciplinary training. They also see a need for independent bodies in universities that can be more involved and mobilized in the environmental movement yet retain their standing as independent "honest brokers." Oxford University is making a large investment in the environment with a new building that will bring together 100 faculty members from across the university.

Specific potential programs:

- Create "Research and Outreach" hotel as part of University environment initiative that will conduct informal education, training and outreach for environmental professionals.
- Catalyze an international effort to develop environmental training for professionals to the degree that the MBA has been developed over the past several decades. The key to success is building partnerships with lead universities and establishing a network of Master's programs. The Mellon Foundation may have funds to underpin this collaboration.
- Create part-time possibilities that are more useful for professional development than long drawn-out PhDs.
- Create back-to-back MBA and MSc programs (or law, etc.).
- Develop non-degree summer programs like Oxford Forestry, with Internet databases and networks. Colleges have resident capacity that can be exploited during the summer.
- Create networking and social learning circles on important issues such as climate change.
- Online programs with Department of Continuing Education (have part-time, summer, weekend, short courses, Internet, etc).
- Develop several other MSc programs with 20-30 students each that formalize some of the current research themes:
  - Biodiversity and Conservation
  - Nature, Society and Science (or Policy)
  - Water
  - Business

ECI plans to start two Master's programs with a social science focus—the Nature, Society and Science Master's in Oct 2002, and Biodiversity and Conservation in 2003. These programs will infuse religion, values, ethics and culture into sustainable development and conservation issues.

DEGREE OF SERVICE TO TROPICAL CONSERVATIONISTS

- ECI provides interdisciplinary and rigorous courses covering the breadth of environmental change and management issues relevant to needs of environmental leaders in developing countries. NATO identified the ECI MSc as a success for *interdisciplinary* education and training for environmental leaders, tackling large-scale processes and issues.
- Oxford's brand name is very renowned and will attract high-level decision makers and leaders (academic and research oriented).

- A one-year course is very attractive to environmental professionals due to decreased time and cost. PhD programs are also faster than in the US, and an entirely full-time program usually lasts only four years. ECI offers flexibility in terms of where students can conduct PhD studies so they can spend large amounts of time in their home country.
- Currently not attracting many students from hotspot countries from the tropics or from Moore focus regions, rather, they have stronger ties to Commonwealth English speaking countries.

BOTTLENECKS FOR TROPICAL STUDENTS

- Cost is too high
- Candidates do not have strong enough previous education
- Program is not well advertised in the tropics, especially in Latin America
- Small class size means that the program can't make a very big contribution to tropical conservation movements even if "demand side" bottlenecks are resolved
- Current summer courses attended primarily by American and Japanese students with money

FUNDING NEEDS

- ECI would like a $15 million endowment
- Funds to develop new MS programs

POTENTIAL INVESTMENTS

- Scholarships for students from Moore focus regions
- Include Oxford in eventual network of environmental professional training programs

STANFORD UNIVERSITY

Contacts: Paul Ehrlich, Professor, Biological Sciences; Gretchen Daily, Research Scientist, Biological Sciences; Sara Hoagland, Associate Director, Interdisciplinary Graduate Program in Environment and Resources and Stanford Environmental Initiative

GENERAL DESCRIPTION OF PROGRAMS

Stanford University has world-renowned faculty in environmental science, and a number of interdisciplinary programs and centers. Stanford does not have a professional environmental school, but instead fills the niche of an elite academic research institution. Faculty are involved in national and global environmental science, conservation and policy debates. Stanford's undergraduate and co-terminal Master's program in Earth Systems combines ecology, economics and earth sciences. The small Interdisciplinary Graduate Program in Environment and Resources (IPER) program is the new graduate analog to the Earth Systems Program. Both of these programs are housed in the School of Earth Sciences. Within the Department of Biological Sciences, the Center for Conservation Biology (Paul Ehrlich's lab) plays a similar role as the CTC at Duke in fostering scholarship, research and capacity building for conservation. The CCB works closely with institutions in Mexico and Costa Rica, and has sponsored field research courses, as well as post-doc and faculty exchanges. The Center for Environmental Science and Policy, part of the Institute of International Studies, provides a forum for graduate student and faculty collaboration across university departments on the science and policy of global change.

Interdisciplinary Graduate Program in Environment and Resources

The Interdisciplinary Graduate Program in Environment and Resources (IPER) is a new graduate program launched in the fall of 2002 as an intellectual home for students with strong interdisciplinary environmental interests, and explicitly combines ecology, law, medicine, economics, anthropology, earth science, engineering, foreign policy and business. The goal of the program is to train the next generation of scholars who will find effective solutions to real-world problems. The program plans to accomplish this by fostering: 1.) recognition and evaluation of the linkages between physical and biological systems; 2.) recognition and evaluation of the interplay between human activities and the Earth system; and 3.) development of skills for gauging the potential impacts of alternative public policies. The program is housed in the School of Geological and Environmental Sciences and offers PhD degrees as well as joint, co-terminal MS degrees with Stanford's Schools of law, medicine and business.

Facts About the Program

Program Details	
Degrees offered	o PhD o Joint MSc with other professional degree programs on campus (Law, Business, Medicine)
Student body	2002: 7 students, 30% (2) are international from developing countries: India and China.
Cost	$37,000—Tuition: $27,204 + $10,000 living expenses
Financial assistance	74% of Stanford graduate students receive financial assistance from Stanford or external sources.
Faculty	Nearly 40 faculty members participate in the program from Biology, Marine Biology,

Program Details	
	Geology & Environmental Sciences, Anthropology, Law, Economics, Civil & Environmental Engineering, Geophysics, Earth Systems, Human Biology, Petroleum Engineering, Institute for International Studies, Management Science and History
Countries where most engaged	Most research is international; many students study in developing world (tropical forests, India, China, Bolivia, Ecuador, South Africa). Faculty look at systems throughout the globe (climate, oceans, nutrient cycling, game theory, etc.), and work in Mexico, Costa Rica, Brazil, Panama, Peru, Honduras, Ecuador, El Salvador, Chile, Indonesia, China, Mongolia, India, Canada and Antarctica.
Curriculum	Core courses: o Interdisciplinary Analysis o Case Studies in Environmental Problem Solving o Environmental Forum Seminar Class offerings: Economics (6); Culture, Law, and Policy (15), Biological Sciences (10), Earth and Ocean Sciences (22), Technology/Engineering (18)
Capacity building in addition to degree programs	None explicitly. Some faculty members engage in capacity-building efforts through their research.

Center for Conservation Biology

The Center for Conservation Biology (CCB) was established in the Department of Biological Sciences at Stanford University in 1984. Its mission is to promote human well-being by developing a scientific basis for managing Earth's life-support systems and helping arrest environmental deterioration.

The Institute for International Studies

The Institute for International Studies (IIS) conducts and promotes interdisciplinary research on key global and international issues at Stanford University. The Institute appoints faculty and research staff, funds research and new scholarly initiatives, coordinates and directs research projects, and sponsors lectures and conferences. The Institute has five research centers:

- Asia-Pacific Research Center
- Bechtel Initiative on Global Growth and Change
- Center for Environmental Science and Policy
- Center for Health Policy
- Center for International Security and Cooperation

IIS has joint faculty appointments with the schools of Earth Sciences, Education, Engineering, Humanities and Sciences, Law and Medicine. Each year the Institute has in residence many visitors from the US and abroad, and from the academic, corporate, government and NGO worlds.

Center for Environmental Science and Policy

The Center for Environmental Science and Policy (CESP) focuses on the science and policy of global change, and conducts research on the forces that underlie environmental problems

as well as the policy responses to these problems. Ten faculty from across the university (Biology, Geologic and Environmental Sciences, Economics, Political Science, etc.) conduct research on climate change, macroeconomic policies, energy and sustainable development, food security and agricultural policies and market-based regulations. CESP sponsors a weekly interdisciplinary seminar on environmental policy issues for faculty and graduate students from a number of university departments.

Law School – Environmental and Natural Resources Law and Policy Program

This program focuses on domestic, global and transnational boundary issues (Kyoto protocol, acid rain, etc.). Class size in the entire school is about 180 students (it's not clear how many of these are international or developing country students).

Stanford Environmental Initiative

Stanford is trying to create a coherent and readily identifiable program in environmental science, resources, and public policy. Stanford's Environmental Initiative is a consortium of people from the Schools of Earth Sciences, Engineering, Humanities and Sciences, Law and Medicine, whose research, teaching and outreach are directed toward interdisciplinary and integrative approaches to solving problems of the environment. Over 56 faculty members are currently engaged in environmental areas at Stanford, housed in six schools and two interdisciplinary programs.

Other Environmental Centers, Institutes and Groups

- Carnegie Institution of Washington
- Center for Conservation Biology
- Environmental Engineering and Science Research and Teaching Laboratories
- Energy Modeling Forum
- Environmental Fluid Mechanics Lab
- Hopkins Marine Station
- Jasper Ridge Biological Preserve
- Morrison Institute for Population and Resource Studies
- Stanford Institute for Economic Policy Research
- Western Hazardous Substance Research Center

Stanford Center for Professional Development

The Center for Professional Development offers part-time graduate degrees, as well as non-degree and certificate options for professionals. Relevant participating departments/programs include Civil & Environmental Engineering, Management Science and Engineering, Advanced Project Management, and Science, Technology and Society. The Center uses distance-learning technologies, including online, broadcast, two-way video and videotape instruction. Cost per course unit is $1100 for degree seekers/$870 for non-degree; the cost for videotape courses is $930 US/$1850 int'l.

DEGREE OF SERVICE TO TROPICAL CONSERVATIONISTS

Currently Stanford is not serving many tropical conservationists as students, but many Stanford faculty and programs focus on research and policy issues in the tropics that entail collaboration with various universities and institutions in tropical and sub-tropical developing countries (Costa Rica, Indonesia, India, Mexico, China).

POTENTIAL FUTURE PROGRAMS

Strengthen Stanford Environmental Initiative and make Stanford a world-class center for training environmental scholars.

BOTTLENECKS FOR TROPICAL STUDENTS

- Small and highly competitive programs with research rather than practical professional focus
- Does not target developing country students

POTENTIAL INVESTMENTS

- CESP could sponsor a high-level decision-makers course in environmental problem solving (at Stanford or in Mexico)
- CCB courses in Costa Rica and Mexico
    1. Increase faculty involvement in courses to increase prestige and expertise
    2. Faculty for graduate and post-doc exchanges
    3. Joint Business and IPER MSc program relevant for environmental practitioners from Moore focus regions

OVERALL IMPRESSION

Stanford offers outstanding and rigorous interdisciplinary environmental education opportunities, with a strong tradition of combining environmental science, technology and policy. The school does not provide practical curriculum, so it's not highly relevant for environmental practitioners and professionals from developing countries. Programs are small and highly competitive, and geared for academics. Stanford may offer better opportunities for post-doc and faculty exchanges, or for faculty involvement in regional courses (either science or policy). The IPER Joint MSc programs are more practical and professionally oriented.

Many students from developing tropics will not have academic credentials or funds to attend Stanford programs. However, Stanford has outstanding faculty and resources that could be leveraged to build capacity of university and research programs. High level of policy engagement and prestigious scholars could attract high-level decision-makers for awareness courses. Currently Stanford is dedicating significant resources to build up the environmental programs and may be receptive to engaging in capacity-building efforts in Moore focus regions that capitalize on Stanford's strengths.

UC SANTA CRUZ

ENVIRONMENTAL STUDIES

Contact: Greg Gilbert; Professor, Environmental Studies Department; Website, http://www.ucsc.edu/public/default.asp

GENERAL DESCRIPTION OF PROGRAMS

The Environmental Studies Program houses the following programs:

- Center for Agroecology and Sustainable Food Systems (CASFS)
- Center for Global, International & Regional Studies
- Center for Tropical Ecology, Agriculture and Development (CenTREAD)
- Center for Conservation Science and Policy (CCSP)

Center for Agroecology and Sustainable Food Systems (CASFS)

The CASFS program has a number of programs including: 1.) graduate and postgraduate training, 2.) practical research, notably in agriculture and the environment, 3.) Apprenticeship training course, 4.) Agroecology training course on the UCSC campus, 5.) Tropical Agroecology and Agroforestry training course (Costa Rica), and 6.) other international training courses (catered to specific audiences/regions).

Agroecology Training Course

The Tropical Agroecology and Agroforestry training course, presented once a year in Costa Rica, focuses on sustainable agriculture and resource management. The training brought together 26 participants from 12 countries, including Venezuela, Ecuador, Brazil, and Colombia, among others, for two weeks of lectures and field exercises. UCSC faculty member Steve Gliessman is one of the coordinators and instructors, along with a dozen other instructors from various institutions throughout Latin America. The cost for each participant is $1450.

Apprenticeship Training Course

The Apprenticeship Training Course is a six-month training program in ecological horticulture on the UCSC campus, bringing together classroom learning with hands-on experience. The program attracts both national and international students and costs $3,250 plus $300 for tools and books. Two full scholarships are offered to African applicants. The program accepts 35-40 applicants, who are taught by 4 instructors and 8 assistant instructors. The curriculum includes lectures and workshops, small group classes, fieldwork and field trips.

Center for Tropical Ecology, Agriculture and Development (CenTREAD)

CenTREAD has received some seed funding in order to draw speakers and present short courses in areas such as economics, policy and social sciences. There is a large group

interested in coffee issues and there has been some collaboration with the Latin American Studies department to work with Latin American students. The center is contributing $10,000 per year to bring Latin American students to the program. There are hopes that CenTREAD and UCSC as a whole will broaden its curriculum and incorporate more social science approaches to Latin American conservation.

Overall, the Environmental Studies department would like to strengthen economics and policy aspects of the program and now have funding to provide some short courses on the subjects.

UNIVERSITY OF FLORIDA

Contacts: Marianne Schmink, Director of Tropical Conservation and Development (TCD): and Professor of Latin American Studies and Anthropology; John Dain, TCD Lecturer and Executive Committee Member; Hannah Covert, TCD Assistant Director; Steve Humphrey, Dean of College of Natural Resources and Environment:; Susan Jacobson, Director of Program for Studies in Tropical Conservation; Dan Zarin, Associate Professor of Tropical Forestry, School of Forest Resources and Conservation and Executive Director of Forest Management Trust

GENERAL DESCRIPTION OF PROGRAMS

For the last two decades, the University of Florida has led US universities in providing training to conservationists from tropical countries in Latin America (LA). Graduates from Florida are active in numerous conservation organizations, academic institutions, and government leadership positions in Latin America and the US, forming a large cohort popularly termed the "Florida Mafia."

Florida is a large, diverse university that offers students a broad array of interdisciplinary studies with both strong social and natural science components and the low price tag of a public university. Florida is also focused on bringing students from Latin America and the Caribbean, as well as international students who have obtained a US federal or state scholarship, such as a Fulbright, and qualify for in-state Florida tuition. Somewhat unique among academic institutions, Florida exhibits a strong rapport and collaboration among faculty from many schools and departments who are interested in tropical conservation and development issues. The school is closely connected to numerous on-the-ground conservation activities through faculty and graduate student research as well as connections with past graduates. A strong point of all Florida programs is their attention to practical conservation. One drawback to this approach is the local nature of many programs and the difficulty scaling for broader impact.

Florida has four programs of particular interest to conservation that span several departments and schools within the university:

- Tropical Conservation and Development (TCD), Center for Latin American Studies
- College of Natural Resources and Environment (CNRE)
- Program for Studies in Tropical Conservation (PSTC), Wildlife Ecology and Conservation
- School of Forest Resources and Conservation (SFRC)

TROPICAL CONSERVATION AND DEVELOPMENT PROGRAM

CENTER FOR LATIN AMERICAN STUDIES

The TCD program has been in existence since 1984 as a non-degree, practitioner focused interdisciplinary graduate program. Starting in the fall of 2002, TCD will administer a Master and PhD Certificate and Interdisciplinary Concentration for students from a variety of departments that are focused on practical tools and integrative approaches to conservation and development in Latin America. In 2000, TCD received a $2 million grant from the Ford

Foundation and a matching grant from the State of Florida to endow and formalize the program. The Certificate and Concentration require study of both natural science and social science courses. Perhaps more importantly, TCD gives students from across campus an important forum for discussion of conservation issues, and students seem to form connections with one another that last throughout their conservation careers. TCD offers fellowships to students from Latin America for study, internships and summer field research. Graduate students are also involved in field-based training programs to build capacity of partner organizations and communities in Latin America.

Facts about the Program

Program Details	
Student body	Between 1988 and 1999 TCD graduated 59 PhD and 132 MA/MS students, which equates to 10-12 students/year; the current TCD class size is 15-20 students. Most students have international work or research experience and speak a foreign language—usually Spanish or Portuguese
Cost	U of Florida's website estimates $24,000 per student per year for out of state graduate tuition, living expenses, books and computers; nonresident graduate tuition is $16,000/yr (as opposed to $22,000 for Yale), which excludes summer internship/research expenses. Many LA students qualify for in-state tuition—overall about 80% of TCD students pay in-state and 20% out of state
Financial assistance	1. TCD offers Graduate Fellowships of up to $25,000 to cover tuition and a living stipend to 10-12 students/yr, for a total of about $160,000 in support/year; preference for fellowships is given to qualified applicants from LA. TCD usually grants one-year fellowships and requires matching funds from the department for the remainder. Since 1988 TCD has given financial assistance to 109 students in 13 different departments. 2002-2003: 13 student fellowships, average of $12,000 per student (12 from developing countries, 8 from Amazon/Andes countries) 2001-2002: 13 student fellowships (12 from developing countries, 9 from Amazon/Andes countries 2000-2001: 10 students (8 from developing countries, 6 from Amazon/Andes countries) 2. Practitioner Experience Program: TCD gives small $700 grants for internships (see Capacity Building below). The majority of recipients are students from LA and the Caribbean 3. Field Research: TCD awards $15,000 per year in $1,500 grants: 2002: 5 of 9 grants went to developing country students, 4 of them to Amazon/Andes students 2001: 3 of 6 grants to developing country students, all 3 to Amazon/Andes students 2000: 5 of 9 grants to developing country students, 3 of them to Amazon/Andes students 1999: 3 of 12 grants to developing country students, 2 of them to Amazon/Andes students
Degrees offered	Interdisciplinary Certificate and Interdisciplinary Concentration to Master's and PhD students from affiliated departments: Agronomy; Anthropology; Botany; Food and Resource Economics; Geography; Geological Sciences; School of Forest Resources and Conservation; College of Natural Resources and the Environment; Political Science; Religion; Sociology; Soil and Water Science; Wildlife Ecology and Conservation; Women's Studies; Zoology.
Faculty	Six faculty members with 50% appointments, including Departments of Wildlife Ecology and Conservation, Forestry and Anthropology. The program has participation of over 40 faculty members from over 15 different academic departments, schools and colleges, as well as a formal collaborative agreement with the School of Forestry.
Countries where TCD is most	TCD is primarily engaged in Latin America. TCD affiliated faculty are currently involved in research in Argentina, Belize, Bolivia, Brazil, Chile, Ecuador,

Program Details	
engaged	Guatemala, Mexico, Nicaragua, Panama, Peru and Venezuela.
Curriculum	Courses that earn credit toward the Certificate and Concentration are organized under the following headings (# of courses offered in parentheses): Interdisciplinary Conservation and Development (2), Ecology (15), Environmental Education and Communication (1), Forestry and Resource Management (7), Quantitative and Research Methods (1), Social Sciences (36)
Capacity building	o Practitioner Experience Program in which students engage in short-term professional activities with host organizations to contribute their skills and expertise in return for practical experience and communication skills o TCD has an alumni support program to enhance capacity-building efforts of TCD graduates once they return to their home countries (trainings, meetings, faculty exchanges) targeting participatory work with local communities
Alumni	Alumni: 1.) return to positions in government and NGO organizations; 2.) join international conservation and development organizations; 3.) start their own NGOs; or 4.) join research and training faculty at national universities. Examples: Professor, Universidad Nacional Colombia; Senior Program Officer, WWF; Manager Community Conservation Program; TNC, Program Officer; Ford Foundation India; Director LA Program, MacArthur Foundation; Director Centor Nacional de Pesquisa Brazil; President IPE; Global Facilitator IUCN; Founder and Director of Ecology, Conservation and Wildlife Management, Universidade Federal de Minas Gerais Brazil; Executive Director, Latin American and Caribbean Program Nat'l Audubon Society; Program Officer, WWF Brazil; Consultant, WWF Mexico.
Performance measurement	TCD conducts entry and exit interviews and has a strong alumni network. TCD received a USAID grant to look at indicators of learning in Acré, Brazil where many TCD students and faculty conduct research.
Potential programs	o Funding for visiting faculty o Fellowships for non-degree program o Practitioner workshops that combine high-level government people, indigenous people, etc.

Other Center for Latin American Studies Programs

Managing Ecosystems and Resources with Gender Emphasis (MERGE) Program

Addresses gender issues in natural resource management in tropical areas. Graduate students are involved with developing training methods and incorporating gender considerations into NGO project implementation.

Latin American Business Environment Program (LABEP):

Collaborates with Florida's Warrington College of Business Administration to monitor economic, social and political developments that influence the business and investment climates in Latin America.

Related Programs

Conservation Clinic with the Levin College of Law: Interdisciplinary law and policy clinic providing professional services by graduate and law students to the conservation community in governmental, NGO and private sectors both in the US and abroad. Works in collaboration with TCD, College of Natural Resources and Environment, Forestry School and other related programs. Examples of Clinic projects include developing a business plan for an eco-lodge in the Maya Forest of Guatemala, and an analysis of extractive reserve legislation for a community in the Brazilian Amazon. Tom Ankersen, Director of the Clinic,

also directs the Summer Program in Environmental Law in Costa Rica, a joint initiative with the University of Costa Rica.

Degree of Service to Tropical Conservationists

TCD trains students for careers in conservation and development. The explicit mission of TCD is "to advance biodiversity conservation, sustainable resource management, and the welfare of rural people in the tropics." TCD has been very successful in recruiting quality students from developing countries in Latin America and elsewhere in the tropics, and training them for successful conservation careers in their home countries. TCD also focuses on much-needed practical skills for conservation implementation such as communication, negotiation, project design, fundraising, and participatory methods.

Over half of TCD alumni are international (92 percent of these from developing countries) and over two-thirds of these are from Moore focus regions. A third of all students are doctoral students. Although many TCD students are female, the majority of students from developing countries are male.

Master's graduates from developing countries at U of Florida TCD					
Graduation year	**1999**	**2000**	**2001**	**2002**	**'99-'02: % female**
Total developing county / total	6/13	5/14	5/12	1/4	14%
Tropics and subtropics	4	5	5	1	14%
Moore focus regions	2	3	4	0	9%

Doctoral graduates from developing countries at U of Florida TCD					
Graduation year	**1999**	**2000**	**2001**	**2002**	**'99-'01: % female**
Total developing county / total	3/6	3/7	2/6	Unavailable	16%
Tropics and subtropics	3	1	2	Unavailable	11%
Moore focus regions	3	0	2	Unavailable	11%

Bottlenecks for Tropical Students

- Insufficient scholarship funding to bring qualified developing country students to the program; insufficient targeting to women from developing countries
- Targeting small-scale community conservation – doesn't influence or train decision-makers

Potential Investments

The curriculum, infrastructure and faculty are in place. Needs include:

- Bolster the fellowship program, which would bring more students to the program
- Develop a program of post-doc and faculty exchanges to help build programs abroad
- Sponsor one or two practitioner workshops abroad as an extension of the practitioner experience program
- Develop copycat program abroad

COLLEGE OF NATURAL RESOURCES AND ENVIRONMENT

The College of Natural Resources and Environment has offered interdisciplinary environmental graduate degree programs since 1999. The programs have university-wide scope with the goal of developing leaders with integrated thinking about natural and social systems. The graduate degrees combine coursework in basic and applied ecology, as well as social, political and economic sciences. Graduate students are hosted by one of 48 participating academic departments, and must apply to both the department and the College for admission.

Facts about the Program

Program Details	
Student body	33 Master's students (60% female) and 20 doctoral (20% female)
Cost	$16,000 per year for nonresident graduate tuition
Financial assistance	The normal suite of doctoral fellowships and 1/3 time graduate assistantships are available to students in the College, as well as a special assistantship in Ecological Economics.
Average assistance to developing country student	Unknown. The college does not have centrally administered funds available for international students. Financial support is available via research grants administered by faculty advisors. If international students have their own funding, the college tries to provide complementary funds. The College will pay tuition of Latin American and Caribbean students who have received US federal or state scholarships and qualify for in-state tuition.
Degrees offered	o Master's Degree in Interdisciplinary Ecology o Non-thesis Master's Degree in Interdisciplinary Ecology (Professional Master's in 3-4 semesters without a research focus) o Doctoral Degree in Interdisciplinary Ecology o Joint program for Juris Doctorate and Master or PhD in Interdisciplinary Ecology (beginning August 2002)
Faculty	Approximately 290 members of the University of Florida faculty in 56 departments of 11 other colleges are formally affiliated with the College of Natural Resources and Environment
Curriculum	Students are required to take two courses in advanced ecology and study three domains of thought integral to interdisciplinary ecology: resource-related natural sciences, environment-oriented social sciences and human sustainability studies. Students design their own curriculum from hundreds of courses and choose one of 38 concentrations under the guidance of the Supervisory Committee.

Degree of Service to Tropical Conservationists

Current Master's students from developing countries at Florida CNRE	
Total foreign students	4 (12%)
Total developing county	3 (9%)
Tropics and subtropics	4 (12%)
Moore focus regions	1 (3%)

Current Doctoral students from developing countries at Florida CNRE	
Total foreign students	5 (25%)
Total developing county	5 (25%)
Tropics and subtropics	4 (20%)
Moore focus regions	1 (5%)

This program provides a natural home for many TCD students and other international conservation students from countries in the tropics and sub-tropics. It may be too diffuse and undefined for international students who don't have an organizing academic and social support structure such as TCD.

Bottlenecks for Tropical Students

- Limited financial aid for Master's program and PhD, especially for foreign students
- New program so most international students probably don't know about it

Potential Investments

- Support scholarships for students from Moore focus areas that are not targeted by TCD (Africa, Melanesia)
- Support collaboration with TCD, African studies, Program for Studies in Tropical Conservation

PROGRAM FOR STUDIES IN TROPICAL CONSERVATION

The PSTC provides training in theory, techniques and management of tropical ecology for the management, sustainable use and conservation of tropical ecosystems. A stated goal of the program is to develop human resources and strengthen institutions in tropical countries through integrated research and training. PSTC provides this training primarily to nationals from tropical countries with experience or responsibility working to manage or protect natural resources. To this end, the program has secured funding from a number of foundations (Compton, Pew, MacArthur, Ford) to bring international students to U of Florida. Many students are from Latin America, the Caribbean and Africa. PSTC works closely with the African Studies Center and the Ford Foundation to bring in students from Uganda. PSTC also develops seminars on tropical conservation issues. Similar to TCD, the PSTC is a non-degree granting cross-department program that combines social, economic and ecological coursework. The target students are those with substantial experience in wildlife management and conservation in their own countries. PSTC works closely with TCD in the following: 1.) recruiting, supporting and placing students; 2.) coordinating scholarship and research funding; 3.) encouraging interdisciplinary activity on campus; and 4.) helping place graduates in appropriate jobs.

Facts about the Program

Program Details	
Student body	Approx. 50 students per year: 85% international, mostly from Latin America
Cost	$16,000 per year for nonresident graduate tuition
Financial assistance	Compton Fellowships of $10,000 (MS) and $15,000 (PhD) for research for five foreign students per year from Latin America and sub-Saharan Africa – priority given to research in biodiversity "hotspots." Students must commit to returning to their home countries or elsewhere in developing world upon completion.
Average assistance to developing country student	Unknown.
Degrees offered	Master's, PhD or non-degree program through participating departments.
Curriculum	Similar to TCD. Students are expected to combine ecological, social and economic approaches to conservation. Research is in the area of conservation

Program Details	
	biology and human dimensions of biological conservation.
Capacity building	PSTC faculty work with institutions in tropical countries and provide in-country workshops and seminars. (Previous programs include the PEW Integrated Approaches to Training in Conservation and Sustainable Development.)
Alumni and performance measurement	Wildlife Department starting to track students— now has exit interviews and a program evaluation for current graduate students.
Potential programs	One-year certificate for conservation professionals.

Degree of Service to Tropical Conservationists

PSTC is an affiliated program with TCD and trains conservationists in appropriate research and management skills to improve conservation and management in their home countries. Student research is expected to have direct application to their countries' conservation efforts. The focus of PSTC is Latin America, but there are also students from Africa, and India (depending on funding sources—Ford, MacArthur, WCS, Pew). PSTC works with many institutions in tropical countries. They have provided a core of trained experts who return to their home countries to develop and maintain conservation, research and education programs.

Bottlenecks for Tropical Students

Unknown.

Potential Investments

No specific recommendations.

SCHOOL OF FOREST RESOURCES AND CONSERVATION

The SFRC provides a broad array of disciplines for the conservation professional, with the goal of maximizing use of renewable forest resources, while at the same time protecting the ecosystem services and recreational opportunities they provide. They have been awarded an NSG IGERT grant for "Working Forests in the Tropics"—an interdisciplinary research and training program looking at the use and conservation of tropical forests that do not have protected-area status in Lowland Bolivia, Acre Brazil, Eastern Amazonia Brazil and the tri-national Maya Forest.

Facts about the Program

Program Details	
Student body	64 students (about 1/3 female): 27% of students are international – all from developing countries, 1/3 female; 22% (82% of int'l) of students are from tropical developing countries; 3% (12% of int'l) of students are from Moore focus regions (Cameroon, Brazil)
Cost	$16,000 per year for nonresident graduate tuition
Financial assistance	SFRC does not have financial assistance targeted for international or developing country students. Financial support is available via assistantships given to SFRC by the state and federal government and assistantships administered by faculty advisors. Most students have assistantships that cover their tuition.
Average assistance to developing country student	$13,000

Program Details	
Degrees offered	o Master of Forest Resources & Conservation (1yr, non-thesis) o Master of Science (2 yr) o Doctor of Philosophy o Combined Juris Doctor degree o Master of Natural Resource Management distance learning degree (under development) o Environmental Education and Communications Certificate o Agroforestry Certificate o Tropical Agriculture Certificate – Center for Tropical Agriculture o Interdisciplinary Concentration in GIS Certificate o Hydrologic Science Certificate o Interdisciplinary Plant Molecular and Cellular Biology
Faculty	25 core faculty, 7 affiliate faculty, and 21 courtesy faculty; counting only the core and affiliate faculty, the student/faculty ratio is less than 2:1.
Curriculum	Very broad and flexible – students can take graduate courses both inside and outside the school, with concentrations varying from agroforestry to GIS to ecotourism. Courses offered by SFRC are organized under the following headings (# of courses offered in parentheses): Ecology (4), Environmental Education and Communication (2), Forestry (9), Physical Sciences (1), Quantitative and Research Methods (7), Social Sciences (3)

Degree of Service to Tropical Conservationists

The SFRC attracts a number of Africans in addition to the strong Latin American student body. Several students in SFRC have received scholarships through TCD and the Center for Latin American Studies. SFRC also has a number of students from Zambia with AID funding and Uganda thanks to MacArthur funding. The Forest Management Trust, a non-profit organization that works to promote sustainable forestry and non-timber forest products in Latin America, is based at SFRC. The Trust involves faculty from outside SFRC including TCD, College of Law, Anthropology, LAS and Botany. The Trust currently has projects in Bolivia, Mexico and Panama and has been a strong promoter of forest certification as a conservation strategy.

Bottlenecks for Tropical Students

Unknown

Best Investment Possibilities

No specific recommendations.

OTHER RELATED PROGRAMS

Florida Center for Environmental Studies (CES)

The Florida Center for Environmental Studies, located near the McArthur campus of the Florida Atlantic University, works with universities throughout Florida as a facilitator and coordinator of research and training related to issues affecting tropical and subtropical freshwater ecosystems worldwide. It was established in July 1994 by the Regents of the State University System of Florida to provide non-credit education and training programs for individuals and organizations involved in ecosystem management.

Everglades Pantanal Initiative

This is a partnership to develop exchanges between south Florida and the Pantanal in Brazil, Paraguay and Bolivia. Activities include a trilingual website, a two-way student exchange program and a scientific working group exploring similarities and differences between the two areas. They are currently working to bring environmental managers and decision makers from the Pantanal region to the Florida Everglades and Chesapeake Bay for two weeks to learn about restoration and management of these systems. The longer-term goal is to strengthen information exchange and research coordination between US institutions involved with Florida Everglades restoration and their counterparts involved in the conservation of the South American Pantanal.

Water Web Consortium and Inter-American Water Resources Network

CES is a founding member of worldwide exchange of information and water management tools, and assists in organization and planning international water meetings, such as the Water Dialogue IV meeting in Foz d'Aqua in September 2001 and the Panama Water Fair and Information Summit in November 2001.

OVERALL IMPRESSION

Florida offers unparalleled opportunities for conservation practitioners from Latin America and is a leader in tropical ecology and forestry studies in general. Programs at Florida have a high degree of interdepartmental faculty and programmatic collaboration and combine expertise in Wildlife, Forestry, Zoology, Botany, Geography, Anthropology, Engineering, Business and Law, as well as the Center for Latin American Studies, Center for African Studies, Center for Environmental Education and Tropical Conservation and Development program. Students can also take advantage of Smithsonian Conservation and Research Center in Front Royal.

The university and state of Florida are committed to attracting and supporting students from Latin America and the Caribbean. Students from these countries can enroll as non-degree post-bachelor students, or they can also get in-state status via state and federal scholarships. The school has also served a number of students from Africa and has a strong Center for African Studies. Florida lacks the big name of other schools (Harvard, Yale, Stanford, etc.), but this is the place to learn practical tools for site-level conservation and management.

UNIVERSITY OF KENT

DURRELL INSTITUTE OF CONSERVATION AND ECOLOGY

Contact: Nigel Leader-Williams, Director

GENERAL DESCRIPTION OF PROGRAMS

Since 1991, the Durrell Institute of Conservation and Ecology (DICE) has offered broad interdisciplinary and practical Master's programs for conservation practitioners from the US, UK and developing countries. The objectives of the Institute are to undertake research, training and the implementation of international biodiversity management. In pursuit of these objectives, DICE has collaborated on projects embracing the ecological, economic and social aspects of biodiversity conservation throughout the world, with a focus on practical management and community conservation. DICE offers flexible degrees and one-year MS degrees, which are very attractive for professionals already employed in short-staffed organizations. Curriculum is focused on biodiversity conservation and management, and nature tourism for local economic development. Students say the program is less quantitative, technical or biology-focused and more practical than most research MSc programs. The program targets mid-career conservation practitioners from developing countries. Students from Commonwealth countries do not have to take TOEFL, GRE or jump through as many hoops for admittance as those from US institutions. Dr. Leader-Williams says that John Robinson at WCS cites DICE as their preferred program to train conservation practitioners. DICE considers itself Britain's foremost postgraduate research and training center dedicated to the international conservation of biodiversity and natural ecosystems. DICE is also a leading center of research in ethnobiology and human ecology.

FACTS ABOUT THE PROGRAM

Program Details	
Student body	About 25 students per year: 50% international students, most international students from East and Southern Africa, also from Southeast Asia, with fewer from Latin America. Since 1991, they have had 270 graduates from 60 countries, and 85 research students from 30 countries; countries represented include most countries in the tropics and most countries in Moore focus regions.
Cost	$15,000 for 1-year MSc
Financial assistance	Some scholarship support for students, but students are encouraged to seek outside support: o Darwin grant and British Council provide money for students o WWF Russell Train scholarship o WCS setting up training scholarship o Joint Japan/WB scholarship for developing country students o AWF funds some research/PhD students o NORAD and Finland, and other Scandinavian and European funds o Support from students home country
Degrees offered	MS (1yr) o Conservation Biology – since 1991; majority of students o Tourism and Conservation – protected areas tourism

Program Details	
	o Ethnobotany – since 1998; offered with Anthropology and Kew Gardens o 1994-2000 offered LLM or MSc in Environmental Law and Conservation with Law School MS Phil (2 yr) and PhD (3 yr) in Biodiversity Management o About 25% of students pursue research degrees
Faculty	DICE has six core academic staff, comprising two professors, two senior lecturers and two lecturers. These full-time faculty members are mostly natural scientists; additional research staffs have appointments based on grants.
Countries where most engaged	Student research sites in Southern and Eastern Africa and Europe, as well as West Africa, Andes, Brazil, Southeast Asia, Indonesia, India, Middle East and North America.
Curriculum	6 mo. coursework at Kent then 6 mo. for research and dissertation (2 mo. of fieldwork can be in home country). Both degrees include coursework on conservation education, involvement of local communities and sustainable resource use, importance of international biodiversity law, and natural science and social science methods. o Conservation Biology: Integrating conservation and sustainable development for biodiversity management; curriculum also includes conservation biology and protected areas o Tourism and Conservation: Evaluating nature-based tourism for conservation management and local economic development; curriculum also includes site and visitor management in protected areas, tourism industry, marketing and economics, and tourism to protected areas and to the local community o Research Groups: Ecology and Conservation Biology Biodiversity Management and Sustainable Conservation
Capacity building	Held short courses in the past. Faculty members conduct capacity building and courses at research sites (e.g. Richard Bodmer in Amazon).

OTHER PROGRAMS AT DICE

Diploma in Endangered Species Management

This internationally recognized Diploma is validated by DICE as a University of Kent program, but is run by the International Training Center of the Durrell Wildlife Conservation Trust in Jersey. This Diploma has run since 1985, and offers professionals at middle and top management levels working in zoos and breeding centers in species-rich, but resource-poor, countries the chance to become more effective conservation professionals. Students undertake a four-month full-time course in Jersey that confers critical-thinking skills, relevant knowledge and practical experience to manage captive animal populations sustainably, and to promote species conservation within their institutions. Several graduates have gone on to degrees in DICE programs.

Diploma in Conservation Education

This new Diploma began in June 2001. The Diploma is validated by DICE as a University of Kent program, but is run by the RARE Center for Tropical Conservation. This Diploma offers conservation professionals without formal educational qualifications the chance to train in ecology, conservation education, and social marketing at DICE, as a basis for implementing a conservation education campaign in each student's home country over the course of a one-year program.

OTHER PROGRAMS AT UNIVERSITY OF KENT

Department of Anthropology

- MSc Environmental Anthropology
- MSc Ethnobotany
- MA Social Anthropology
- MA Anthropology of Ethnicity Nationalism and Identity

DEGREE OF SERVICE TO TROPICAL CONSERVATIONISTS

DICE is widely renowned as a training center for conservation managers from developing countries. The Institute is committed to training tropical conservation professionals in a short, practical curriculum that can be directly applied in their home countries. Students say that DICE is the place for obtaining skills and education for on-the-ground management; WCS considers this the leading program for linking science and communities within teaching conservation management. Students receive practical management and community conservation skills, with coursework involving anthropology and sociology that is more relevant to the reality of conservation initiatives in their countries. Unlike most universities, DICE students come from all Moore focus regions.

POTENTIAL FUTURE PROGRAMS

- Professional development, short courses – need to be validated (exams, boards, external review)
- In-country short courses – copy modules, can make enough money to cover costs
- Information management a huge need – e.g. CITES gave permission to create course on Conservation Information Management. Need to maintain oversight body for international aspects, while also strengthening in-country national institutions

BOTTLENECKS FOR TROPICAL STUDENTS

- English proficiency a problem for students from Latin America and Francophone Africa
- Limited PhD funding for international students

POTENTIAL INVESTMENTS

- Scholarships targeting students from Moore focus regions
- Collaborating with NGOs to develop short-courses in Moore focus regions for practical conservation management skills

NOTES FROM DICE STUDENTS

Conservation Education

- Need overseas education and external credentials – "like a passport" in conservation world.
- Gabon – universities too rigid, conservation sidelined; no money for things like practical use of computers.
- Malawi – institutions of higher learning completely lacking in conservation education and natural resource management; compared to neighbors country is behind in tourism and developing human resource capacity and community-based conservation.

Funding Access

- Higher-level people are always the ones who get to go abroad for training, and they rarely apply it (e.g. Park Director will always go, so have to invite 2 people if want anyone else).
- Funding organizations often go through government, not through individuals, which makes it very difficult to access funding without political connections. It would be much better to have an independent committee of NGOs to select scholarship participants.
- Vietnam – difficult for people to get access to funding if they are in local areas (most people don't have Internet access, need more time for info to trickle in).

Information Dissemination

- Needs to come in time for person to plan to leave job
- Vietnam – NGO resource center, Ford foundation
- Malawi - British Council, American Information Service
- Cameroon – information dissemination ends where the phone lines end

In-country Courses

- Short courses are a good way to meet urgent needs and apply information/skills immediately.
- Should work through NGOs that know what is going on in the region (e.g. Ngorongoro used as center of SADC training).
- Should contract with institutions and NGOs in-country to do "official" short courses. Need large institution to give certificate, which carries more weight.
- WWF has comprehensive funding program—funds three-month mid-career training to develop specific skills, has leadership scholarship for Master's, PhD scholarships, and funds short courses (e.g. protected areas management).
- NGOs should combine forces for more intensive training program, rather than a bunch of small, piecemeal courses.

UNIVERSITY OF MICHIGAN

SCHOOL OF NATURAL RESOURCES AND ENVIRONMENT

Contact: Patti Kardia, Director of Graduate Admissions; Website, http://www.snre.umich.edu/

GENERAL DESCRIPTION

According to the mission of the School of Natural Resources and Environment (SNRE), the School has five areas of study: 1.) Conservation of biological diversity and ecosystem management and restoration; 2.) Risk perception, assessment, management and communication; 3.) Environmental equity and urban environments; 4.) Corporate environmental management; and 5.) Global environmental change. Established in the late 1800s as a school of forestry, the school changed its name in the 1950s to the School of Natural Resources and began focusing more on conservation education.

FACTS ABOUT THE PROGRAM

Program Details	
Degrees offered	Master in Natural Resources and Environment—Resource Policy and Behavior (RPB) or Resource Ecology and Management (REM), Master of Landscape Architecture, PhD in Natural Resources and Environment, PhD in Landscape Architecture
Student body	204 graduate students (Sept. 1999)
Cost	US$36,332 for nonresident tuition, room and board, books and supplies, personal and miscellaneous expenses
Average assistance to developing country student	University scholarships and fellowships (School provides long list of funding possibilities for international students through grants and scholarships and provides guidelines for proposal writing.)
Faculty	49 faculty members (April 2000)
Curriculum	Natural Resources courses: resource policy and planning, environmental education, environmental justice, landscape architecture, aquatic and terrestrial ecosystems, conservation biology and ecosystem management, and behavioral aspects of natural resource problem-solving; Doctoral students: required courses include tools of analysis, research design, research evaluation and methods of data collection
Countries represented	Since 1984 , 96 international students have attended the program, only 8 of which come from tropical developing countries: Brazil (3), Colombia (1), Ecuador (1), Indonesia (1), Peru (1), Venezuela (1).
Program advertising	While the program does attract international students, it doesn't specifically target them. Students from abroad learn about the program through NGOs and government agencies, word of mouth and the Internet; they tend to be mid- to lower-level professionals with two to five years of experience when they enter the program. SNRE advertises the program through the website, peace corps publications, and is just now beginning to target international sites.
Program follow-up	In order to track alumni, the school is currently putting together a survey and

Program Details	
	strategic plan for alumni. Graduates find positions with government agencies at all levels, private industry, consulting firms, non-profit organizations and educational institutions: o 36.5% in private sector o 34.3% with government o 18.6% in education
Additional information	http://www.snre.umich.edu/

DEGREE OF SERVICE TO TROPICAL CONSERVATIONISTS

Currently very few students from developing countries in the tropics are accessing this program.

BOTTLENECKS FOR TROPICAL STUDENTS

Unknown.

POTENTIAL INVESTMENTS

No specific recommendations.

YALE SCHOOL OF FORESTRY AND ENVIRONMENTAL STUDIES

Contacts: Gustave Speth, Dean; Michael Dove, Professor; Lisa Curran, Associate Professor; Mark Ashton, Associate Professor; Chad Oliver, Professor; Oswald Schmitz, Professor; Bradford Gentry, Lecturer; David Skelly, Associate Professor; Gordon Geballe, Associate Dean; Peter Otis, Director of Career Development; Timothy Gregoire, Professor; Emily McDiarmid, Director of Admissions

GENERAL DESCRIPTION OF PROGRAMS

Among US universities, the Yale School of Forestry and Environmental Studies (F&ES) is the best-known training ground for tropical conservationists. Many schools have contributed almost inadvertently by accepting natives of the tropics into natural or social science programs not specifically geared to prepare future conservation leaders from the lower latitudes. The latter goal is one of Yale F&ES' leading objectives, a fact that sets the school apart. The school has supplied many North American Master's graduates to organizations like Conservation International, World Wildlife Fund and the Nature Conservancy over the years, and trained a handful of developing country natives dedicated to nature conservation. While University of Florida (Gainesville) can claim to lead the way in educating Latin Americans for service in the conservation movement, Yale draws also from Asia and Africa. Yale has trained practically the entire cadre of Bhutan's environmental professionals in New Haven.

The school is attractive because it has an interdisciplinary approach with technical backbone and Ivy League prestige. It offers the conservation professional a banquet of technical training, as well as softer, issues courses that can be configured into tailor-made degrees. On the other hand, the array of options leaves some students befuddled and aimless. This is not a critique leveled by any of the students interviewed during CSF's official visit, but one that we have heard repeatedly in informal conversations with current students and graduates of the school.

FACTS ABOUT THE PROGRAM

Program Details	
Degrees offered	Master of Environmental Management, Master of Environmental Science, Master of Forestry, Master of Forest Science, Doctor of Forestry & Environmental Studies, Doctor of Philosophy, and one-year Master's program for people with seven+ years of professional experience
Student body	225 master's and 75 doctoral, 50 percent female, from all 50 states and 43 countries
Cost	$35,500/year for tuition, insurance, living expenses and summer modules. This excludes computer, printer, apt. furnishings and summer internship.
Average assistance to developing country student	1999: $11,000 2000: $11,000 2001: $12000
Faculty	35 permanent in addition to 18 joint appointments, 26 visiting faculty and 24 research appointments. Counting joint appointments as .5, that makes 70 faculty members for 300 students, a ratio of 4.3:1.
Curriculum	Courses are organized under the following headings (# of courses offered in

Program Details	
	parentheses): Ecology (31), Environmental Education and Communication (8), Forestry (25), Physical Sciences (27), Quantitative and Research Methods (12), Social Sciences (59).
Countries where most engaged	Based on faculty research, clusters of graduates and doctoral student research sites (bold indicates countries at least partially within Moore mega-regions): China, India, Indonesia, Nepal, Bhutan, Pakistan, Philippines, Russia, Sri Lanka, Thailand, Costa Rica, Panama, Brazil and Peru.
Additional information	http://www.yale.edu/forestry/

DEGREE OF SERVICE TO TROPICAL CONSERVATIONISTS

Yale has instructors with world-class knowledge of tropical forest ecology and the forest societies of certain regions. Students have internship and research opportunities that are very relevant to tropical conservation, often in-country, but also in Washington DC. In the summers of 2000 and 2001, nine students did conservation oriented internships in tropical developing countries (two in Moore focus regions), while many more spent those summers working for the World Bank, World Wildlife Fund, World Resources Institute, World Conservation Union, Wildlife Conservation Society and other international groups in Washington and New York. Another 26 students did independent summer research in tropical developing countries (six in Moore focus regions). Further, the school has "Centers" largely dedicated to tropical conservation themes—the Center for Biodiversity Conservation and Science and the Tropical Resources Institute.

Despite this considerable infrastructure, they don't have many "hotspot" students to take advantage of the program. The table below shows that less than 10 percent of the 200+ Master's students have come from developing countries in the last three years (seven percent this year); of those, only 2-5 students have been from the three mega-regions defined as Moore priorities. That's 1-2 percent of the student body. It's not clear how many of those students are on conservation career paths.

Nothing in our interviews suggested that this situation stems from a lack of interest, awareness or acceptance of those geographic conservation priorities on Yale's part, so we can only conclude that they're due to structural bottlenecks in attracting the right people.

Master's students from developing countries at Yale F&ES			
	1999-2000	**2000-2001**	**2001-2002**
Total developing county	14	15	22
Tropics and subtropics*	12	10	16
Moore focus regions**	5	2	3

* Countries in the tropics and subtropics are generously defined. For example, China is included, even though the Chinese students may work far from any tropical area.

** Similarly, we include Indonesia as a Moore focus area on the possibility that the student will work in Irian Jaya, though they are more likely to be working in some other part of the country.

BOTTLENECKS FOR TROPICAL STUDENTS AS IDENTIFIED BY YALE

- Foreign students are ineligible for student loan programs
- Limited scholarships available for foreign students

- Many qualified students have limited proficiency in English
- Foreign students experience culture shock, which interferes with their academic life and may discourage future students from coming
- Students from developing countries often don't have the same study habits and academic foundation as North Americans
- Qualified professionals often cannot leave their family and/or job to attend Yale
- When they return, some students find themselves to be "envied pariahs" back home
- Yale has done limited marketing of their programs in developing countries

YALE FUNDING NEEDS

- Scholarships for international students
- Faculty, especially from abroad, and practitioners/professors
- Support for research and internships through the Center for Biodiversity Conservation and Science and Tropical Resources Institute
- A three- to four-year doctor of management degree program, which would be a "practical PhD"
- PhD research at important sites
- Cultural adjustment program (summer program, Dean for international students)
- More joint degree programs
- Distance learning certificate programs for people who can't go to Yale
- "Yalitos:" Spin off F&ES programs in-country via partnerships (examples: TERI, Singapore National University and Peking University)
- Sessions for powerful people from finance and other power ministries that would focus on green accounting, benefits of biodiversity, environmental services, etc.

POTENTIAL INVESTMENTS

Our perception agrees with the school's own assertion that their greatest impact is in bringing more students through their degree programs. The curriculum and faculty are in place, but the "hotspot" students are not reaching the school in significant numbers. While many North Americans with tropical conservation career aspirations do attend the school, they can only complement, not substitute for native capacity to do conservation work in the Andes-Amazon, Congo Basin and Melanesia regions. Therefore, the most attractive investment at Yale F&ES would be the removal of barriers to students from those three regions. Doing so requires a mix of targeted scholarships, incentives for students to return home, help with adjustment to a North American academic program and money for internships. The master's program should be the first priority because the per-student cost is less than half that of PhD students and the master's graduates are more likely to return to conservation jobs at home (a number of PhDs take academic jobs in the US). For the many students who can't come to Yale, an option is establishment of "Yalitos," (our coinage) which would be Yale spin-offs created in-country and implemented through partnerships with local institutions. Yale is

testing this model with the Tata Energy Research Institute in India and is planning to do it also with Singapore National University and Peking University.

If the goal in funding Yale is to increase human capacity for conservation in the high-biodiversity regions where Moore wishes to focus, we do not advise general support for research centers, faculty appointments or other infrastructure building, even if it is thematically tied to tropical ecosystems. Those investments should only be made in conjunction with removal of the serious bottlenecks to attracting conservationists from the right areas. The following list of suggested investments focuses on those bottlenecks.

Potential Investments and Costs

- Scholarships for 10 master's students in each class who are on conservation career paths in Moore big-3 regions; cost: 20 students x $30,000 = $600,000/year (graduate 10 per year)
- Marketing of program in big-3 regions; cost: $50,000-$100,000/year for 5 years
- Incentives for returning to conservation jobs; cost: $10,000/person = max $100,000/year in reentry funding toward their salary if they return to their previous employer, work for a conservation NGO, or government parks agency
- Acculturation, academic adjustment and language training; cost: $10,000/student X 7 = $70,000 (assuming 70% need it)
- Yalitos in big-3 regions with protection focus; cost unknown
- Faculty as necessary; cost: High end: $100,000/year for junior faculty. $200,000/year for senior faculty.
- Total cost: high end = $1,070,000/year first five years, then $100,000 less after marketing component discontinued (these figures do not include overhead)

Non-University Institution Profiles

AMERICAN MUSEUM OF NATURAL HISTORY

CENTER FOR BIODIVERSITY AND CONSERVATION

Contact: Eleanor Sterling; Website, http://research.amnh.org/biodiversity/

GENERAL DESCRIPTION OF PROGRAMS

The training work of the American Museum of Natural History Center for Biodiversity and Conservation (AMNH-CBC) encompasses three main activities: 1.) curriculum development; 2.) protected area management training; and 3.) student fellowship program. The most significant is the curriculum program, which aims to create practical, applied conservation biology curriculum for universities. The second program involves training in nature interpretation for protected area managers in developing countries. The third area mentioned in our interview was the international graduate student fellowship program, an initiative to fund PhDs in conservation biology and systematics—a branch of biology that deals with classifying living beings.

FACTS ABOUT THE PROGRAM

Curriculum Project

The curriculum is made up of modules, which often take the form of a case-study exercise, in which the students are faced with technical conservation decisions. CBC has so far developed around 10-15 case studies to serve as models that developing country professors can use to develop their own case studies. International review panels must approve the cases before they can be incorporated into the official AMNH-CBC curriculum collection. CBC has piloted the case studies in Bolivia.

Nature Interpretation for Protected Areas

Using the publication, "Interpreting Biodiversity: A Manual for Environmental Educators in the Tropics," the CBC teaches short workshops aimed at producing a plan for interpretive centers in or near protected areas. They have given 8-10 of these workshops in Bolivia in partnership with SERNAP, the La Paz and Santa Cruz museums of natural history, Fundación Amigos de la Naturaleza and CARE. In Madagascar, they have delivered three workshops, collaborating with the Peace Corps and ANGAP—the national park service.

Student Fellowship Program

The program has paid for one or two people per year to enter doctoral programs at one of four universities, Columbia, Cornell, Yale and the City University of New York. AMNH-CBC provides an advisor and research base, while the school provides courses and grants the degree. This program was part of the Center's start-up grant from the Starr Foundation.

DEGREE OF SERVICE TO TROPICAL CONSERVATIONISTS

It's hard to answer this question without independent review of their work. Certainly training tropical conservationists is far from the core business of the New York museum where this group is based. But it is a top priority for Eleanor Sterling, who worked for years in Madagascar. There is usually a "glow" of success around workshops, but their impact is only known over the long run. It's hard to imagine that a brief intervention with university professors could change the standard operating procedures of the academic institutions they work for, so AMNH-CBC may need a permanent relationship and liaison in-country for their case method to take root. We also wonder whether they will get developing country professors to write many case studies based on, and up to the standards of, the AMNH model without a financial incentive.

FUNDING NEEDS

Not clear.

POTENTIAL INVESTMENTS

Like The Nature Conservancy, AMNH-CBC has a publications approach to training. They supplement publications with workshops, but use the number of publications circulated as a key indicator of their success (example: Interpreting Biodiversity). Using business-school type cases to teach conservation biology is an intriguing notion. Given quality-control issues, AMNH-CBC might be best off writing the cases in-house, rather than trying to get the cases contributed for free by far-flung professors. Or perhaps there's a middle ground—send graduate students out to work with the far-flung professors on the case studies.

BIRDLIFE INTERNATIONAL

Contact: Ken Smith, Royal Society for the Protection of Birds, oversees training of BirdLife partners; Website, http://www.BirdLife.net

GENERAL DESCRIPTION

BirdLife International is a global partnership of NGOs working in 103 countries and territories worldwide. The BirdLife International Partnership strives to conserve birds, their habitats and global biodiversity. While the organization's number one aim is to protect and improve the status of bird species, their way of achieving this is by integrating bird conservation into sustaining people's livelihoods. For this purpose, they are integrating capacity building and environmental education efforts into their programs, with a specific focus on tropical "hotspot" regions.

FACTS ABOUT THE PROGRAM

One of the aims of BirdLife projects is to develop and strengthen capacity of local partners and create sustainable institutions. This includes training in management, fundraising, communications and advocacy, as well as building technical skills in biodiversity monitoring, agricultural practices, resource management, conservation and forestry. BirdLife collaborate with individuals, organizations and agencies in order to achieve its objectives.

Africa Program

The BirdLife Africa program seeks to develop a network of people concerned with birds and their wild habitats. The African Partnership has conducted an annual regional training program and experience-exchange workshops since 1998. One such program is the "African NGO-Government Partnerships for Sustainable Biodiversity Action Project," which focuses on human capacity building. Topics include financial management, monitoring and evaluation, project management and database management. Trainings have been held in Tanzania, Uganda, Burkina Faso, Ghana and Tunisia.

Regional Partnerships

- African Partnership—currently working in 18 African countries (those within Moore focus regions include Tanzania, Uganda and Cameroon)
- Asia—currently working in 14 bird territories in Indonesia, Malaysia, the Philippines and Palau
- Americas—currently working in 20 bird territories in Argentina, Bolivia, Brazil and Ecuador
- Regional Internship Program—brings middle-level conservation officers from Partner organizations to the BirdLife Secretariat to gain skills and experience

BirdLife Partner Training by Royal Society for the Protection of Birds (RSPB)

RSPB assists BirdLife with capacity-building training for partners. RSPB is a member-based organization with one million members, a staff of 1,000 and more than 8,000 volunteers. RSPB's work is focused mainly in the UK, with 10 percent of the budget for work elsewhere (mainly Europe, Africa and a few projects in Asia-Pacific; countries in Africa include Ghana, Sierra Leon, Kenya, Uganda, Tanzania and the Seychelles). Partners rely on BirdLife/RSPB for their core funding, as well as training and expertise.

"Building on Experience" Training Program

RSPB offers international management and organizational development training. They have found that organizations have committed scientists who don't know how to set up an organization and make it sustainable. All BirdLife partners are invited to participate in this program—hosted by BirdLife and supported by RSPB. Training is offered in the form of four 10-day modules. Participants are selected by the Board, Council or senior management of their organization.

RSPB has recently completed the first year of the program with workshops held in Jordan, Argentina, South Africa and India. In the coming year, modules will be held in Europe, the Pacific, Asia and the Americas. The program is presented as a four-module course that lasts for one year. Between each module participants receive assignments to be completed by and discussed in the following module. Two participants from each organization are invited to participate, alternating between modules (each person will attend two modules).

Trainings are offered once a year in each region, with approximately 18-20 participants at a time. Needs assessments in Africa, Asia and Latin America have shown that while different regions have different needs, the broad issues needed in each region are very similar. Last year's training brought together 16 partners from South Africa, Kenya, Ethiopia, Thailand, Hong Kong, the Philippines, India, Bulgaria, Spain, Denmark, Jordan, Canada, Panama, Argentina and Ecuador.

Subjects covered in each module include the following:

- Module 1: Business planning, human resources planning and management, leadership and developing NGO partnerships (held in Jordan)
- Module 2: Financial planning, management and reporting, accountability, understanding stakeholders, budgeting (held in Argentina)
- Module 3: Fundraising from institutions and individuals, project planning and proposal writing, marketing, proposal writing, etc. (held in South Africa)
- Module 4: Communication (inside and outside the organization), advocacy, campaigning, negotiation skills, management and implementing change (held in India)

Success of the program is measured on the basis of assignments—participants have to work within their organization and report at the following module. RSPB also runs a facilitators meeting at the end of the year to evaluate the program. They also gather feedback through ongoing contact with participants, who report changes they have implemented in their organization. RSPB country program offices are also in contact with a number of the participating organizations and gather feedback on an ongoing basis. If funding were

available, a fifth module would be added to the course on evaluation, which would include self-evaluation.

The majority of costs for the program are covered by RSPB, while the participating organization pays $6,000. RSPB feels that the most important thing is that organizations take part, so while they would like to see each organization pay their full share, the organizers pay for those who cannot afford it. The overall cost of the course is approximately $185,000 per year, which includes flights, accommodation in-country for four ten-day workshops, but does not cover salary, planning costs or follow-up. RSPB underwrites 50 percent of the program and seeks the remainder from partners, foundations, corporations and agency funders.

POTENTIAL FUTURE PROGRAMS

RSPB is currently working on a version of the "Building on Experience" program that would target conservation NGOs and a counterpart government or development organization. The networking element of "Building on Experience" is very strong and RSPB would like to work on developing in-country and international networks. RSPB would like to expand training beyond the BirdLife Partnership network. A program such as this would widen networking opportunities considerably, but would require a substantial funding commitment.

BOTTLENECKS FOR TROPICAL STUDENTS

- Need $555,000 to support the "Building on Experience" program to continue through 2005
- Funding to expand similar programs that reach a wider audience of conservationists, development organizations and government institutions

FUNDING NEEDS AND POTENTIAL INVESTMENTS

No specific recommendations. "Building on Experience" addresses some of the high priority topics identified in our survey, but at a relatively high cost due to the travel component. This program needs to be compared to the range of management training initiatives to determine whether it deserves support.

FAUNA AND FLORA INTERNATIONAL

Contact: Robert Garner, Director Sound Wood Program & Director of Development; Website, http://www.fauna-flora.org/

GENERAL DESCRIPTION

Founded in 1903, Fauna and Flora International (FFI) is dedicated to protecting endangered plant and animal species. Working with local, national and international partners, including governments, NGOs, academic institutions, local communities and businesses, they provide support to conservation initiatives throughout the world in the form of partnerships, technical assistance, direct funding and consultancy. FFI's training approach includes the use of practical tools, two of which include capacity building and environmental education. Programs are spread throughout the Americas, Africa, Asia-Pacific and Eurasia.

FACTS ABOUT THE PROGRAM

Capacity Building

FFI's aim is to build capacity of local counterparts to assume responsibility for the long-term sustainability of conservation initiatives. One such effort is a project teaching wildlife management and monitoring techniques in Cambodia. Another FFI project provides core support and capacity building for the Society for the Conservation of Nature of Liberia.

Environmental Education

FFI uses environmental education campaigns in order to enhance understanding of conservation issues. The Conservation Awareness Program (CAP) in Vietnam's Cuc Phuong National Park is one such program. The program targets children and adults from local communities and teaches them about nature, the environment and the national park through village presentations and conservation clubs in local schools. According to FFI, it is the first and longest running community-based program of its kind in Vietnam and has reached over 15,000 students in 40 schools.

The model is being replicated in other protected areas in Vietnam, with Cuc Phuong serving as a National Training Center for Conservation Education and Awareness. The purpose of this training center is to increase the capacity of key institutions, organizations and other stakeholders. Training programs provide greater understanding of conservation issues and protection of natural resources within Vietnam's parks and protected areas and to help establish effective community-based environmental education. The training center offers specialized training and educational programs for park and protected area staff, rangers, teachers and other target groups.

Environmental Publication

Oryx—the International Journal of Conservation, is published by Fauna and Flora International and includes reviews of project, policies, legislation, etc., results of conservation initiatives, current research in the field, and the history of the conservation movement.

FUNDING NEEDS AND POTENTIAL INVESTMENTS

No specific recommendations.

INSTITUTE FOR INTERNATIONAL EDUCATION

Contact: Peggy Blumenthal, Vice President, Educational Services; William Dant, Humphrey Program Director; Stacy Rhodes, Vice President for Global Development; Website, www.iie.org

GENERAL DESCRIPTION

The Institute for International Education (IIE) is a large, global higher education and professional exchange agency, with 18,000 people from 175 nations participating in IIE programs each year—33 percent of whom are graduate students, 31 percent professionals, 11 percent undergraduates, 11 percent technical trainees, 10 percent faculty and 4 percent teachers. The Institute is a provider of numerous training programs for professionals and scholars from around the world. IIE administers the Fulbright and Humphrey scholarships, the US-Asia Environment Partnership (US-AEP) exchange program for environmental professionals funded by USAID, the International Fellowship Program for the Ford Foundation.

FACTS ABOUT THE PROGRAM

IIE programs of most relevance include the Fellowship Programs (and other scholarship assistance programs), US-Asia Environmental Partnership Exchange Program (US-AEP), and programs of the Global Development Center, which is focused on expanding individual and institutional capacity in areas of energy, environment, business management and leadership development.

Fellowship Programs

The Fulbright Fellowship Program was established over 50 years ago and provides awards to 5,000 foreign nationals from 140 nations each year through their home country mission or US embassy. Within the Fulbright Program, the Humphrey Program was established in 1978 as a one-year graduate exchange program targeting mid-career, public service professionals. The environment is one of 12 fields targeted by the program. For the academic year 2002-2003, 150 Humphrey Fellows have been selected from over 70 countries. Countries of potential interest to Moore include Tanzania, Uganda, DRC, Cameroon, Bolivia, Colombia, Peru, Ecuador, Venezuela, Brazil, Indonesia, Philippines, and Malaysia. In the past, Fellows have been selected from Equatorial Guinea, Central African Republic, Congo, Gabon, PNG, Solomon Islands, New Caledonia, Fiji and Vanuatu.

Humphrey Fellows receive an average of $55,000 to $58,000 for the one-year program for program and administrative support, and all expenses including travel, training, books, computers and housing. Funding is provided primarily by the US Congress and US Department of State Bureau of Educational and Cultural Affairs. Fellows are placed in US universities and participate in graduate-level coursework and other professional development activities according to their area of interest. Each year about 12 US universities form a pool of host campuses, which are selected by field on a rotating basis through a competitive process. Many students with environmental interests are placed in programs at Cornell or the University of Washington.

IIE has also served as administrator for the Ford Foundation International Fellowship Program since its inception in 2000. The program awards scholarships for graduate study (up to three years) to underprivileged individuals from developing countries that lack access to higher education. Fellows must pursue a field of study within Ford Foundation's grant-making areas—Environment and Development is one of 15 fields—and may enroll in any program in the world. During the first year, 50 awards were given, and next year Ford plans to award 300 fellowships to students from 13 countries—India, Vietnam, Uganda (9 - 1 forestry), Kenya, Tanzania (10 - 1 economics), Ghana, Nigeria, Senegal, Mexico, Chile, Peru (13 - 1 GIS, 2 enviro/dev), China and Russia. Ford Foundation has invested $280 million through 2010. Fellows participate in information and exchange networks, and alumni are strongly encouraged to maintain contact with the program after completion.

Global Development Center

The Global Development Center (GDC) was established in 2001, but many of the programs have been in place since 1981. The GDC focuses on capacity-building, partnerships and professional development of individuals and institutions abroad through education and training programs, exchanges and fellowships, technical assistance, advocacy and outreach, research and information dissemination. GDC has a staff of 138 people in 17 countries and its principal funder is USAID. Over the past 20 years, GDC has administered professional-level capacity-building programs in environmental management and technology and leadership development, among other fields. The Professional Development Program ranges from one-week professional training programs to participation in advanced degree programs, drawing participants from NGOs, government and corporations and providing them an opportunity to gain new management and technical skills.

US-Asia Environmental Partnership Exchange Program (US-AEP)

The US-AEP program is funded by USAID, is run out of Washington, DC, and has additional offices in Indonesia and the Philippines. The program has been running for approximately eight years with the purpose of addressing environmental and sustainable development issues in the Asia-Pacific region. IIE administers a component, called the Exchange Program for Sustainable Growth (EPSG), which provides opportunities for Asian and American professionals from private companies, government agencies, and NGOs to work together in addressing clean technology and environmental management issues, urban environment and environmental policy. IIE also designs and implements seminars and conferences with US and Asian partners. The Environmental Partnerships group has been carrying out the training services component of the US-Asia Environmental Partnership for the past five years.

Environment and Energy Program

The GDC Energy Group has been providing energy sector reform and management/conservation training and advisory services in developing countries since the 1980s and currently has programs in Indonesia, India, Bangladesh, Ukraine and Brazil.

Other University-Level Assistance Programs

There are over 50 "US Education Information Centers" located throughout Latin America and Vietnam, which provide information on US academic institutions, application procedures, admissions tests and scholarships. US University Fairs are also held throughout Latin America and SE Asia, providing students with an opportunity to meet representatives

from US universities and learn about application procedures and funding opportunities. The "Study America Program" is another program that has been in existence for 50 years at the undergraduate level, and expanded to the graduate level in the 1990s. IIE identifies undergraduate and graduate programs suited to individual applicants and helps them submit applications and secure placement. IIE has assisted in placing more than 10,000 foreign candidates for undergraduate study in the US.

Training Programs in Brazil

Tocantins Environmental Management and Policy Project
Sponsored by the USAID Center for Global Environment. The purpose of this project is to develop and implement training courses and workshops that focus on reducing the economic and social costs of environmental impacts from infrastructure, industrial facilities and operations and provide reference materials in environmental management and policy.

Coordination for the Improvement of Higher Education Personnel (CAPES) Program
CAPES is a foundation within the Ministry of Education in Brazil whose central purpose is to coordinate efforts to improve the quality of faculty and staff in higher education through grant programs. CAPES is one of the two main sources for graduate student scholarships in Brazil.

Technical Leadership Training Program (TLT)
Sponsored by USAID's Global Center for Environment, TLT focuses on the topics of energy efficiency, renewable energy, urban environmental management, global climate change, and technical and policy issues. In total, the program has conducted nine US-based courses, seven in-country workshops and eight in-country executive seminars. (Ecuador and the Philippines also participating in this program.)

MEASURING IMPACT AND PROGRAM FOLLOW-UP

Impact measurement is based on the sponsor's desires. For example, the Humphrey Program is measured before, during and after program completion. The Humphrey Alumni database is available online and is used extensively by alumni for networking, professional collaboration and referrals. IIE has also established an alumni database of 120,000 past grantees and participants. Through a mini-grants program, alumni are given an added incentive to stay in touch.

DEGREE OF SERVICE TO ENVIRONMENTALISTS

IIE provides a strong network across many countries with a reputation for transparent and fair selection process. It plays an important role in connecting developing country candidates to education in the US.

BOTTLENECKS FOR TROPICAL STUDENTS

One of the biggest bottlenecks of the Humphrey program is funding. Last year they were only able to fund 150 fellows out of 3,000 applicants, and they estimate that there were at least another 100 top tier candidates worth funding. IIE states that if the funding were available, they already have the institutional capacity to train more Fellows.

Another important limitation is related to official US Government foreign policy priorities. Many of the tropical developing countries that had Fellows in the past were eliminated from future funding by the State Department due to changes in official priorities. Likewise, in some tropical countries, applications are not submitted in conservation because the US Embassy's focus in that country may be in a different sector. In other areas, such as drug abuse and basic education, the Humphrey program has overcome this obstacle by working with a co-sponsor other than the US Government, a kind of arrangement that could be used for conservation training.

POTENTIAL INVESTMENTS

Set up "Fulbright for Nature" program to be administered by IIE to target conservation practitioners from Moore's priority regions.

ORGANIZATION FOR TROPICAL STUDIES

Contacts: Nora Bynum, Academic Coordinator; Katrina Brandon, Senior Research Fellow at Conservation International

GENERAL DESCRIPTION OF PROGRAMS

OTS, founded in 1963, is a nonprofit consortium of 64 universities and research institutions in North America, Latin America, Africa and Australia committed to education, research and the wise use of natural resources in the tropics. OTS focuses on science, education and public understanding. OTS maintains three biological research stations in Costs Rica and conducts field-based graduate and undergraduate courses. Since its founding in 1963, OTS has offered over 200 graduate-level courses in the natural sciences and can count more than 3,600 graduate students and professionals as alumni.

FACTS ABOUT THE PROGRAM

Academic Field Courses

Courses include fieldwork, data analyses, lectures and student presentations.

Graduate Program

Courses are designed for US and Latin American graduate students with a Bachelor's degree or for young professionals in a related field. Students receive credit from institutions in the country where the course is being held (U of Costa Rica, etc.). Those individuals with a PhD or more than 15 years of work experience are overqualified for this training. OTS offers four- to seven-week trainings in tropical biology, systematics, conservation biology and agroecology. Courses have 2-3 full-time instructors with about 20 visiting scientists and lecturers who stay up to three weeks. There are about 22 participants in each course. Courses are taught in English, Spanish and Portuguese and participants receive graduate credit from the University of Costa Rica or other participating universities, including schools in Peru and Brazil. In 2002 seven courses were held in Costa Rica, three of which were in Spanish. Other courses were held in Brazil (1), East Africa (2), Mexico (1) and Peru (1).

The cost of courses is around $800-$900 per week (with partial and full scholarships for students from Latin American, Caribbean and member institutions). Usually half of students receive OTS scholarships, or reduced rates if they are from member institutions. OTS requests that students provide $1200-$1600 of the cost. Post-course opportunities include small grants to work at the OTS field station for several days to two weeks, or grants to combine research at OTS field sites with research at the Smithsonian Tropical Research Institute site in Panama.

Graduate Course Listings

Course	Description	Students	History	Length	Cost
OTS-1&3: Tropical Biology – An Ecological Approach	Costa Rica – course in English	22 young graduate students enrolled in degree programs at OTS member institutions in US and abroad	Since 1964	8 weeks	$5000 ($2000 OTS)
OTS-2: Tropical Ecology and Conservation	Costa Rica. Spanish analog of OTS 1&3.	LA Caribbean, some from member institutions. 2001 - students from 11 LA countries	Since 1974	7 weeks	$5200 ($1600 OTS)
OTS-7: Agroecology	Costa Rica – course in Spanish	15 participants from any country (need Spanish proficiency)	Since 1995	6 weeks	$5000 ($1600 OTS)
OTS-9: Tropical Plant Systematics	Costa Rica – course in English	22 students from OTS member institutions		4 weeks	$2100 ($1700 OTS)
OTS-12: Ecology of Amazon Flora	Field course with INPA, UNICAMP and Smithsonian	Brazilian and other students fluent in Portuguese		4 weeks	?
OTS-13: Ecology of Amazon Ecosystems	Peruvian Amazon – course in Spanish	Targets LA students	Since 1999	4 weeks	$3600 ($1200 OTS)
OTS-15: Conservation Biology and Wildlife Management	Uganda sponsored by Smithsonian– course in English	Will accept up to 8 students from OTS member institutions		4 weeks	—
OTS-17: Molecular Methods in Tropical Ecology	Costa Rica – course in English	Students from OTS member institutions	New course 2002	4 weeks	$3600 ($1500 OTS)
OTS-18: Tropical Plant Systematics	Costa Rica – course in Spanish	22 students, target LA	Since 2001	4 weeks	$3600 ($1200 OTS)
OTS-19: Ecology of Tropical Coastal Ecosystems	Mexico, with LSU, INECOL – course in Spanish	22 participants from any country (need Spanish proficiency)	New course 2002	6 weeks	$5000 ($1600 OTS)
Tropical Biology Association	East Africa field course	Accept up to 2 students from OTS member institutions		4 weeks	$1500-$1800 OTS

Undergraduate Program (for US students)

- Semester abroad program (since 1997) in Costa Rica for US undergraduate students in tropical ecology, environmental issues, culture and language instruction (25 participants)
- Ethnobiology and Tropical Ecology summer courses for about 20 students

Research

Many researchers conduct fieldwork at OTS biological stations or other conservation areas in Costa Rica. These stations have lab equipment, computers, shade houses, GIS services, libraries and support staff. Field stations also conduct public seminars and open houses to provide outreach to local farmers, teachers and school children.

La Selva Biological Station bordering Braulio Carrillo National Park has a focus on education. The station hosts more than 250 scientists from 25 countries and thousands of international students each year. They host more than 50 education groups each year, including 10-12 OTS graduate and undergraduate courses. Research is conducted on forest dynamics, biodiversity, nutrient cycling, carbon sequestration and native species restoration. La Selva research has resulted in the publication of more than 1,600 scientific articles, theses and books. La Selva also holds environmental education for Costa Rican schoolchildren and local communities. Several other research stations include *Las Cruces Biological Station, Wilson Botanical Garden* and *Palo Verde Biological Station*. Las Cruces and Wilson Botanical Garden are located near the Panamanian border and part of La Amistad National Park. Palo Verde Biological Station is located in Palo Verde National Park in northwest Costa Rican lowlands and contains one of most extensive marshes and some of oldest patches of dry forest remaining in Central America.

Research Fellowships

OTS offers research fellowships to graduate students enrolled in degree programs at OTS member institutions and to OTS alumni. In 2000 OTS awarded almost $90,000. Post-course awards are small amounts for up to two weeks of study after a course. Research Fellowships up to $5000 are awarded to assist thesis research in tropical biology and related fields. Proposals for research at OTS biological stations receive priority. OTS and Smithsonian Tropical Research Institute also have fellowships for comparative research at facilities in Costa Rica and Panama.

Other Programs

- OTS is engaged in conservation activities and campaigns throughout Costa Rica.
- OTS is starting a program in South Africa with University of Witwatersrand and University of Cape Town, Krueger Park, which will be supported by the Mellon Foundation.
- OTS is starting a course for post-docs, junior faculty and advanced graduate students in Advanced Comparative Neotropical Ecology, which will be held at research stations in Costa Rica, Panama, Peru and Brazil.

PROFESSIONAL EDUCATION

Park Managers

OTS recently started an eight-week Wildlands Management in the Tropics course in conjunction with US Fish and Wildlife Service held in Costa Rica. The goal of the program is to improve capacity of managers to better administer and conserve ecologically important wildlands in the region. A second course was held in September and included 25 wildland managers from nine Latin American countries. Topics included wildlands conservation systems, biodiversity conservation, development and conservation, participatory decision-making and environmental interpretation.

Environmental Policy - Decision-makers Courses

OTS' Policy program is about 15 years old. Originally it focused on policy activities on the ground in Costa Rica. It now has field-based short courses and workshops designed for

decision makers who devise and implement policies that affect tropical resources but often have minimal training in environmental sciences.

Interdependence—Economic Development and Environmental Concerns

This course in Costa Rica, offered since 1995, is for US decision makers and is supported by the US Fish and Wildlife Service. Participants (approximately 20) are mostly DC-based, include US congressional aides, executive branch officials, private sector, international organizations and NGOs, with a yearly seminar series in DC for past participants. They are mostly chosen by alumni recommendations. The course is half field-based, half classroom-based and includes an introduction to Costa Rica's economy, environmental policy, forestry sector and hydroelectric energy policies.

Ecological Principles for Sustainable Development in Latin America

This course in Costa Rica is for US decision makers and focuses on sustainable development, environmental economics and valuation, biological and ecological principles, biodiversity conservation, ecotourism, environmental law, community participation and climate change. Participants in 2001 came from nine countries in Latin America and included government departments, NGOs, foundations, private sector and academic institutions.

Mesoamerican Biological Corridor (MABC) Seminars

Mesoamerican Biological Corridor seminars have been taking place since 2000 and are sponsored jointly with WWF to train regional leaders on value of a corridor that links and protects wildlands in Central America and southeastern Mexico.

PERFORMANCE MEASUREMENT

- In 2001 OTS conducted a comprehensive review of its Graduate Education Program 1963-2001 in order to determine the quality of OTS courses, perceived needs of member institutions with regard to graduate courses and survey impact of courses on alumni.
- OTS alumni now occupy leading positions in universities, research institutions, government agencies and conservation organizations throughout the world.
- Exit interviews are conducted after each course.

DEGREE OF SERVICE TO TROPICAL CONSERVATIONISTS

OTS programs are focused explicitly on the tropics. The organization is a leader in tropical ecology research methods, offers excellent courses, and has a reputation for objectivity, good science and information dissemination. OTS plays an important role in supporting tropical ecology research, serving graduate students from the US and Latin America, and is now developing courses for Latin American decision makers. Of 3,600 course alumni, nearly 1,000 are from Latin America.

BOTTLENECKS FOR TROPICAL STUDENTS

- Need better policy analysis in house
- Need advocacy and follow-up to implement environmentally friendly policies

POTENTIAL FUTURE PROGRAMS

- Have large Hewlett grant to develop LA decision-makers courses - Mesoamerica, Tropical Andes and Brazil; thinking about developing five to six consecutive courses in Peru to train large contingent of government staff; developing more local scale courses (e.g. leaders in biological corridors)
- Additional ways to get course accreditation (e.g. decision-makers courses)—would need to work at local level, which will take time and effort to maintain
- Spin-off courses in field-based ecology – Mexico (Red botanica), Pantanal, Colombia
- Higher level policy and economics courses for environmental scientists

POTENTIAL INVESTMENTS

- Course for high-level decision-makers in Latin America
- Target Moore geographic priorities and use OTS expertise to teach conservation biology
- OTS partnership with CSF to teach policy analysis
- Identify key universities and other partners in target areas and help build their institutional capacity

SMITHSONIAN INSTITUTION

Contacts: Jim Comiskey, Monitoring and Assessment of Biodiversity Program; Rebecca Hamel, Monitoring and Assessment of Biodiversity Program; Additional contact: Francisco Dallmeier, Director of Monitoring and Assessment of Biodiversity Program

GENERAL DESCRIPTION OF PROGRAMS

The Smithsonian has two main programs relevant to capacity building for conservationists, the Conservation and Research Center (CRC) and the Monitoring and Assessment of Biodiversity (MAB) Program.

Conservation and Research Center

The CRC is devoted to the study of conservation biology and has delivered training to conservationists in many topics. Currently they highlight training in Zoo and Wildlife Management (US and abroad), Conservation Genetics (US-based), Conservation GIS (in US), and Biological Diversity Monitoring (delivered by MAB abroad). Professional courses are implemented by CRC in collaboration with a network of scientists, veterinarians and educators from other Smithsonian units as well as outside organizations. Training takes place at CRC's facilities in Front Royal VA, as well as at international sites. CRC also provides hands-on professional mentoring for interns, grad students, post-docs, policy-makers and other specialists throughout the world.

The CRC network of research sites and training programs extends to parts of Latin America, South Asia, Southeast Asia and Africa. Moore focus countries served include Peru, Bolivia, Ecuador, Columbia, Venezuela, Brazil, Indonesia (Irian Jaya) and Cameroon.

Monitoring and Assessment of Biodiversity Program (MAB)

Created in 1986 as part of CRC to bridge the gap between research and practical application of scientific findings, MAB builds scientific information and in-country capacity through training and biodiversity monitoring at over 300 permanent research plots. MAB courses have trained over 1200 professionals from science in industry.

FACTS ABOUT THE PROGRAM

MAB Regional Courses

MAB provides training in biological diversity monitoring linked directly to the Smithsonian-MAB network of research sites in various tropical countries (mentioned in CRC description above). MAB is currently involved in monitoring over 300 plots in 23 countries. Projects and associated courses highlighted include Gabon, Peru, Madagascar, Panama, Mexico, West Africa and Canada. Support for these courses comes from various sources:

- Shell Foundation supported work in southeastern Peru on the Camisea River from 1996-1999.
- ICGB (International Cooperative Biodiversity Group – support for drug research) funded courses in 1996 and 1997 in Nigeria and Cameroon in partnership with WWF.

- A new project in Madagascar is being conducted in collaboration with QMM mining company, NGOs and experts.
- Current project in Panama in collaboration with World Monuments Fund and several Panamanian Institutions to conserve biodiversity in and around several historical Fort sites.
- Working with National Museum of Natural History to conserve natural and cultural heritage of Tarahumara region in Chihuahua, Mexico.
- Collaborating with the Ecological Monitoring and Assessment Network (EMAN) and Kejimkujik National Park in Nova Scotia, Canada. The monitoring program begun in 1994 in Kejimkujik has received awards in the last few years.

The courses, about three to four per year in various parts of the world, are designed to train researchers in the basic principles of the permanent plot methodology for long-term monitoring of biodiversity. The courses are developed based on local interest and feedback of NGO counterparts. Generally courses are two to three weeks and include a description of methodology, field exercises, data gathering and interpretation, management of the computer database and preparation of user's and field guides for research sites. Courses are taught by a team of biodiversity researchers working with the SI/MAB network.

MAB US Courses

MAB delivers two professional training courses in Front Royal each year: 1.) Biodiversity Monitoring and Assessment for Adaptive Management; and 2.) Environmental Leadership.

Biodiversity Monitoring and Assessment for Adaptive Management Training	
History	10 yrs
Duration	5 weeks
Frequency	1x per year
Cost	$4,500 (tuition, lodging, meals, course materials and local transportation)
Scholarships	Limited to a few targeted participants
Target audience	About 25 participants in each course – resource managers, ecologists, biologists, and environmental educators and consultants – typically from over 20 countries.
Instructors	40+ instructors for 8 modules
Curriculum	GIS, statistics, assessment and monitoring of wildlife, site-based and multi-taxa adaptive monitoring.
Method	Lectures, fieldwork, lab analyses, reports, and several case studies.

Environmental Leadership Training	
History	5 yrs
Duration	12 days
Frequency	1x per year
Cost	$2750 (tuition, lodging, meals, course materials and local transportation)
Target audience	Conservation biologists, ecologists, resource managers and environmental leaders.
Curriculum	Goal of course is to increase influence on natural resource conservation decisions. Course teaches tools to improve personal and team relationships, self-confidence, negotiations, strategic planning, and effective communication in and across organizational cultures.
Method	Examples, readings, speakers, videos and exercises

MEASURING IMPACT

- Alumni surveys distributed every five years similar to CSF's survey – how effective was the course over the long-term and how have they implemented concepts from the training.
- Anecdotal input from MAB leadership course – negotiations of wildlife areas in the Caribbean, establishing environmental education programs in China, developing more systematic national park management in Brazil, and training other environmental leaders in Chile.
- Measure conservation achievements at regional research sites.

DEGREE OF SERVICE TO TROPICAL CONSERVATIONISTS

Smithsonian has a reputation as a rigorous scientific research institution, and has formed partnerships across a wide range of stakeholders. The mission of the CRC is to advance conservation of biological diversity by training young professionals, scientists and students from developing countries. Likewise, MAB programs target conservation biologists, ecologists, resource managers and environmental leaders from throughout the world to improve their scientific research skills and ability to influence important decisions concerning resource conservation. In regional courses, MAB links with local organizations and institutions and develop training and local case studies that will directly contribute to conservation in that region.

POTENTIAL FUTURE PROGRAMS

- Create regional environmental leadership courses—first in Panama, then Gabon. TNC is interested in developing a regional environmental leadership course in the Philippines.
- Add an economic and marketing component to environmental leadership courses.
- Develop more courses in West Africa, where training needs are much more dire than in Latin America (biology is not even a viable career option in Nigeria—only one in three universities in Gabon teaches biology).
- Link courses to university degrees.
- Create list-serve of past participants and develop a clearing-house for collaboration and information exchange.

BOTTLENECKS FOR TROPICAL STUDENTS

Access and funding to attend courses are significant barriers. Some scholarships are provided with Smithsonian funds, and organizations like WWF and WCS support their staff participants.

FUNDING NEEDS

- Scholarships and travel support for participants to attend programs
- Support for CRC and MAB mentoring in target regions

- Development of regional leadership courses
- Expansion of current regional courses on monitoring and adaptive management
- Funding for impact measurement and follow-up

POTENTIAL INVESTMENTS

No specific suggestions. Need to assess the specific fit of MAB-style trainings with strategies in the Amazon/Andes, Salmon and future programs, as well as needs that could be filled in CI's Centers for Biodiversity Conservation (CBCs).

TROPICAL BIOLOGY ASSOCIATION

Contact: Rosie Trevelyn, Director; Website, http://www.tropical-biology.org/

GENERAL DESCRIPTION

Since 1994, the Tropical Biology Association (TBA) has been working in partnership with tropical countries to build expertise in biodiversity conservation and research. The organization brings together biologists and conservation practitioners from Europe and tropical countries, specifically African countries, for field training. TBA works in partnership with African organizations and is regarded as an objective organization. TBA's main training activity is a month long course in conservation for practitioners that they deliver three or four times per year. TBA partners with East African Natural History Society and shares an office with them in Nairobi. They have a second office with the Department of Zoology at Cambridge University in the UK.

FACTS ABOUT THE PROGRAM

Program Details	
Programs offered	Conservation training for practitioners—1 month long (3-4 offered each year); collaborative network—ongoing; training development in Africa; also collaborate with Earthwatch and OTS training programs
Participants	45-50 participants per course. TBA has trained over 500 since 1994
Cost	No charge for African nationals, approximately $900 for members (currently consists of 35 institutions/universities that receive priority after African applicants), $1400 for non-member institutions. The course fee covers tuition, food, accommodation and in-country transport, while the participant covers airfare and insurance expenses.
Average assistance to participants	Scholarships for African nationals cover all expenses. European participants are eligible for a British Ecological Society Scholarship of approximately $300.
Trainers	Biologists from Europe and Africa
Curriculum	Practical tools in Ecology and Conservation Biology
Countries represented	Courses run in Kenya, Tanzania, Uganda and Madagascar; 19 African countries represented, 18 European countries, USA, Indonesia, Malaysia
Program follow-up	Trainees receive continued support following courses and assistance with career and research objectives in the longer term. TBA provides information on current activities and opportunities that match their needs, links alumni with further training opportunities, sources of funding and opportunities in their particular field of biology and conservation.
Additional information	http://www.tropical-biology.org/home.html

Training Program

TBA courses are designed for biologists and conservation practitioners at the graduate or advanced undergraduate level who have the potential to use the training they have acquired in improving the effectiveness of their institutions and raising awareness in others. The training is designed to increase practical knowledge and fill any missing gaps with university training. TBA courses in 2000 were supported by a grant from the European Commission.

An equal number of European and African participants are chosen for each course representing around 12 or 13 different countries. There have also been participants from the US, Indonesia and Malaysia. African countries include Cameroon, Cote d'Ivoire, DRC, Ethiopia, Ghana, Kenya, Madagascar, Malawi, Mozambique, Namibia, Nigeria, Rwanda, Sierra Leone, South Africa, Sudan, Tanzania, Uganda, Zambia and Zimbabwe.

TBA courses are one month in length and focus on current concepts and techniques in tropical ecology and conservation. Field exercises form a large part of the curriculum. It's also interesting to note that courses are demand driven and are designed around the needs of the participants/partner organizations. Participants also spend 10 to 12 days working on their own research projects and present them at the end of the course. Topics covered include ecological processes, evolutionary biology, conservation biology, experimental design, biodiversity assessment, grant proposal writing and field techniques. Specifically, they provide training in project design and implementation.

Training Development in Africa

Another training project of TBA is assisting African institutions to develop training and research capabilities. The program will ultimately build up capacity of local institutions so they can deliver their own field trainings, research and conservation programs. This project is supported by the European Commission.

Collaborative Network

TBA has also established a follow-up program—an international network of tropical biologists and conservation practitioners to further biological conservation and research in the tropics through the exchange of information. Network participants include alumni of past training programs and come from over 40 countries. In Africa alone, TBA has more than 40 partner institutions in 13 countries. These include universities, non-governmental organizations and government. The network provides a means by which institutions can recruit collaborators or employees from among TBA alumni with relevant experience. Likewise, alumni can access information on other training opportunities, project funding, internships and jobs.

BOTTLENECKS FOR TROPICAL STUDENTS

Lack of financial resources and equipment.

POTENTIAL INVESTMENTS

No specific recommendations. In a TBA post-course follow-up survey of 242 African alumni, alumni identified priorities for support as the following: 1.) project funding (approximately 50 percent); 2.) scholarships for PhDs (approximately 30 percent); and 3.) scholarships for MSc (approximately 20 percent).

THE NATURE CONSERVANCY

Contacts: Richard Devine, Partner Capacity Program; Betsy McGean, Advisor, Asia-Pacific Conservation Leadership Initiative; Audrey Im, Program Coordinator, Conservation Leadership Initiative; Marlon Flores, Partner Capacity Program; Website, http://nature.org/

Other contacts: Pakita Bath (no longer with TNC); Kath Shurcliff; Bill Raynor, Pacific/Micronesia Programs; Sheila Rhodes, training programs

GENERAL DESCRIPTION OF PROGRAMS

The Nature Conservancy (TNC) has been in existence since 1951, and has protected more than 92 million acres around the world through the support of individuals, communities, partner organizations and businesses. The mission of TNC is "to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive." TNC is a US-based organization with 3000 employees, 90 percent of whom are based in the US and 10 percent are located internationally. The organization is currently undergoing an internal review and restructuring process aimed at blurring the lines between its US and overseas work.

Through a program called "Conservation by Design," TNC is identifying and protecting high-priority landscapes and seascapes worldwide. TNC assists with capacity-building efforts by offering training to partner organizations and government agencies that manage land. The organization is investing more time and energy in training conservationists in the countries where they work.

Until recently, TNC programs have been either US-based or international in scope, with little interaction between the two. The organization is currently undergoing restructuring and a change team has been working since June to propose a new organizational design that will realign the organization with its mission and create a global institution with more leveraging power, which will bring changes to the "Partner Capacity Program," among others. One purpose of the restructuring is to bring greater cohesion to country programs and align them with TNC's strategic process—providing technical assistance with country level strategic plans, identifying and screening strategic partnerships with local NGOs, government agencies, microenterprises and civil society.

FACTS ABOUT THE PROGRAM

Partner Capacity Program (previously "International Partnership Program")

The Partner Capacity Program has been working for the past 14 years to strengthen individual and institutional capacity, as well as technical capacity, by providing technical assistance and training to key local organizations that partner with TNC. They are currently working with 95 organizations in 27 countries in Latin America, the Caribbean, Asia and the Pacific. Due to capacity-building needs in the Asia-Pacific region, a more targeted program has been created under the umbrella of the Partner Capacity Program called the Conservation Leadership Initiative (CLI), which is outlined in more detail below.

Using targeted needs assessments and on-the-ground experience with local practitioners, TNC has identified the following training approach:

- Build the institutional capacity of the partner
- Strengthen individual skills of local conservation leaders
- Disseminate knowledge gained by TNC and partners
- Promote in-country capacity-building training in specific areas—institutional assessment, leadership skills, strategic planning, board development, financial sustainability, project and NGO management, human resource management, and forging alliances and coalitions

In order to meet the goals set forth by the Partner Capacity Program, the following programs have been established:

- Distance Learning
- Conservation Training Week
- Capacity-Building Publications
- Fortaleza Network
- Financial Sustainability Program
- Scholarship and Fellowship Program
- Asia-Pacific Conservation Leadership Initiative (which includes the Conservation Fellowship Program)

TNC's approach to capacity building varies between focal regions. Programs in Latin America have been in place since the inception of the Partner Capacity Program, therefore they have a better track record and are able to leverage work with strong, well-established organizations. Partners tend to be much stronger and civil society has been thriving for quite some time. TNC's Latin America team consists of Partner Capacity directors in the US (2), and specialists in their respective countries (one to two per country). In this region, a training strategy is in place using Internet networks and distance learning to expand training opportunities while decreasing costs. In comparison, capacity programs in Asia-Pacific are much newer (past four years for TNC). Government, civil society and other organizations are weaker than they are in Latin America, which is one of the biggest challenges to TNC's work in the region. TNC staffers recollect that it was a similar situation in Latin America 15 years ago. Some organizations in regions such as Bolivia and the Caribbean are still struggling with fledgling boards and staff and focus more of their efforts on institution building.

Social Leaders—Distance Learning Program

In 2001, TNC (along with World Bank Institute, Packard Foundation and Tec de Monterrey) launched a virtual university that will provide training in nonprofit conservation and management for Latin American institutions. Last year training was provided to staff members from 200 NGOs across Latin America and the Caribbean, including members of the private and government sector. These six-month courses are provided via the Internet, telephone, fax and email through Tec De Monterrey, the largest distance learning school in Latin America and are taught by Latin American instructors from leading academic institutions and nonprofit organizations. Courses are currently available in 12 countries—Argentina, Bolivia, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador,

Honduras, Mexico, Panama, Peru and Venezuela—and will be expanding to others in the near future. This program has been TNC's answer to some of the capacity-building challenges—such as time, accessibility, cost and lack of expert trainers—and has the potential to be a successful venture in increasing capacity of international partners throughout Latin America in an affordable way.

Last year three diploma programs were offered with 350 participants per program (approximately 50 percent of which working in conservation and the other 50 percent working in other areas of civil society). The program is evaluated through exams and course evaluations. TNC also tracks the number of graduates, from what organizations they are coming, what courses they are taking, the number of hours of training taken and the marks of the students.

Scholarships are awarded based on recommendations by country programs and can be for one-time training events or longer training programs, such as the six-month distance-learning program. Scholarship recipients are invited to attend workshops organized by TNC, or they are sent to a training reception center. There are one or two campuses for this purpose in most countries where TNC is working, usually based in the city. TNC is working to establish reception centers outside the cities to connect training to fieldwork.

International Conservation Training Week (CTW)

For the past 13 years, TNC has been presenting a formal training program—the Conservation Training Week—a week-long training held twice a year in various international locations that brings together hundreds of participants for training and exchange on current conservation issues. The most recent training had 600 participants. Some of the topics include strategic financial planning, community conservation and site conservation planning. Participants come from TNC, partner organizations and government institutions, as well as some outside participants. Recognized experts in the field teach courses. Many of them come from TNC partner organizations, such as Fundación Acceso from Costa Rica, various consultants from Argentina, and other in-country service providers. The cost of the training is $250 for the registration fee and $750 for tuition, room and board for the week. TNC offers 50 scholarships, decided upon by TNC country offices. The training is presented at a high cost to TNC, and there has been some discussion about the possibility of discontinuing, restructuring or replacing the program.

International Capacity-Building Publications

TNC produces a wide array of publications oriented toward practitioners. Subjects include organizational development, financial planning, conservation science, policy, protected area management and many others. Publications are also used to share partner cases and best practices, present tools for conservation, and share lessons learned. Publications are produced in English, Spanish and Portuguese.

Within the Asia-Pacific program, publications are compiled from past training courses that have been developed into training manuals. Publications are used for training of trainers and have been refined over the years, but could still use more refinement. The "Board Development Book" is one of the most popular publications utilized by TNC partners. It is used as a reference manual for partners in Latin America, and now somewhat in the Asia-Pacific region. Board members and executive directors use the publication as they learn their roles and responsibilities.

Capacity-building publications are widely distributed, free of charge to country governments, partners and country program offices. There is currently a question over whether or not the publications will continue after restructuring. The content for many of the distance learning classes and modules (Tec de Monterrey Social Leaders Program) are drawn from these publications. TNC has no formal method to measure the impact or usefulness of the publications. Rather, it is measured informally by demand. TNC has anecdotal evidence that partners and practitioners are actually using them.

Fortaleza Learning Alliance

TNC, along with various partners in Latin America (e.g. Fundación Acceso, Rede de Informações para o Terceiro Setor-Brazil, Pact-Peru), has established an international online network called "Fortaleza" that will be a resource for service providers, local partners and other nonprofits with a specific focus on institutional development and capacity building for conservation-based organizations. The network is presented in English, Spanish and Portuguese and provides best practices forums, listservs, databases of local service providers, virtual learning communities, news bulletins, calendar of events, publications and online courses. The site will be operational by January 2003 and can be accessed at www.fortalezaonline.org.

Financial Sustainability Program

The Financial Sustainability Program is designed to promote income-generating activities by providing partner organizations with training, tools, resources and technical assistance. This activity has been incorporated into the Fortaleza program and teaches fundraising strategies, financial management and leadership.

Scholarship and Fellowship Programs

TNC offers a number of scholarships and fellowships to build capacity of individuals. The Lindsay Parsons Scholarship Fund and the Carter Bales Conservation Scholarship Fund are two programs that support training and professional development for conservation practitioners from developing countries who are playing a key role within their organization. TNC works with the selected participants to design a training program around their specific needs.

Asia-Pacific Conservation Leadership Initiative

TNC's capacity-building program in the Asia-Pacific region is called the Conservation Leadership Initiative (CLI) and has been in existence for nearly four years. The program is staffed by 6+ staff members based in Virginia, Hawaii, New Mexico (Director of Conservation Fellows program) and field program offices in New Zealand and Indonesia. The program spans eight sites in the region, Solomon Islands, Papua New Guinea (2), Indonesia (3), China (2), with an office in each of those areas The main goal of the program is to select and build strategic partnerships to support conservation.

To date, capacity-building work has targeted site-based conservation partners (5), conservation trust funds (2), other NGOs in the Pacific (approx. 25), and a handful of service providers from the region. They are also trying to address TNC field staff capacity and training needs by expanding several existing partner capacity-building strategies and programs to include country program staff. One of their biggest challenges is bringing programs in the region up to scale to have a greater conservation impact. Over the past year, programs have focused more on strengthening local service providers, who can then train and provide direct

technical services to others. While it has been a challenge for TNC to build up a group of service providers, they see this as a long-term capacity-building investment and hope to eventually become brokers of in-region service providers who can assist with board development, executive leadership, strategic planning, fundraising, work planning and other topics.

TNC also has a country program in Australia where they work through local partner organizations and don't actually do conservation work in the country. Instead, they send conservation fellows to serve as site mentors to work with private conservation groups, providing specific skills and technical assistance. This has helped them to achieve greater leverage for conservation on the ground and serves as a potential model for other programs.

Key strategies of the CLI capacity-building program include:

- Helping country programs develop strategic country and division Action Plans that are aligned with the Conservancy's overarching strategic framework.
- Identifying and strengthening (through training, co-training and apprenticeships) in-region and local service providers/trainers who can work with TNC to deliver services directly and on a timely basis and transfer content much more broadly than TNC is able.
- Building core competencies and skills of TNC teams in project management and organizational effectiveness to become better managers, partners and enablers of others.
- Investing in innovative self-directed networks (e.g., Micronesia Leaders in Island Conservation), other strategic broad-reach partnerships such as distance learning partners in the Asia-Pacific region, and local interns as the next generation of conservationists.
- Providing advice and targeted small grant funding to partners to support their priority organizational and technical capacity-building needs.

Conservation Fellowship Program

As part of the Conservation Leadership Initiative in Asia-Pacific, the Conservation Fellows Program seeks to meet partner capacity-building needs by using TNC expertise through long-term mentor assignments. Highly experienced, often senior, TNC staff members become Fellows and are matched with identified needs of partners and work on-site for two to three months (up to six months) to provide assistance in areas of leadership, organizational development and conservation management. This year, the Fellows Program has been expanded to include mentoring opportunities to TNC's Asia-Pacific country program staff through a Site Mentors program. Key goals are the transfer of skills and knowledge from the Fellow to the partner/country program and the development of long-term mentoring relationships. TNC also uses the Fellows Program to provide follow-up to other CLI capacity-building initiatives (training, workshops, etc). Many of the Fellows come from US programs, with some coming from international programs.

Multiple fellowships take place at the same time for different organizations. Two partner organizations in Micronesia have received several Fellows over the course of the last three years, including a follow-up by the same Fellow. Both partner organizations cite their respective Fellows as highly valuable mentors, whose contributions still influence day-to-day operations. The key to the programs success is in preparing both the partners and fellows. The coordinator of the program spends a lot of time matching skills for both participants. Moving into its fourth year, the program has supported 18 fellowship exchanges (two of which were from the US). Private donor funding has made the program possible. Most

fellows are selected and funded by the State Chapter Program, which covers the Fellow's salary, while the Fellowship Program covers airfare, housing and living expenses.

BOTTLENECKS FOR TROPICAL STUDENTS

Overall:

- Programs are changing with restructuring.
- Need better tracking and monitoring of programs and their effectiveness.
- Lost major donor for capacity/institution building programs—Packard's "Organizational Effectiveness Program."
- One of the things they feel they need to strengthen is the people within the organization itself. TNC has not had professional development opportunities in the past due to lack of budget. They are now trying to fill gaps in learning and skills development—project management, participation and facilitation techniques, fundraising, etc. Staff design targeted learning exchanges for themselves (anywhere from three days to two weeks). They are trying to do both partner building and staff building at the same time, but staff building has been slow in development due to cultural issues within the organization—people don't see TNC as a "learning organization."
- TNC has always focused on "doing" conservation, and not focused on "training" people how to do it. They are faced with a cultural and institutional challenge to change the way they go about their work, trying to improve the way they build capacity and transfer skills and knowledge to others.

Asia-Pacific Region:

- Weak local and regional institutions to implement conservation, including scarce and poorly developed service provider infrastructure and networks in the Pacific. In addition, newly developing civil societies and democracies in countries like Papua New Guinea and the Solomon Islands contribute to local conservation/environmental NGOs that are young, inexperienced and politically weak. Country governments are poorly equipped and have few resources to deal with the scale and scope of conservation challenges.
- CLI also faces its own challenges of directly addressing the large range of capacity-building needs of partners, including consistent follow-up. They cannot address this problem alone and recognize the need to build capacity within the region to provide services consistently, efficiently and effectively. There are also internal challenges in transforming country teams/staff into capacity builders versus direct "doers/actors."
- Finally, TNC struggles to consistently maintain operating costs and program support for capacity building (have been dependent on several foundations, such as Packard, which is vastly reducing their support to capacity-building).

POTENTIAL INVESTMENTS

As a large organization that works through local partners in the tropics, TNC is well suited to be a major player in conservation education and training. For that reason, there are many and various potential areas for investment in TNC's programs. Considering Moore's wilderness and protected area focus, investments in TNC should be narrowed to its considerable work

on protected areas management. Its distance learning work with Tec de Monterrey is intriguing. We are skeptical of the effectiveness of distance learning and in any case the program seems to be amply funded, but it is worth studying to verify whether high-tech dissemination of conservation training can really take the place of costlier in-person courses.

UNEP

WORLD CONSERVATION MONITORING CENTER

Contact: Philip Bubb, Program Officer; Website, http://www.unep-wcmc.org/

GENERAL DESCRIPTION

The UNEP World Conservation Monitoring Center (UNEP-WCMC) was established in 2000 as the world biodiversity information and assessment center of the United Nations Environment Program, after having originally been founded jointly by IUCN, WWF and UNEP as a nonprofit organization to monitor endangered species. A significant area of interest to the Center is capacity building and training in information management.

FACTS ABOUT THE PROGRAM

UNEP-WCMC has developed a Capacity-Building Program based in biodiversity information management, with funding support from the British Airways Assisting Conservation Program, that will help individuals and institutions assess their information needs, set priorities and build their own information systems. The work of the Center is divided into support for international initiatives and support for national organizations, such as the Makerere University Institute of Environment and Natural Resources in Uganda.

The capacity-building program and training in biodiversity information management undertakes the following initiatives:

- Courses and workshops targeting trainers, mid-career professionals and decision makers—one to two week courses at the Center
- Biodiversity data management training courses for postgraduates, particularly serving mid-career professionals—one week in-country courses and workshops
- Develop curriculum materials
- Work with training institutions through the Wildlife Conservation Training Consortium
- Support institutions in delivering biodiversity information to policy makers and help countries meet their obligations under a range of conventions and programs
- Develop data management tools—software to support training initiatives
- Facilitate the transfer of knowledge through staff exchanges, internships and Center attachments at the undergraduate, postgraduate and professional level
- Partner with organizations to provide training in information management to support protected areas, such as the Aysén region of southern Chile

Capacity-Building Training Programs

The majority of UNEP-WCMC trainings are held in the UNEP-WCMC office in the UK, while trainings are also offered in-country. Past in-country courses have been delivered in Uganda and Chile and an upcoming training will be held in Nepal. After trainings have been presented, staff members visit client organizations to follow-up with participants, provide additional training if needed in specific areas identified in the first training, and help the organization put into practice what they have learned. Such was the case with a Chilean training program that was presented last year. After the training, two participants received further training in GIS applications, and several months later a UNEP-WCMC staff member visited Chile to assist with the development of a workshop to design an information management strategy for the region's protected areas.

Courses are organized on the basis of requests by clients and proposals by UNEP-WCMC. Typically, trainings last three to five days, broken down into three different components, but can be up to two weeks. Several UNEP-WCMC staff (sometimes supported by external consultants) present the trainings using materials developed by the Center. Courses generally have 5 to 10 participants, but can accommodate up to 15. They are selected by client organizations in consultation with UNEP-WCMC in order to ensure that the training is suitable for their needs. A five-day training course at UNEP-WCMC for 6 to 10 participants costs approximately £10,000, or US$15,000 (this comes out to an average of $1875 per person), plus meals and accommodation. Participants are responsible for their own expenses, which are often covered by their organization or another participating organization.

The success of each training course is measured through an evaluation questionnaire, similar to CSF's, filled out by participants, where they are asked about what they have learned, the relevance of the content, the delivery of the training and how the information will be used in their work. Training programs are publicized on the UNEP-WCMC website and through joint proposals with partner organizations.

FUTURE PROGRAMS

Over the next year, UNEP-WCMC plans to present a number of training services and tools in information management and biodiversity assessment for protected area managers and policy makers, while continuing to provide client-specific courses. The institution is currently trying to raise funds for a training program in collaboration with WWF that will teach how to use GIS tools to identify potential areas for landscape-scale forest restoration in priority ecoregions around the world. The Center is working in collaboration with leading institutions in the UK, including the University of Bradford, the University of Cambridge (Department of Geography), the University of Hull, the University of Kent (DICE), and the International Center for Environmental Education (ICEE).

UNEP-WCMC is planning to expand its training and capacity-building programs, focusing on two areas: 1.) determining how to assess biodiversity, from the level of protected area manager at the community level to policy makers; and 2.) using decision support tools for including aspects of biodiversity conservation within sustainable development, again from the level of protected area managers to national policy makers. Both of these areas will emphasize the use of spatial tools, such as GIS, for analysis and decision-making.

BOTTLENECKS FOR TROPICAL STUDENTS

- Identifying the potential demand for training
- Lack of funding for clients to undertake training

FUNDING NEEDS AND POTENTIAL INVESTMENTS

No specific recommendations.

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

Contact: Cynthia Gill, Acting Biodiversity Team Leader; Website, http://www.usaid.gov/environment/index.html

GENERAL DESCRIPTION

The United States Agency for International Development (USAID) environmental programs are designed to promote healthy ecosystems for sustainable development, economic growth, greater human health, technology transfer and conflict resolution. Programs overall are intended to protect US interests and security. The USAID budget for foreign assistance totals one-half of one percent of the federal budget, with only one tenth of that going toward environment-related programs. Under the Bush Administration, biodiversity programs have lost considerable support and have been administratively placed under economic development initiatives.

FACTS ABOUT THE PROGRAM

The six focal areas of the agency include:

1. Protect the environment for long-term sustainability
2. Improve conservation of biologically significant habitats—projects in Ecuador and Madagascar
3. Reduce the threat of global climate change—projects in Brazil and the Philippines
4. Improve urban access to environmental services
5. Promote environmentally sound energy services
6. Promote natural resource management—projects in Tanzania and Indonesia

Environmental activities are focused in Africa, Asia and the Near East, Latin America and the Caribbean, and Europe/Eurasia. Most of the environmental programs are run directly from field offices or in-country missions, and work in partnership with local, regional and national organizations, government institutions, private companies, indigenous groups, NGOs, universities, etc.

Global Center for the Environment

The Center for the Environment is broken down into the following:

1. Policy and Program Coordination, which is the headquarters for environmental programs
2. Economic Growth, Agriculture and Trade, which is the agency working on natural resource management
3. Democracy, Conflict and Humanitarian Assistance
4. Global Health

Note: "Conservation" is not mentioned in descriptions of these programs on their website.

Global Environment Center Biodiversity Team

The biodiversity team manages projects that are implemented through the Agency's in-country missions. One such project is the *Global Conservation Program* working with six partners—African Wildlife Foundation, CI, Enterprise Works Worldwide, TNC, WCS and WWF—to address biodiversity issues in 18 sites throughout the world. ($22 million in USAID funds anticipated over five years through 2004.) The *Consultative Group on Biological Diversity Grant* is another project educating 40 US foundations on the importance of conservation grant-making, who will in turn support philanthropic efforts to promote global biodiversity. The *Biodiversity and Forestry (BioFor)* Indefinite Quantity Contract provides Agency missions and bureaus technical assistance to conserve biodiversity and manage forests in a sustainable way.

Bureau for Africa

Programs in Africa are focused on sustainable agricultural practices, management of tropical forests and conservation of biological diversity. Projects are taking place in the Congo, Guinea, Tanzania, Uganda and Madagascar, among others.

Bureau for Asia

The *East Asia and Pacific Initiative (EAPEI)* fits more closely with the programs and regions of most interest to the Moore Foundation. The programmatic areas include forest and land use management, coastal and marine resources management and environmental pollution. The goal of the program is to increase environmental capacity and knowledge in the East Asia and Pacific region, which will in turn improve environmental conditions and quality of life. The program is implemented through USAID funding support, NGO support, and regional and international organizations. Implementing agencies for FY 2002 programs include WWF, WRI, CI, WCS, TNC, Forestwatch Indonesia and the International Marinelife Alliance. Countries with EAPEI activities include Indonesia, Malaysia, Micronesia, the Philippines and the Solomon Islands, among others. The EAPEI website (http://eapei.home.att.net/#EAPEIwork) includes a link, "Partner Tool Shed," that provides USAID resources, as well as other resources, to improve partner effectiveness.

USAID Environmental Publications

USAID produces a number of publications in each of their six focal regions that provide a good overview of the work they are supporting worldwide. Some of the publications may be applicable to capacity-building efforts, but it's not clear if and how they are being implemented and utilized and who is able to access the information.

BOTTLENECKS FOR TROPICAL STUDENTS

Some of the bottlenecks identified by the agency include the downsizing of missions, numerous non-direct hires, and few senior-level environmental staff members. Additionally, while funding has been earmarked for environment and biodiversity programs in the Global Center for the Environment, it is not the primary area of concern, as areas such as energy, agriculture and poverty alleviation are taking center stage under the current administration.

POTENTIAL INVESTMENTS

None. USAID is a funding, not an implementing agency.

WILDLIFE CONSERVATION SOCIETY

Contact: Kent Redford

GENERAL DESCRIPTION OF PROGRAMS

"The Wildlife Conservation Society saves wildlife and wildlands by understanding and resolving critical problems that threaten key species and large wild ecosystems around the world," states an excerpt from the group's mission statement. Based at the Bronx zoo, Wildlife Conservation Society (WCS) focuses its conservation efforts around well-known animal species. The organization has activities in 52 countries and 2001 expenditures of over $22 million for international programs. The staff is dominated by biologists, most of whom are based in developing countries.

For the most part, WCS training involves short courses in the field. Most formal courses are in the areas of ecology, wildlife or park management in a tropical setting, and most country programs give in-country nationals on-the-job training on an ad hoc basis.

FACTS ABOUT THE PROGRAM

Program Details	
Programs offered	Professional development program
Specific programs	Wildlife management and wildlife ecology; Protected areas and people; Research methods for conservation practitioners; Landscape ecology/GIS
Participants	Senior park staff; other government technical staff; Park managers
Cost	Variable, depending on the course.
Providers of training	o Wildlife management and wildlife ecology—curriculum developed by Alan Rabinowitz more than 10 years ago o Protected areas and people—given by Lee White in Francophone Africa o Research methods for conservation practitioners—Peter Felsinger
Duration	o Wildlife management and wildlife ecology—several weeks o Protected areas and people—six-week course o Research methods for conservation practitioners—several weeks o Landscape ecology/GIS—two-week course
Countries where most engaged	Africa, Asia, Latin America
Additional information	http://www.wcs.org/

Landscape Ecology/GIS Program

This two-week course is given once or twice a year, generally alternating between New York and one of three regions—Asia, Africa or Latin America. Eighty percent of participants are WCS staff, with the remainder from government and NGO partner institutions. Participants bring GIS data and analyze it during the course. One week is spent on theory and the rest on data analysis. Participants are screened by the individual country program. The course costs approximately $60,000, including WCS staff time. Course organizer Eric Sanderson says that availability of geographic data used to be a bottleneck, but has been supplanted by a lack of expertise as the main constraint to GIS fieldwork.

Professional Advancement Program

In Kent Redford's words, their goal is to "nationalize conservation work." That means getting work done by nationals, not putting private conservation organizations out of business. In this area they support graduate studies for one to three junior WCS staff each year. Redford estimates that they could easily find 10 worthy candidates for advanced study support each year. Regarding the risk that recipients of such support will not return home after study abroad, WCS says they effectively mitigate the risk by "knowing the person." Costs depend on where the student studies. For example, at Columbia University it costs $40,000 per year; in Thailand it costs $5,000 for the same period. Most of this support has gone toward degrees in the sciences, though Redford signaled a need for graduate training in a number of other areas, such as anthropology, economics, business, law, political science and others. Two foundations—Christianson and Beineke—have funded the graduate studies support program.

DEGREE OF SERVICE TO TROPICAL CONSERVATIONISTS

WCS has a clear interest and presence in the tropics, so they have good access to tropical conservationists. In contrast to the foreign universities, they appear to have good access to technician-level people, such as park staff, as well as the higher-level conservation professionals. The biology and wildlife focus of the zoo-based organization keeps their training offerings within a fairly narrow range. There's no reason to change that if their courses have been well reviewed in the past, but they might consider adding some in-country work on communications and popularizing wildlife, a natural area of expertise for a zoo.

BOTTLENECKS FOR TROPICAL STUDENTS AS IDENTIFIED BY WCS

No bottlenecks, aside from funding were mentioned with respect to their field training, but Redford did offer some constraints, other than funding, to educating developing country nationals in the North: low test scores, complicated logistics of applying, language requirements, lack of scholarship money, and adaptation problems/culture shock.

FUNDING NEEDS

Not clear.

POTENTIAL INVESTMENTS

WCS' natural role in Moore Foundation capacity-building efforts is to train protected areas staff and directors. The group has several courses already in place for this audience. Each course seems to depend on one key individual, so replication would depend on training more staff as trainers. We have to point out that we don't have any independent confirmation that the courses are successful. Another possible function for WCS would be to help screen candidates for study abroad in European and North American graduate programs. Redford noted that money needs to be set aside for conservationists to get PhD's abroad, because even large NGOs will never pay for it. No one is willing to sink $200,000 into a PhD, especially because there's no guarantee he or she will return home and do conservation work.

WORLD BANK INSTITUTE

Contact: Stefano Pagiola, Economist—Policy, Economics, and Pollution Team; Gunars H. Platais, Sr. Environmental Economist

GENERAL DESCRIPTION

WBI is not a conservation organization and looks to protect nature within a development framework, providing some tools for that purpose. Conservation is not the predetermined goal, rather they are looking for best decision in a given situation.

History of Program:

Economic tools course offered for past two years:

- Two-week course in Ecuador with Amazon Basin countries – 30 participants
- Two-week course in Venezuela led by graduate of first course
- One-week compressed course in November 2001 in Panama
- One-week compressed course planned in January 2002 in Peru with CEIS (consortium of scientific community – universities, NGOs) for university professors to do their own training course

Key Partners:

- Funding – local partner, WB projects, WBI
- Development – local partner, IUCN and local NGO networks
- Implementation – WB, local NGOs
- University-NGO interactions – depends on course

FACTS ABOUT THE PROGRAM

Program Details	
Programs in place	Professional development
Specific programs offered	*Making Biodiversity Pay: Tools and techniques on green issues* Environment Department is providing environmental economics courses with funding from WBI. The key message is that conservation is possible within a development framework. With tools learned in the training, informed decisions can be made regarding what is best for an ecosystem/environment, as opposed to predetermined goals.
Participants	30 participants – ½ local, ½ outside (regional in Latin America) o Staff of organization partners, conservation NGOs and government offices o Mid-level tech professionals o Lobbyists/activists (some)
Target audience	o Staff of organization partners, conservation NGOs and government offices o Mid-level technical professionals o Lobbyists/activists (some)

Program Details	
Cost	US$1000/participant/wk o Cost varies depending on the course; cost is subsidized with participant fees, e.g. in last course IUCN paid for int'l travel o Venezuela - $750/person/wk for room and board, $1000/person/wk not including staff and materials; found local partner to contribute funding o Local partners pay for some costs as well (mostly travel costs of WB people because its difficult to get Bank to pay) o Bank provides time of WB instructors, materials, facilities, and cost of bringing in local people
Level of assistance to participants	Participants from NGO's pay, possibly through supplier scholarships; WB projects pay for their participants' fees and/or travel
Providers of training	o Organization staff - WB o Outsourcing to external experts/consultants o Local external experts – brought in to give 1-2 day presentations
Skills provided	Environmental economics o Economic theory o Valuation o Market-based policies o Cost-benefit analysis o Negotiation Policy
Duration	o 2 week courses: 1 week focused on theory, valuation, cost/benefit analysis (conceptual framework); 1 week application to specific approaches (how to) o 1 week courses also provided with condensed agenda
Location	Course site chosen by local demand
Program follow-up	Long-term results—graduate follow-up
Additional information	http://www-esd.worldbank.org/html/esd/env/org/envpe/envpe.htm, http://www.worldbank.org/biodiversity

Target Audience

Programs are targeting people who actually do the work and people who wield some influence. Target participants are in-country and located regionally in Latin America, with plans to expand to Asia.

Audience targeted by:

- Internal information dissemination within WB and WB partners
- Local organization partners
- IUCN network, other NGO networks
- Academic institutions
- Local organizations choose local participants
- WB chooses international participants

Selection Criteria

Local participants targeted by local organizations and international by World Bank. WBI works with local educational institutions or governments to select program participants. Some or all of the following criteria apply (from the WBI website):

- Relevance of their background, experience and education to the training that is being offered

- Current position they hold and their occupational duties
- Relevance of the candidate's institution or organization
- Proficiency in the language of instruction
- Ability to use the content of the course to train others, transferring knowledge
- Other prerequisites that may apply to the particular course or seminar
- Concern for geographic, gender, or background balance and diversity
- Evidence of any endorsements or clearances that may be required by the authorizing government agency (for government officials)

Degree of Service to Tropical Conservationists

These courses are specifically targeted at environmental professionals in the tropics. WBI does not have a great track record of engaging conservation NGOs so it would be worth reviewing the actual lists of participants to see who is effectively being served.

OTHER WBI COURSES

The World Bank's primary mission is poverty alleviation, and environmental concerns fall within a development framework. For example, environment is absent from WBI's 15 programmatic themes, and is mostly contained within the Sustainable Development theme under Environmental Management, Natural Resources, Management and Rural Poverty and Development. Courses relevant to conservationists include:

- Community Based Natural Resource Management
- Policy and Institutional Reform for Sustainable Rural Development
- Environmental Economics for Development Policy
- Environmental Compliance and Enforcement
- Environmental Management Program

Note: In searching for courses related to environmental conservation, "conservation" is not a keyword search option, and no courses were found when searching under biodiversity, indigenous communities, forestry, rural development or water resources management.

MEASURES OF SUCCESS

WBI is responsible for developing formal follow-up and has exit questionnaires for all their courses, but they have yet to analyze the data. The Environment Department maintains an informal network of past participants.

POTENTIAL FUTURE PROGRAMS

In order to increase capacity-building opportunities in the tropics, the WB could improve and expand existing programs. This would entail:

1. Spending more time in courses on certain topics such as valuation techniques, more hands-on content.
2. Providing more courses – demand is four per year in Latin America alone, now looking at other regions such as Francophone Africa.
3. Creating more specialized courses (region or topic focused).

New programs would entail:

1. Distance learning –develop a course for a six-week period, e.g. every Tuesday a professor at WB in DC broadcasts to locations around the world via video or email.
2. Decision makers also need this training, but this course is not designed for policy-makers.
3. Pulling together program on environmental services – working with CEPAL (Economic commission for LA and Caribbean) in Santiago and John Dixon (sustainable development training).

In order to achieve this, staff and funds are needed. Training needs expressed by participants: initial idea of audience was mid-level technical people with some general economics training, but they have found fewer people with prior economic training. For example, Ecuador's environmental ministry doesn't have an economist and few NGOs have economists, so they are now looking at a much broader audience. WBI is in a good position to provide this training because of their name recognition and experience.

POTENTIAL INVESTMENTS

No specific suggestions. WBI offers a similar course to those given by CSF. The course design appears to need more hands-on application to real-world situations. The course currently lacks follow-up and measurement of impact.

WORLD CONSERVATION UNION

Contact: John Waugh, Senior Multilateral Relations Officer and Deputy Executive Director for IUCN-US; Website, http://www.iucn.org/

GENERAL DESCRIPTION OF PROGRAMS

The World Conservation Union (IUCN) is a very large, decentralized organization with 980 member organizations, almost 200 of which are government agencies. Capacity building is an important part of IUCN's activities, and is mainly coordinated through the eleven regional offices. The focus of their capacity-building programs is to build sustainable institutions in the developing world. IUCN acts as a coordinating body and technical resource center for many organizations and initiatives. The majority of IUCN's offices and programs are in Africa (19 countries, 4 regional offices), and within that region, they are working to build the capacity of member organizations at the organizational level. They define capacity broadly as encompassing sustainable financing, institutions and human resources. Training is user-driven and country-based.

IUCN's mission is to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable. IUCN plans to implement training and education through communication and education systems with traditional, multimedia and Internet approaches.

IUCN is working toward the following Key Results Areas:

1. Effective management and restoration of ecosystems
2. Agreements, processes and policies
3. Incentives, including finance, for conservation of biodiversity and sustainable use of natural resources
4. Equitable sharing of costs and benefits
5. Assessment of biodiversity and of related economic factors
6. Information management and communication systems
7. Effective, efficient and accountable management and leadership of the Union

The components within each area imply the following capacity-building needs: ecosystem management; policy analysis and development; communication, negotiation and fundraising for building networks and partnerships, organizational management, social science and economics, sustainable finance strategies and mechanisms, biodiversity assessment tools, methods and indicators and integrated information management systems.

FACTS ABOUT THE PROGRAM

IUCN has regional programs encompassing two of the Moore focus regions: South America and Central Africa. They do not have regional programs in Melanesia, but many of their Commissions and initiatives operate in the Pacific and Oceania. IUCN's various programs and "themes" develop guidelines, technical manuals, tools and strategies with local partners to address various environmental issues. IUCN works across global and local scales and capacity building is infused in all of their activities.

1. Commission on Education and Communication
   - Develops capacity-building programs in environmental communication
   - Guides IUCN policy and advocacy for education and communication, and for the effective management and evaluation of educational programs

2. Commission on Ecosystem Management
   - Provides expert guidance on integrated ecosystem approaches to the management of natural and modified ecosystems
   - Provides assistance to the Convention on Biological Diversity, Sustainable Development and to Combat Desertification and the Ramsar Convention on Wetlands of International Importance

3. Commission on Environmental, Economic and Social Policy
   - Source of advice on the environmental, economic, social and cultural factors that affect natural resources and biological diversity and to provide guidance and support towards effective policies and practices in environmental conservation and sustainable development

4. World Commission on Protected Areas (Kenton Miller at WRI is chair)
   - One of four objectives is to strengthen capacity and effectiveness of protected areas managers, through provision of guidance, tools and information and a vehicle for networking
   - Task force in protected areas management effectiveness, protected areas management information and training
   - World Parks Congress every 10 years to define global protected areas agenda and develop tools, policies and recommendations for professionals and decision-makers; the 5th Congress to be held in South Africa in 2003 for 10 days in September—2000 attendees by invitation from academia, NGOs, business and government. Most are expected to find their own funding to attend and a few receive funding from WCPA
   - Working with Environment, Economic and Social Policy Commission on Theme Working Group on Local Communities, Equity and Protected Areas (TWG on LCEPA)

     - Develop, propose and diffuse tools, methods and approaches that ensure greater equity for the communities living in and around protected areas and greater sustainability of the conservation efforts

     - Promote the development of capacities and policies in support of the above

5. Commission on Environmental Law
   - Capacity building in law a key objective through fellowships/internships, workshops, lectures/courses, visiting delegations, researchers and through Technical Assistance and Capacity-Building projects, Regional Centers of Excellence, proposed IUCN Academy of Environmental Law, Publications and ECOLEX (Internet info service on environmental law and policy operated by UNEP, IUCN and FAO)

6. Species Survival Commission

- Largest of the six Commissions of IUCN-The World Conservation Union
- Main source of advice to the Union and its members on the technical aspects of species conservation
- Provides technical and scientific advice to governments, international environmental treaties, and conservation organizations

MEASURING IMPACT

Monitoring and Evaluation Initiative – used for internal evaluation:

- Support to managers regionally and globally at project, program and senior management and governance levels with the aim of improving skills, knowledge, learning and institutional capacities in monitoring and evaluating the relevance, effectiveness, accountability and efficiency of IUCN's program
- Support for the generation and use of performance-related data and information to support program, project and organizational improvements, including the support to internal and external strategic reviews

DEGREE OF SERVICE TO TROPICAL CONSERVATIONISTS

IUCN is working in 140 countries throughout the world with a focus on conservation. They have a good reputation for quality work and for forming partnerships with a wide range of stakeholders. IUCN is a large organization that is very decentralized and works at international, national and local levels.

POTENTIAL FUTURE PROGRAMS

Programs vary by country and regional office.
World Parks Congress follow-up – Increase impact of the Congress and create opportunities for greater capacity building of the conservation profession:

- Work with universities and training programs for interim meetings on a regional or thematic basis between Congress meetings to build capacity in more efficient ways
- Partner with training institutions to create more efficient means to build capacity. This might include:
  - Distance learning opportunities for follow-up between meetings
  - Course credit for meeting participation
  - Develop more formal training cohorts from Congresses to encourage information exchange and collaboration

BOTTLENECKS FOR TROPICAL STUDENTS

Not sure – dependent upon country and program.

FUNDING NEEDS AND POTENTIAL INVESTMENTS

Also depends on country and program. They have funding from many bilateral, multilateral and individual organizations.

- Moore should look at programs within their focus areas and discuss potential partnerships with regional program officers or heads of thematic programs. Many IUCN programs are user driven and country based.
- IUCN has a strong network in Africa and is a likely organization for implementing capacity-building interventions in Africa.

WORLD RESOURCES INSTITUTE

Contact: Kenton Miller; , Vice President, International Development and Conservation; Website, www.wri.org

GENERAL DESCRIPTION

World Resources Institute (WRI) is an environmental think-tank that produces research, information and proposals for policy and institutional change leading to greater equity in development. Goals and areas of interest for the Institute include addressing global climate change, ensuring ecosystem conservation, reducing material waste and guaranteeing access to information regarding natural resources and the environment.

FACTS ABOUT THE PROGRAM

While WRI does not have formal capacity-building programs, they are working with policy makers and are involved in numerous projects. Their philosophy is similar to that of The Nature Conservancy where they build relationships with partners and work with them on specific projects and build institutional capacity within those organizations. This entails mutual development of projects and policies, and the development of a close relationship with select organizations. WRI has some long-term relationships with several organizations in Peru, Kenya and South Africa, for example.

WRI is partnering with over 450 organizations throughout the world, including NGOs, corporations, private organizations, universities, bilateral and multilateral institutions. A number of these organizations provide capacity-building training. Among the many examples include BirdLife International, CIEL, CI, ESRI, Earth University, Foundations of Success, IUCN, Leadership for Environment and Development (LEAD), TNC-Indonesia, UNEP-WCMC, USAID, World Bank, WCS and WWF.

WRI has worked to catalyze programs. The Institute helped start programs in Latin American schools, such as the University for International Cooperation, the Latin America School for Protected Areas, and has supported faculty in Costa Rica.

WRI Publications

Included within WRI's "Biodiversity Strategies and Action Plans" is the publication, *Balancing the Scales: guidelines for increasing biodiversity's chances through bioregional management*, written by Kenton Miller, which highlights the fact that conservation and resource management programs need to incorporate capacity building and is one of three areas highlighted for successful program development.

BOTTLENECKS FOR TROPICAL STUDENTS

Not sure.

FUNDING NEEDS AND POTENTIAL INVESTMENTS

No specific recommendations.

WORLD WILDLIFE FUND

Contact: Shaun Martin, Education for Nature Program; Bronwen Golder, Senior Research Fellow, CSU, Coordinator, Asia-Pacific Ecoregion Action Program Support Initiative; Website, http://www.worldwildlife.org/,Education for Nature Program: http://www.wwf-efn.org/index.html

GENERAL DESCRIPTION

World Wildlife Fund (WWF) has been working for over 40 years to protect wildlife and wildlands throughout the world. They have one million members in the US alone, and have worked in over 150 countries since their inception. The three goals of the organization include protecting endangered spaces, saving endangered species and addressing global threats. Among WWF's numerous conservation and environmental education programs are several programs supporting education and capacity building targeting mid-career professionals internationally in areas where WWF works.

FACTS ABOUT THE PROGRAM

Education for Nature Programs (External Training)

The Education for Nature (EFN) Program supports conservationists in Africa, Asia and Latin America through several initiatives that are aimed to build capacity of individuals and institutions. Programs include:

1. Russell E. Train Scholarship Program
2. Professional Development Grants
3. Nsanjama-Palmer Rising Star Scholarships
4. Education For Nature Alumni Program

Russell Train Scholarship Program

The Russell Train Scholarship Program has been awarding scholarships and fellowships since 1994 to practitioners dedicated to conservation in their home countries and regions. Scholars receive financial support for a period of up to two years to cover all education costs (tuition, books, travel, room and board) at the undergraduate, graduate and doctoral level at the recipient's institution of choice anywhere in the world. If education expenses are over $20,000, students must show that they are seeking or have secured funding from additional sources.

The program is highly competitive and approximately two to five grants are awarded each year for a total of $1 million in support each year). Current participating countries include Cameroon, Madagascar, Malawi, Mozambique, Cambodia, China, Indonesia, Laos, Vietnam, Argentina, Brazil, Mexico and Paraguay. Scholars receive assistance with funding, costs for field research, networking opportunities with other grantees, alumni and WWF staff, and long-term professional development support through the EFN Alumni Program.

WWF staff members are not eligible to apply for scholarships. Candidates submit an application form and letters of recommendation to locally based WWF offices or partner offices (IIE and Africa America Institute, who are also administrators of the scholarships).

An outside selection committee of experts, NGO leaders and academics meets in each country to select the top candidates. The *Russell Train Leadership Award* is awarded to the top six grantees each year who have proven to be influential and committed to taking action in their respective fields. They receive, in addition to financial support, two years of follow-on support after they complete their degree program. These leaders also participate in a professional development trip to the US to meet each other, WWF colleagues and leaders from various conservation organizations.

Professional Development Grants

Through the Professional Development Grants program, WWF is providing short-term training grants for mid-career professionals, including policy makers and community and grassroots conservationists from Africa, Asia-Pacific and Latin America with at least five years of work experience. Grants are awarded throughout the year on a first-come, first-served basis. Last year 105 grants were awarded totaling $150,000. Again, WWF staff is not allowed to apply. Recipients are decided upon by local WWF offices, most of which have a cap on the number they are able to award. Those receiving grants have the opportunity to attend training workshops, conferences and seminars to enhance/attain additional skills and knowledge that will further their work (e.g. one course was on conservation finance in Guatemala). There are 17 participating countries in Africa. Those within Moore focal regions include: Cameroon, Central African Republic, DRC, Madagascar, Republic of Congo, Tanzania and Uganda. In Asia and the Pacific, 13 countries are participating. Countries in Moore focal regions include: Indonesia, Malaysia, Papua New Guinea and the Philippines. In Latin America and the Caribbean 14 countries are participating. Moore countries include: Brazil, Bolivia, Colombia, Ecuador, Peru and Venezuela.

Nsanjama-Palmer Rising Star Scholarships

With the purpose of increasing the number of trained conservationists in Francophone Africa, Nsanjama-Palmer Rising Star Scholarships are awarded to four or five commendable students each year at the Ecole pour la Formation des Specialistes de la Faune (EFG) school in Cameroon. These students are at the beginning of their career in conservation and show a long-term commitment to the field.

Education for Nature Alumni Program

With the hope of furthering professional development of former grantees and providing an opportunity for alumni to network with one another, WWF has established the EFN Alumni Program with newsletters, publications, an alumni directory and support grants. The bi-annual newsletter provides updates on WWF activities, networking opportunities, conferences, etc. The publications are donated by WWF and USAID Biodiversity Support Program and cover current issues in conservation. The directory is a compilation of grantees and alumni, providing an opportunity for individuals to contact others with similar interests and projects. Finally, alumni grants are available only to Russell Train scholars or fellows. Once completing the program, they are eligible for follow-on grants up to $3,000 and can reapply every 3 years. Funds can be used for conferences, workshops or short-term trainings offered by universities or other institutions.

Macroeconomics Program

WWF's Macroeconomics for Sustainable Development Program (MPO), based in Washington, DC offers two training programs: 1.) Root Causes, which is a two-day training

course on the root causes of biodiversity loss; and 2.) Macroeconomics and the Environment Training Program, which covers macroeconomics, poverty and the environment.

Root Causes Training

The Root Causes training aims to build capacity of participants in dealing with socio-economic factors contributing to biodiversity loss. This two-day training is aimed at NGO, government and other institutional employees. The training includes discussion based on socio-economic analysis, case studies and tools for designing and implementing strategies for policy change.

Macroeconomics and the Environment Training

This training program looks at the links between macroeconomics, poverty and the environment and targets individuals from NGOs, academic institutions, and government. It is designed to help participants integrate economic analysis, social equity and environmental sustainability into program planning and decision-making. The trainings are very interactive, use case studies and group exercises. Trainings are customized for the region in which they are being presented. The program is coordinated by MPO and other local and international experts present and lecture on various topics. Trainings last anywhere from two days to two weeks. The current status of this training program is unclear after MPO's Senior Program Officer in charge of the training left to work for Conservation International over a year ago.

WWF-UK and Capacity Building in Colombia

The purpose of this program is the build capacity of local people and government for long-term conservation in Colombia. This includes teacher-training programs, and training for individuals/organizations so they can play a role in government policy and decision-making processes. Trainings are provided in negotiation skills, organizational development and land use planning; trainings are also presented to the Private Reserves Network in reserve management.

Other Training Programs (Internal Training)

WWF Virtual College

The WWF Virtual College was started through WWF-International and WWF-Netherlands as a virtual campus in order to train WWF staff. It is advertised through WWF-International and program offices across the network. Once nominated by their program office, candidates submit an application and are selected for participation. The program is one year and graduates receive a certificate of completion. Currently, there are approximately 175 members participating in the network. Courses are offered on topics that relate to conservation implementation and include areas such as leadership, advocacy, ecoregion conservation, human resource management and financial management. The curriculum includes core courses and electives. In addition to virtual courses, participants meet in person somewhere in the world for four of the courses, including the program "kick off" where participants spend one week together. The program supports 80-100 participants per year.

One of the drawbacks of the program is that it is broad in focus and often too basic for some participants. But its strength lies in the fact that it has engaged WWF staff across a broad network and has expanded their knowledge in areas outside their fields of expertise. Another drawback is the technology—most of the courses are taken virtually over the Internet, which means participants must be computer savvy, have access to the Internet, and have the

discipline for independent study. Finally, the program is designed to train leaders in the conservation movement, but it is difficult for participants to converse with one another and develop leadership skills when work is done individually outside a classroom setting and there are few opportunities for interaction. Course website: www.wwfcollege.org.

WWF-International Training Opportunities

WWF-International offers introductory courses (once or twice a year) for staff from around the world. This week-long training and introduction is designed to offer an institutional introduction to WWF and their role in ecoregional conservation. The organization is in the process of streamlining the program and making it specific to certain areas of focus. In the past, participants were nominated through their program offices and could attend at any point in their career. Some had been with the organization 10 years before attending. The organization is moving in the direction of offering the training to all new employees.

WWF continually provides training opportunities for staff members across the network. For example, WWF-US offers an annual workshop for those running ecoregional programs. These trainings are technically focused, offering courses in areas such as monitoring and evaluation, program design, fundraising, GIS, stakeholder collaboration, etc. Trainings are held in DC, New York, Spain, Bangkok, and other locations. They are typically held in WWF ecoregions or locations where international sponsors are based. Each year approximately 60 people from around the network are trained by technical experts in specific fields. Now the challenge is trying to determine how better to expand these programs and how to focus support more effectively.

Asia-Pacific Support Initiative

The Asia-Pacific Support Initiative is a program that will be launched in 2003; it was requested as an addition to the Asia-Pacific training workshop. The Initiative will establish a network for ecoregion staff and partner organizations, design and organizational capacity-building activities, among other projects. WWF works in 16 ecoregions in the Asia-Pacific including the Island of New Guinea, Fiji barrier reef, New Caledonia, Solomon Islands, and others. The vast majority (90 percent) of WWF staff members working in the Asia-Pacific region are nationals.

As part of the Asia-Pacific Training Initiative, WWF-International offered an *Asia-Pacific Ecoregion Action Program Workshop*. This week-long training for over 55 field staff was held in PNG and focused on emerging conservation topics such as policy analysis, monitoring and evaluation, communications, leadership and management. Training needs identified by participants included fundraising, establishing partnerships, communications and financial management. WWF workshop conclusions also recognized the need for staff to develop skills in policy, economics, population, agriculture and governance. But most importantly, participants and WWF staff as a whole need to develop skills to identify when to call on outside experts.

Economics Support Initiative (GREEN workshops)

The Economics Support Initiative was started three years ago by WWF-US (through the Conservation Strategies Unit), for staff and partners to bring economics into conservation planning and action. It couples economics with a specific ecoregional approach (e.g. freshwater, marine, forests). The course gives participants experience applying economic principles to specific areas in which they are engaged. The training can support up to 25

participants, who are responsible for paying travel expenses. All other expenses are covered by WWF-US. These participants include WWF staff members, as well as other partners from the participating ecoregions. Trainings last five to six days, two of which are spent working with experts to develop pilot projects for direct and practical application of methods and tools. Experts work with participants on pilot initiatives.

Biodiversity Support Program

This program was in existence from 1989 through 2001 and was a consortium of WWF, WRI and TNC, with funding from USAID. The program was designed to promote conservation of the world's biodiversity, with programs in Africa, Asia-Pacific, Latin America/Caribbean and Eastern Europe. One of the major aims of the program was to strengthen both individual and institutional capacity through technical assistance and skills training in each of the program focus areas. BSP worked with local communities, NGOs, governments, private organizations and academic institutions. The total budget of the program was $85 million.

ADDITIONAL PROGRAM NOTES

In Africa, capacity-building efforts have focused much more deliberately on building institutions, including universities and government. WWF provided funding for the development of the Africa Wildlife College in South Africa to train park managers in eastern and southern Africa. Support was also given to colleges in Francophone Africa with the same intention. In addition, with support from the MacArthur Foundation, WWF has completed a capacity assessment for conservation in the Congo Basin to identify which institutions WWF should be supporting. WWF also secured private funding to support capacity-building efforts in Southern Africa, such as training NGOs in community based resource management. WWF has program offices in Madagascar, Tanzania, Zimbabwe, Kenya, Gabon, Cameroon and Cote D'Ivoire and a national office in South Africa. In Asia, programs for capacity building focus more on policy and planning. In Latin America and the Caribbean, capacity-building efforts are more developed, with longstanding relationships between WWF and various training organizations.

POTENTIAL FUTURE PROGRAMS

WWF recognizes the need to train faculty from universities. One idea WWF expressed is to establish a university partnership program, which would bring faculty members to the US for training. (Fulbright does this for 115 professors in Africa for Masters and PhDs.) One of the big capital needs is in building infrastructure at the institutional level. There are several good wildlife schools in Africa, one in Tanzania and one in Cameroon, for which WWF is currently providing some institutional support. Other needs include practical and vocational training for park guards. Currently underemphasized are indigenous people, women and cultural issues. WWF strives to recruit men and women equally for training programs, but that is particularly difficult in Africa.

BOTTLENECKS FOR TROPICAL STUDENTS

WWF still struggles with the issue of making capacity building more effective and focused. One of the current challenges is figuring out how to help people to understand and develop the capacity to ask the right questions (critical thinking skills) to get them to a point where they understand what is needed to improve conservation, and can then seek out the experts

who can then help them determine how to realize the vision. Some of the most effective staff members are planners (broad thinkers)—not specialists in any particular field or issue who often have difficulty seeing beyond their own specialty. In some respects, capacity-building efforts are trying to do too much. The challenge now is to figure out a way to provide capacity-building trainings that will be sustainable over the long term.

POTENTIAL INVESTMENTS

No specific recommendations.

Education and Training
For Tropical Ecosystem Conservation

ANNEXES 4-8

A Report Sponsored by The Gordon and Betty Moore Foundation and the Center for Applied Biodiversity Science, Conservation International

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Conservation Strategy Fund

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ANNEXES

Annex 4

OTHER RELEVANT INSTITUTIONS

UNIVERSITY PROVIDERS OF CONSERVATION TRAINING

University	Program	Website
American University	Washington College of Law	http://www.wcl.american.edu/environment/
Brandeis University	Sustainable International Development Program	http://www.heller.brandeis.edu/sid/
Colorado State University	Natural Resource Management, Forestry	http://www.cnr.colostate.edu/
Cornell University	Department of Natural Resources, Center for the Environment (CFE)	http://www.dnr.cornell.edu/ http://cfe.cornell.edu/cfe/education/MPS-EM.shtml#obtaining
Earth University Costa Rica	Agronomy Degree Recruits students from Latin America, targeting mainly poor and rural communities	http://www.earth.ac.cr/ing/index.html
Harvard	School of Public Health Environmental Health, Environmental Science and Engineering	http://www.hsph.harvard.edu/Academics/eh/index.html
Michigan Technological University	Environmental Policy	http://www.ss.mtu.edu/EP/index.html
Montana State University	Agricultural Economics, Land Resources and Environmental Sciences, Ecology, Earth Sciences	http://www.montana.edu/
Monterey Institute of International Studies	International Environmental Policy, Public Administration in International Management, International Policy Studies	http://www.miis.edu/
Ohio State University	School of Natural Resources	http://snr.osu.edu/

University	Program	Website
Princeton University	Princeton Environmental Institute (PEI), Science, Technology, and Environmental Policy Program (STEP)	http://web.princeton.edu/sites/PEI/
Stirling University UK	Environmental Management, Environmental Economics, Biological Sciences, Environmental Management, Sustainable Development	http://www.home.stir.ac.uk/index.htm (Working in collaboration with Bogor Agricultural Institute in Indonesia)
University of Aberdeen UK	Geography and Environment: Sustainable Rural Development; Centre for Environmental Law and Policy	http://www.abdn.ac.uk/srd/ http://www.abdn.ac.uk/landecon/research.hti#celp
University of Colorado Boulder	Environmental Engineering, Environmental Biology, Environmental Studies,	http://www.colorado.edu/engineering/EnvEng/, http://www.colorado.edu/epob/, http://www.colorado.edu/envirostudies/
University of Costa Rica	Natural Resource and Agricultural Sciences, Biology	http://www.ucr.ac.cr/
University of Denver University College	Environmental Policy and Management	http://www.learning.du.edu/oncampus/epm/index.asp
University of Maryland University College	Agriculture and Resource Economics, Environmental Science and Policy, Natural Resource Management	http://www.agnr.umd.edu/
University of Missouri	Environmental Engineering, Environmental Research Center	http://web.umr.edu/~environ/index.html
University of Montana	Environmental Studies	http://www.umt.edu/evst/
University of New Haven	Environmental Science	http://www.newhaven.edu/UNH/GISWeb/grwweb/graduate.htm
University of Oregon	Environmental Studies; Environmental Science, Studies and Policy	http://www.uoregon.edu/~ecostudy
University of Oregon	Center for Asian and Pacific Studies	http://darkwing.uoregon.edu/
University of Pennsylvania	Environmental Studies	http://www.sas.upenn.edu/CGS/grad/mes/
University of Rhode Island	Natural Resources Science	http://www.uri.edu/
University of San Francisco	Environmental Management	http://www.usfca.edu/envsci
University of Southern California	Law, Policy, and Management; Environmental Planning and Analysis; Global Environmental Issues and Development	http://www.usc.edu/dept/LAS/enviro
University of Virginia	Department of Environmental Sciences	http://www.evsc.virginia.edu

University	Program	Website
University of Washington	College of Forest Resources School of Public Health Zoology	http://depts.washington.edu/zooweb/intro.html http://www.cfr.washington.edu/ http://depts.washington.edu/envhlth/about/about.html
University of Wisconsin—Madison	Forest Ecology and Management, Institute for Environmental Studies	http://forest.wisc.edu/ http://www.ies.wisc.edu
University of Wisconsin—Stevens Point	Forestry, Paper Science, Soil & Waste Management, Wildlife, Water Resources, and Resource Management, MS Natural Resources	http://www.uwsp.edu/cnr/index.htm
University of California, Berkeley	Department of Environmental Science Policy and Management, Energy and Resources Group, Goldman School of Public Policy, School of Public Health, College of Natural Resources, Institute of International Studies	http://nature.berkeley.edu/espm/ http://ist-socrates.berkeley.edu/erg/ http://ist-socrates.berkeley.edu/~gspp/ http://sph.berkeley.edu:7047/, http://www.cnr.berkeley.edu/ http://ias.berkeley.edu/
UC Irvine	Earth Systems Science	http://www.ess.uci.edu/
Vermont Law School	Environmental Law	http://www.vermontlaw.edu/elc/elc.htm
Washington State University	Department of Natural Resource Sciences	http://www.wsu.edu

NGO / INSTITUTIONAL PROVIDERS OF CONSERVATION TRAINING

Institution	Program	Website
Academy for Educational Development	Committed to solving social problems in U.S. and throughout world through education, social marketing, research, training, policy analysis, and innovative program design and management. Focus on health, education, youth development, and environment.	http://www.aed.org/
Africa-America Institute	Promotes engagement between America and Africa through education, training and dialogue. Work to strengthen African higher education and training, and with educational outreach and policy.	http://www.aaionline.org/
Beijer International Institute of Ecological Economics Sweden	Research center with training workshops on ecology and economics, coastal zone management, marine biodiversity, environmental economics and biodiversity loss.	http://www.beijer.kva.se/
Center for International Environmental Law (CIEL)	Working to strengthen international and comparative environmental law and policy around the world. Work focused in Western Hemisphere, Central and Eastern Europe and the Newly Independent States, Asia and Africa.	http://www.ciel.org/
Earthwatch Institute	Education programs & fellowships. Two-week training courses for in-country conservation professionals in Africa, Indonesia and Malaysia to work as assistants alongside academic researchers.	http://www.earthwatch.org/
East-West Center, Hawaii	Education, Research and Seminars. Economics, Environment, Politics, Security and Governance, Population and Health, Pacific Islands Studies.	http://www.ewc.hawaii.edu/
Environment and Economic Program for Southeast Asia (EEPSEA) Singapore	Project administered by International Development Research Centre (IDRC). Training and research in environmental & resource economics to strengthen local capacity for economic analysis of environmental problems so that researchers can provide sound advice to policymakers.	http://www.eepsea.org/
Environmental Law Alliance Worldwide (E-Law)	Worldwide network offering online references, tools and bi-annual in-country workshops.	http://www.elaw.org/
Environmental Systems Research Institute (ESRI)	GIS software and technical training.	http://www.esri.com/
Foundations of Success	Network of individuals and institutions working with conservation practitioners to develop and communicate tested knowledge about conservation strategies.	http://www.fosonline.org/
Future Generations	Training leaders for community-based social change—economic growth, security, public health, transportation, conservation of natural resources, values instruction, energy.	http://www.eugenics.net/

Institution	Program	Website
International Development Research Centre (IDRC) Canada	Canadian version of USAID. Social and economic equity, environment and natural resource management, information and communication technologies for development.	http://www.idrc.ca/
Leadership for Environment and Development (LEAD)	International network of professionals & NGOs founded and spun off by Rockefeller Foundation.	http://www.lead.org/
Norwegian Agency for Development Cooperation (NORAD) Norway	Ministry of Foreign Affairs— Economic, social, political and environmental assistance to developing countries. Environmental assistance in Africa, Asia, Central America.	http://environment.norad.no/
Rainforest Alliance	Sustainable Agriculture Network, Neotropics Communications, Kleinhans Fellowship for research in tropical non-timber forest products.	http://www.rainforest-alliance.org/
RARE Center for Tropical Conservation	Work in partnership with local communities, NGOs and other stakeholders to develop and replicate locally managed conservation strategies and biodiversity protection.	http://www.rarecenter.org/index.cfm
South Pacific Regional Environment Programme (SPREP) Samoa	Regional organization established by governments and administrations of Pacific region to look after its environment. Includes projects and institutional and individual development and training.	http://www.sprep.org.ws/
Tec de Monterrey Mexico	Educational institution with 32 campuses in 27 cities throughout Mexico. Leader in distance learning in L.A.	http://www.sistema.itesm.mx/
University of Pretoria Australia	Coordinates Integrated Rural Development Program with funding from Kellogg Foundation	http://www.irdp.up.ac.za/links/
Winrock International	Global team dedicated to increasing long-term productivity, equity, and responsible resource management. Leadership development, volunteer technical assistance, building capacity for natural resource management.	http://www.winrock.org/

Annex 5a

SUPPLEMENTAL INFORMATION: BRAZIL

UNIVERSITY PROVIDERS OF CONSERVATION TRAINING IN BRAZIL

University	City, State	Department	Degree	Field/Program	Comments
Universidade Federal de Minas Gerais (Federal Univeristy of Minas Gerais – UFMG)	Belo Horizonte, Minas Gerais	Biological Sciences Institute, Departments of Zoology and Ecology	Master/ PhD	Ecology, Conservation and Wildlife Management	Brazil's leader in applied conservation science.
Universidade de Brasília (University of Brasília – UnB)	Brasília, Federal District	Ecology	BS/ Master/ PhD	Ecology	UnB's Ecology Department is highly regarded and expert in the Cerrado. The environmental economics Master's program is unique in Brazil. The Sustainable Development program is also unique and takes advantage of proximity to government agencies.
		Economics	Master	Economics for Environmental Management	
		Center for Sustainable Development	Master/ PhD		
Instituto Nacional de Pesquisa na Amazônia (National Institute for Amazon Research – INPA)	Manaus, Amazonas		Master/ PhD	Natural and social sciences	INPA is an important center for scientific research in the Amazon, and the home of the renowned forest fragments project. It offers graduate students excellent opportunities for field research.
Universidade de São Paulo (University of São Paulo – USP)	São Paulo, São Paulo	Ecology Department, Biosciences Institute	Bachelor/ Master/ PhD	Ecology	USP has one of the leading ecology programs in Southern Brazil.

University	City, State	Department	Degree	Field/Program	Comments
		Interdepartmental	Master/ PhD	PROCAM – (Interdisciplinary environmental science)	PROCAM was one of the first interdisciplinary environmental studies programs in Brazil. It focuses on a range of environmental issues, not just biodiversity. Current focus leans toward social science. Administratively an orphan.
Universidade de Campinas (University of Campinas – Unicamp)	Campinas, São Paulo	Faculty of Agricultural Engineering	Master/ PhD	Agronomy, land-use, conservation planning	
		Biology Institute	Master/ PhD	Natural science	
		Agricultural economics nucleus	Master/ PhD	Environmental economics	Unicamp is one of a growing number of schools working in environmental economics, and one of Brazil's leading schools in resource management.

NGO / INSTITUTIONAL PROVIDERS OF CONSERVATION TRAINING IN BRAZIL

Organization	City, State	Program	Comments
Instituto Internacional de Educação do Brasil (International Institute for Education in Brazil – IIEB)	Brasília, Federal District	Short courses – Conservation economics, environmental law, environmental policy, communications, green business Institutional strengthening (PADIS) Scholarships for graduate study within Brazil and abroad.	IIEB is the leading non-academic training institution in Brazil. Very competent and well networked. All funds from USAID and Dutch govt.
Fundação Boticário de proteção à Natureza (Boticário Foundation for Nature Protection – FBPN)	Salto do Morato Reserve, Paraná	Short courses at own training center in protected areas management, ecotourism, biodiversity assessment, conservation biology and environmental education.	This foundation is the philanthropic arm of *O Boticário* company.
Instituto de Pesquisas Ecológicas (Institute for Ecological Research – IPÊ)	Nazaré Paulista, São Paulo	Short courses at own training center in conservation biology, conservation medicine, statistics, remote sensing, global ecological history, carbon markets, media and communications, permaculture and environmental education.	Solid organization mostly focused on projects in interior and coastal Atlantic forest. Good infrastructure and relatively low costs.

Annex 5b

SUPPLEMENTAL INFORMATION: INDONESIA

UNIVERSITY PROVIDERS OF CONSERVATION TRAINING IN INDONESIA

Bogor Agricultural Institute (IPB), Department of Forest Conservation

Program Details	
Degrees Offered	Bachelor in Conservation with 3 main tracks: 1.) wildlife management, 2.) flora and fauna management, and 3.) recreation and ecotourism
Training Offered	Academic with courses offered in the following: biology, chemistry, math, physics, calculus, basic economics, statistics, basic management, forestry science, environmental ethics, geodetic and cartography, dendrology, soil science, natural resource conservation, environmental science, ecology, evolution, ethno biology, forest policy and law, wildlife behavior (feeding, disease, breeding, habitat, inventory), landscape, aquatic ecology, ecotourism, conservation education, protected areas management, conservation (ex-situ, rare & medicinal plants) population dynamics, ornithology
Location	Bogor
Length of Program	4-6 years
Strengths	Program has had long-standing success in producing professional conservationists in Indonesia; strong program in conservation
Weaknesses	Program administrators cite a lack of financial and human resources as the key constraints; there are too few lecturers to accommodate all acceptable applicants
Target Audience	70 students are admitted annually; high school graduates with an interest in conservation come from all over the country
Training Breakdown	Lectures and field study
Cost	Not available [regular tuition fee for public university]
Funding Assistance	—
Teachers	Lecture staff is composed of 1 tenured professor and 31 additional staff members (5 with doctoral degrees, 8 doctoral candidates, and 18 with master's degrees)
Partnerships	Formal collaborative relationship with Sterling University in the UK, primarily centered on curriculum assessment.
Criteria	Score/rank on formal studies at high school level in areas such as math, biology, physics and chemistry
Evaluation of Program	Number of students graduated each year; number of applications received each year; student evaluation on the program and lecturers
Advertisement	University brochure

University of Indonesia, Department of Biology

Program Details	
Degrees Offered	Master's and PhD programs in Biological Conservation
Training Offered	Academic courses in the following: biology, conservation (in-situ and ex-situ), environmental law, economics, ecology
Location	Jakarta
Length of Program	Master: 2 years, PhD: 4 years
Strengths	Distinguished public university in several departments, including the biology department
Weaknesses	Small lecture staff, which limits the number of students that can participate; few students have the means to pursue graduate work (the program is graduate level only); few can afford to choose the conservation field in view of much more stable and better paying alternatives; lack of interest in the program
Target Audience	10-20 students/yr for both programs; students with relevant background and experience come from all over the country
Training Breakdown	More theoretical than practical
Cost	Not available [regular tuition fee for university]
Funding Assistance	—
Teachers	Lecturers from the university
Partnerships	—
Criteria	Score/rank on formal studies at high school level in areas such as math, biology, physics and chemistry
Evaluation of Program	Successful graduates; graduate evaluation survey on courses and lecturers
Advertisement	Brochure

Papua State University (UNIPA), Biodiversity Study Center

Program Details	
Programs Offered	No formal training program in place
Training Offered	On-the-job training for biodiversity, conservation, dendrology, plants (medicinal), biology, forestry
Location	Manokwari
Length of Program	Unknown
Strengths	Specialize in agriculture and forestry
Weaknesses	Lacking in human resources; difficult access to Manokwari
Target Audience	Internal staff and UNIPA students from Papua province
Training Breakdown	Practical, specifically on biodiversity
Cost	—
Criteria	Staff and students with a good track records in conservation of biodiversity
Evaluation of Program	Success of projects in biodiversity related activities
Potential Future Programs	Curriculum development to establish department of biodiversity (currently under forestry); need materials, text books and funding

Gadjah Mada University (Yogyakarta), Department of Forest Conservation

Program Details	
Programs Offered	Conservation program focused on forest ecosystems, watershed management, biodiversity, general natural resources management and wildlife and conservation areas management
Training Offered	Academic training, with coursework in the following: soil and water conservation, forest conservation, surveying (mapping), biodiversity, environmental ethics, water ecology, flora and fauna conservation, conservation education, nature recreation, environmental pollution, forest hydrology, watershed management, conservation area management, forest products technology, zoo management, landscape management, primate management, forest population ecology, wildlife ecology, nature recreation facilities planning, water recreation management, city forest management, and national park management.
Location	Yogyakarta Province
Length of Program	—
Strengths	—
Weaknesses	Small lecture staff; limited capacity
Target Audience	—
Training Breakdown	—
Cost	—
Teachers	13 lecturers (half the size of the Department of Forest Management), including 1 tenured professor: 1 holds a PhD, 8 hold Master's degrees and the rest have undergraduate degrees
Potential Future Programs	—

Annex 5c

SUPPLEMENTAL INFORMATION: MADAGASCAR

ACTIVE CONSERVATION ORGANIZATIONS

Name	Type	Address	Contact Information
Adventist Development and Relief Agency (ADRA)	International NGO	ADRA Madagascar, BP 8218, 101 Antananarivo, Madagascar	Tel: (261) 20 22 52320 Fax: (261) 20 22 52253
ANGAP Ankarafantsika	National Agency	National Park of Ankarafantsika, C/O Direction Inter-Régionale ANGAP Mahajanga, Lot 78 Boulevard Marcoz, Tsaramandroso, Mahajanga, Madagascar	Tel: (261) 32 07 08003
ANGAP Fianarantsoa	National Agency	Direction Inter-Régionale de l'ANGAP à Fianarantsoa, BP 1363, 301 Fianarantsoa	Tel: (261) 20 75 51274 Email: angapfnr@dts.mg
Landscape Dev Intervention Chemonics International (LDI) Central office	International NGO	10, rue Dr Raharinosy, Andohalo, BP 4035, 101 Antananarivo, Madagascar	
LDI Fianarantsoa	International NGO	BP 1064, 301 Fianarantsoa, Madagascar. Or Chemonics International, 1133 North Street, NW, suite 600, Washington DC 20036	Tel: (261) 20 75 51021 Email: msf@chemonics.mg Fax: 202 955 7550
Madagascar Fauna Group (MFG)	International NGO	San Francisco Zoo, 1 Zoo Road San Francisco, CA 94112	Email: Esargent@sfzoo.org (Dr Eva Sargent)
Madagascar institut pour la conservation des ecosystèmes tropicaux (MICET)	National NGO	Lot II E 57 Antsororokavo, 301 Fianarantsoa, Madagascar	
MICET central office	National NGO	PO Box 3715, 101 Antananarivo	
Miray Moramanga (Conservation International)	International NGO	BP 59, Miray Moramanga, 514 Moramanga, Toamasina, Madagascar	
ONE (National Office for Environment)	National Agency	Villa Vitasoa - Ivory Avaratra, 301 Fianarantsoa, Madagascar.	Tel: (261) 20 7551773 Cel: (261) 32 0214650

Name	Type	Address	Contact Information
Pact, Madagascar	International NGO	Immeuble Santa, Antannimena, 101 Antananarivo, Madagascar	Tel (261) 20 2262841 Email: patrick@pact.mg
SAGE (Support services for Environmental management	National Agency	Lot II W 21 Villa Soa, Ambaranjana, 101 Antananarivo, Madagascar	Tel: (261) 20 22 55624 Email: vololona@pnae.mg
Wildlife Conservation Society Madagascar (WSC)	International NGO	BP 8500, 101 Antananarivo, Madagascar	Tel:. (261) 20 2252879. Fax: (261) 20 2252976 Email: wcsmad@dts.mg
WWF Andringitra project	International NGO	BP 07 Ambalavao, 303 Fianarantsoa, Madagascar	Tel: (261) 207534081. Email: wwfandri@dts.mg
WWF - CAF Project (Community-based forest management)	International NGO	WWF, BP 738, 101 Antananarivo, Madagascar	Tel:(261) 20 22 34885 Cel: (261) 30 23 88805/06/07

UNIVERSITY PROVIDERS OF CONSERVATION TRAINING IN MADAGASCAR

ESSA (Ecole Supérieure des Sciences Agronomiques): (National University)

Program Details	
Programs Offered	Agriculture, Forestry, Husbandry, Rural Economic and Agricultural Management, Agricultural Products and Food Processing
Training Offered	Academic, professional, on-the-job
Location	University of Antananarivo
Program Existence	38 years in existence; 10 years for on-the-job training
Length of Program	5 years; 2 weeks for on-the-job
Strengths	Students are motivated; logistics in place
Weaknesses	Need more resources and funding; not enough tools and materials to better conduct courses; on-the-job training—costs are too expensive to be covered by local NGOs, demands are irregular
Target Audience	(20 participants; 10-15 for short-term trainings) Field staff, supplier organization staff, partner NGO, graduate and undergrad students
Training Breakdown	Theory: 25%, Application and Analysis: 35%, Field work: 40% (60%/30%/10% for on-the-job training)
Cost	Participant pays tuition fee ($20/year) plus other expenses (organization pays for on-the-job training)
Funding Assistance	Grants for students, scholarships
Teachers	Staff, academic faculty, partner orgs, external experts and consultants
Partnerships	MacArthur Foundation, WWF, GTZ, Ministry of Forestry and Agronomy
Criteria	Education, work history, essay, age, employer org, ability to pay
Evaluation of Program	Monitoring and observation, reports and publications to determine participant capacity, organizational capacity and conservation project gain; project results
Advertisement	Local partner org, media, mailing, NGO network, website
Potential Future Programs	Extend existing program—need assistance with staff, funding and student and professor interest

EASTA (National Agronomy high-school)

Program Details	
Programs Offered	Forestry, Agriculture, Husbandry, Rural Engineering
Training Offered	Academic, Professional
Location	In all 6 regions: Antananarivo, Fianarantsoa, Toliary, Mahajanga, Toamasina, Antsiranana
Program Existence	12 years
Length of Program	2-3 yrs
Strengths	Preparation for field work; participatory approaches used and students complete a practicum giving them hands-on experience
Weaknesses	Conservation aspects of forestry not well developed—training provided knowledge narrowly focused on forest skills
Target Audience	(20 participants) Field staff, mid-level technical staff
Training Breakdown	Theory: 45%; Application and Analysis: 30%; Field work: 25%
Cost	Participants pay annual tuition fee ($20/yr), plus transportation, housing, food, field trips, tools, books and living expenses
Funding Assistance	Some scholarships offered
Teachers	Staff, partners, academic faculty
Partnerships	Ministry of Agriculture and Forestry assists with funding, selection of participants and implementation of programs
Criteria	Students accepted based on educational background
Evaluation of Program	Evaluation of efficiency of participants capacity determined by performance on the final exam
Advertisement	Media, government
Potential Future Programs	New program on reinforcement of conservation—program needs personnel and funding

INTH (National Institution for Tourism and Hotelery)

Program Details	
Programs Offered	Hotel Management, Ecotourism, Tourism
Training Offered	Academic, on-the-job
Location	Technical high-school of Antananarivo
Program Existence	10 years in existence
Length of Program	2 years
Strengths	—
Weaknesses	—
Target Audience	(30 participants/yr) Field and qualified staff
Training Breakdown	Theory: 50%, Application and Analysis: 30%, Field work: 20%
Cost	Students pay a tuition fee ($20/yr), in addition to transportation, housing, food, field trips, research, tools, books and other living expenses
Funding Assistance	—
Teachers	Staff, academic faculty
Partnerships	Government provides funding support; French Corporation provides planning and logistical support
Criteria	Education, age, language level
Evaluation of Program	Monitoring and observation to evaluate participants capacity
Advertisement	Internal, local orgs, academic institution, media

INTH also offers on-the-job training in Ecotourism in the form of two-week training courses once a year during the vacation period. Students pay a fee of US$54 per training and up to 16 students participate. The trainings are taught by staff members or academic faculty. Funding support is provided by the government, while French foreign aid provides planning and logistical support. Programs are advertised internally, through local NGOs, academic institutions, and in the media.

Faculty of Natural Sciences (FNS—National University)

Program Details	
Programs Offered	Animal biology sciences, plant sciences, paleontology, pharmacology, biochemistry, microbiology, geology
Training Offered	Academic, professional, on-the-job
Location	University of Antananarivo, University of Mahajanga, University of Toliary
Program Existence	24 years in existence; 3 years for professional-level training
Length of Program	Academic: 4 years; Professional and on-the-job: 2 weeks–1 mo
Strengths	Teachers have extensive experience with Madagascar fauna; the students can practice theory in the field
Weaknesses	The faculty lack funding and tools to improve their capacity
Target Audience	(15-30 participants) Field staff, mid-level decision makers, partner orgs, staff of conservation orgs, environmental consultants and engineers, graduate, undergraduate and high-school students
Training Breakdown	Theory: 50%, Application: 50%
Cost	Student pays tuition fee ($20) and logistics fee, plus other expenses
Funding Assistance	Scholarships, organizational assistance
Teachers	Staff, academic faculty, partner orgs, external experts and consultants, plus foreign experts visiting Madagascar
Partnerships	WWF, ONE, ANGAP, FMH, AMNH
Criteria	Education, exam (for academic), employer, ability to pay (for professional training)
Evaluation of Program	Reporting, thesis to determine participant and organizational capacity, and project gains
Advertisement	Internal, local partner org, NGO network, academic institution, website
Potential Future Programs	Creating new programs and extending existing—need personnel, funding, applicants and job market

IHSM (Halieutic Institute of Marine Science)

Program Details	
Programs Offered	Marine biology, fisheries
Training Offered	Academic, professional
Location	University of Toliary
Program Existence	15 years in existence
Length of Program	2 years
Strengths	—
Weaknesses	—
Target Audience	(15 participants) Field and qualified staff, partner orgs, staff of government orgs, academic faculty, graduate and undergraduate students, mid-level technical staff
Training Breakdown	Theory: 50%, Application: 30%, Fieldwork: 20% (60/40 for professional training)
Cost	Participant pays tuition fee ($20) plus other expenses; organization pays for professional training
Funding Assistance	Scholarships
Teachers	Staff, academic faculty, partner orgs, external experts and consultants
Partnerships	Government, Malagasy fishing company, Japanese corporation
Criteria	Education, essay, work history
Evaluation of Program	Monitoring and observation, reports, publications to assess participant and organizational capacity
Advertisement	Internal, academic, media, mailings
Potential Future Programs	Create new or extend existing programs—need funding and personnel

CCDN (Training Center for Community Development)

Program Details	
Programs/Courses Offered	Natural resource management, participatory approaches, project management and design, Forestry, silk farming and weaving, soil and land management, wood technology, animal husbandry, agriculture, honey, communication, fisheries, language skills, conflict management
Training Offered	Academic, professional, on-the-job
Location	Fianarantsoa
Program Existence	7 years; 2 years for academic and professional level training
Length of Courses	Academic and professional: 3 yrs; on-the-job: 2 weeks (offered 3xs/yr)
Strengths	Provides tools for villagers that can be applied in the field to practice their new knowledge; improves students capacity; practical application of technical skills
Weaknesses	Training only provided at the center, which is remote; target community limited; students like more to go to the high school than to be trained at the technical school
Target Audience	(20 participants in academic and professional training; 10-15 in on-the-job) Field and qualified staff, partner org, staff of conservation orgs, communication/outreach, academic faculty, mid-level technical staff, villagers associations
Training Breakdown	Academic and professional: Theory: 60%, Application: 25%, Fieldwork: 15%; On-the-job: Theory: 30, Application: 50%, Fieldwork: 20%
Cost	Tuition and logistics fee
Funding Assistance	Some scholarships
Teachers	Staff, partner org, external expert or consultant
Partnerships	British Corporation provides assistance with funding, planning and logistics, and implementation
Criteria	Education, work history, age, exam, utility of the training site
Evaluation of Program	Monitoring and observation, project results and publications to determine participant and organizational capacity
Advertisement	Internal, local partner org, NGO network, mailing
Potential Future Programs	Extend existing or create new programs—need personnel and funding (logistically can handle 60 students in the academic and professional programs, and 20 students for on-the-job training)

NGO / INSTITUTIONAL PROVIDERS OF TRAINING

AGECO (Communication Agency)

Program Details	
Programs/Courses Offered	Communication, participatory approaches, natural resource management, agriculture and rice farming, honey production
Training Offered	On-the-job
Location	Fianarantsoa
Program Existence	4 years
Length of Courses	5 days, offered 12 times/yr.
Strengths	—
Weaknesses	Difficult for participants to cover their own costs
Target Audience	(10-30 participants) Field and qualified staff, mid-level decision makers, supplier and partner orgs, staff of government and conservation orgs, communication/outreach
Training Breakdown	Theory: 40%, Application: 60%
Cost	Daily cost/participant, logistical fees

Program Details	
Funding Assistance	In some instances, local or national NGO pays
Teachers	Staff of organization, partner org and external consultants
Partnerships	Local and national NGOs provide support for funding, selection process and implementation of training
Criteria	Education, essay, employer org
Evaluation of program	Monitoring and observation, reporting, publications, analysis of project results to determine participant and organizational capacity
Advertisement	Internal, local partner org, NGO network, media, mailing
Potential future programs	Extend existing programs—need funding, personnel, applicants and job market for graduates

CFSIGE (Training Center for Global Information System and Environment—National Institution)

Program Details	
Programs/Courses Offered	GIS, Remote sensing and mapping, computer skills, environmental economics, project management, EIS
Training Offered	Professional, on-the-job
Location	Antananarivo
Length of Program	9 month professional degree program offered 1x/yr; 1 wk on-the-job training (frequency depends on demand)
Strengths	Staff has many experts; information is sophisticated; courses are new for Malagasy conservation training; program is recognized by scientific advisors for capacity building
Weaknesses	—
Target Audience	(8 participants for degree program, 15-20 participants for short-term training) Field and qualified staff, staff of conservation and government orgs, environmental consultants, mid-level technical staff, graduate and undergraduate students, high school graduates
Training Breakdown	Professional degree—Theory: 60%, Application: 40%; On-the-job—Theory: 90%, Application: 10%
Cost	Tuition and logistics fee; cost per day fee for on-the-job training
Funding Assistance	—
Teachers	Staff, academic faculty, external experts and consultants
Partnerships	University of Indian Ocean (UIO) provides funding support; University of Antananarivo, University of Bordeaux and Polytechnic College of Antananarivo support implementation
Criteria	Education, work history, essay, ability to pay, language and computer skills
Evaluation of Program	Monitoring and observation, reporting to determine partner and organization capacity
Advertisement	Academic institutions, media, website, mailings, government institutions
Potential Future Programs	Extend existing programs and create new programs—need funding, student and professor applicants

FAFALIA (Experimentation and Training Center for Natural Resources Management for Rural Communities)

Program Details	
Programs/Courses Offered	Participatory approaches, Forestry, soil and wood technology, agriculture, communications
Training Offered	Professional, on-the-job
Location	Antananarivo
Program Existence	10 years
Length of Courses	2-6 days (frequency depends on demand)

Program Details	
Strengths	Staff is composed of young people who have skills and capacity to develop the center
Weaknesses	This center is built far from the targeted community; difficulty translating the technical language into Malagasy; Funding system is very complex to be available to develop rural community training
Target Audience	(12-15 participants) Field and qualified staff, mid-level decision maker, supplier and partner org, staff of government and conservation orgs, environmental consultants/engineers, villagers
Training Breakdown	Theory: 50%, Application: 50%
Cost	Tuition and logistics fee$46-$77 each
Funding Assistance	In some cases participants organization pays
Teachers	Staff, partner orgs
Partnerships	none
Criteria	Education, work history, age, essay, employer org, ability to pay, language level
Evaluation of Program	Monitoring and observation, reports and feedback from the field, project results, publications to determine participant and organizational capacity, conservation gains from the project, and the specific utility of technical skills during training in the field
Advertisement	Internal, local partner org, NGO network, academic institution, mailing, government institution
Potential Future Programs	Extend existing program—need personnel, funding, good applicants (both students and professors) and job market

TS (Tefy Saina Association—National Training Institution)

Program Details	
Programs/Courses Offered	Agriculture, soil and land management, rice farming
Training Offered	On-the-job
Location	Antananarivo
Program Existence	12 years
Length of Courses	3-5 days (frequency depends on demand)
Target Audience	(30 participants) Field staff and villagers
Training Breakdown	Theory: 50%, Application: 50%
Cost	Participant pays fee/day of training—paid by organization
Funding Assistance	Paid by participants organization
Teachers	Staff of supplier org
Partnerships	—
Advertisement	NGO network

Savaivo

Program Details	
Programs/Courses Offered	GIS, remote sensing and mapping, natural resource management, participatory approaches, conflict management, EIS
Training Offered	Professional, on-the-job
Location	Antananarivo
Program Existence	3 years
Length of Courses	15 days (offered twice/yr)
Strengths	Duration of training is appropriate for the people working with the organization; equilibrium between theory and practice; training is adapted to Malagasy contexts; Courses can be given to a large group of people in one location
Weaknesses	Training is centralized in the capital region Antananarivo; Translation of the technical language into Malagasy is really difficult
Target Audience	(10-20 participants) Field staff, partner orgs, staff of conservation

Program Details	
	org, environmental consultants, mid-level technicians, villagers
Training Breakdown	Theory: 50-80%, Application: 20-50%
Cost	Fee based on training—villager association pays $40/day, GIS training is $390/student
Funding Assistance	Participants organization pays
Teachers	Staff of supplier org, external experts and consultants
Partnerships	CDE (Center for Development and Environment) of Bern University (Switzerland)
Criteria	Work history, villagers should be members of local association
Evaluation of Program	Reporting and publications, evaluations conducted by funders to determine participants' capacity and conservation project gains
Advertisement	Local partner org, website, mailing
Potential Future Programs	Expand existing program—need personnel and job market

FORMAGRI (Training Center for Agricultural Skills)

Program Details	
Programs/Courses Offered	Participatory approaches, development, project design and management, Forestry, soil, Agriculture, Communication
Training Offered	Professional, on-the-job
Location	Antananarivo
Program Existence	7 years; 2 years for professional training
Length of Courses	Professional: 7 weeks (offered once/yr), on-the-job—2-5 days (frequency depends on demand)
Strengths	Training reinforces capacity building for the participants; improves rural development
Weaknesses	Training costs are really expensive for the villagers and the local NGO; new program—needs to be improved; training time intensive for teachers
Target Audience	(12-20 participants) Field staff, mi-level decision makers, partner org, staff of government or conservation orgs, mid-level technician, communication/outreach staff
Training Breakdown	Theory: 25%, Application: 65%, Fieldwork: 10% (On-the-job training—Theory: 20%, Application: 80%)
Cost	Participant fee
Funding Assistance	Participants organization sometimes pays
Teachers	Staff, partner org, external expert or consultant
Partnerships	European Union, French Corporation
Criteria	Essay, employer, ability to pay
Evaluation of Program	Monitoring and observation, project results, interviewing
Advertisement	Internal, local partner org, NGO network, media, website, mailing, fax
Potential Future Programs	Extend existing programs—need funding, job market, and partnerships with existing NGOs

TRAINING SUPPLY IN MADAGASCAR

The following tables list fields of study and specific courses offered at Malagasy institutions pertinent to natural resources and conservation.

Training Provided by Field of Study
Agricultural systems
Animal husbandry
Communication, Education
Computer skills
Conflict management
Conservation
Environmental economics
Environmental programs
Fisheries and marine biology
Forest economics
Forestry
GIS, remote sensing
Natural resources management
Natural sciences
Non timber forest products
Research methods
Statistics

Training Provided by Course Subject	
Biodiversity conservation	Husbandry
Natural resources management	Plant biology
Participatory approaches	Genetics
Development and genre	Anatomy
Project management	Aquatic biology
Project design	Rice farming system
Silviculture (tropical)	Fishery, Aquaculture
Silk farming	Agricultural system
Silk hand weaving	Honey production
Forestry	Communication
Soil sciences	Computer skills
Soil fertility management	Language skills
Land management	GIS
Forest economics	Environmental economics
Wood technology	Environmental project management
Statistics	Ecotourism
Remote sensing and mapping	Conflict management
Road construction	Rural education and outreach
Ecology	Sailing, diving
Biodiversity	Oceanography
Biochemistry	Environmental Impact Studies
Animal biology	

Annex 5d

SUPPLEMENTAL INFORMATION: PERU

PUBLIC UNIVERSITY PROGRAMS
CONSERVATION AND SUSTAINABLE DEVELOPMENT

University	Location	Department	Degree	Field	Specialization
Universidad de Educación Enrique Guzmán y Valle la Cantuta	Lima	Faculty of Sciences	Bachelor	Biology and environmental education	
		Faculty of Agriculture/Ranching and Rural Development	Bachelor	Appropriate technologies for sustainable development	
Universidad Nacional Agraria de la Selva	Huánuco	Graduate School	Master	Sustainable development	Biodiversity and genetic resources; Sustainable agriculture
		Graduate School	Master	Renewable natural resource management	Natural resources and basin management; Agrosilvicultural and pastoral systems
Universidad Nacional Agraria La Molina	Lima	Graduate School	Master	Environmental sciences	
		Graduate School	Master	Conservation of forest resources	
		Graduate School	Master	Applied ecology	
		Graduate School	Master	Agricultural economics	
		Graduate School	Master	Ecotourism	
		Graduate School	Master	Agrarian innovation for rural development	
		Graduate School	Master	Forest management	
Universidad Nacional de Cajamarca	Cajamarca	Graduate School	Master	Sciences	Natural resources
		Graduate School	Master	Sciences	Development planning

University	Location	Department	Degree	Field	Specialization
Universidad Nacional de Ingenería	Lima	Faculty of Environmental Engineering	Master	Environmental management	Water treatment and waste management
		Faculty of Environmental Engineering	Master	Environmental engineering	
		Faculty of Economic Engineering and Social Sciences	Master	Sciences	Management and development
Universidad Nacional de la Amazonía Peruana	Loreto	Graduate School	Master	Sustainable agrarian development	
		Graduate School	Master	Ecology and sustainable development	
Universidad Nacional de Piura	Piura	Graduate School	Master	Sciences	Rural development
		Graduate School	Master	Sciences	Tropical studies
		Graduate School	Master	Ocean sciences	
		Graduate School	Master	Environmental engineering	
Universidad Nacional de Trujillo	Trujillo	Graduate School	Master	Sciences	Environmental management
		Graduate School	Master	Sciences	Fishery resource evaluation
		Graduate School	Master	Sciences	Administration of wild flora and fauna
Universidad Nacional del Altiplano	Puno	Graduate School	Master	Rural development	
Universidad Nacional del Centro del Perú	Junín	Faculty of Forest Sciences	Bachelor	Forest and environmental sciences	
Universidad Nacional Federico Villarreal	Lima	Graduate School	Master	Ocean and aquaculture sciences	
		Graduate School	Master	Environmental management	
		Faculty of Geography	Bachelor	Geographical and environmental engineering	
Universidad Nacional Hermilio Valdizan	Huánuco	Graduate School	Master	Agriculture and sustainable development	
Universidad Nacional Jorge Basadre Grohmann	Tacna	Graduate School	Master	Agrarian development	
		Graduate School	Master	Environmental management and sustainable development	
Universidad Nacional Mayor de San Marcos	Lima	Biological Sciences	Master	Tropical botany	Evolution, taxonomy and systematics; Economic botany; Ethnobotany
		Biological Sciences	Master	Zoology	Ecology and conservation; Systematics and evolution

University	Location	Department	Degree	Field	Specialization
		Biological Sciences	Master	Aquatic resources	Aquatic ecology; Evaluation and management of fishery resources
		Geology, Mining, Metallurgy and Geography	Master	Environmental sciences	Sustainable development in mining and energy resources
		Social Sciences	Master	Amazonian studies	
		Social Sciences	Master	Geography	Decentralization and sustainable development
Universidad Nacional San Agustín de Arequipa	Arequipa	Social Sciences	Master	Sciences	Social management and sustainable development
Universidad Nacional San Antonio Abad del Cusco	Cuzco	Graduate School	Master	Ecology and natural resources	
		Graduate School	Master	Public health	Environmental health
Universidad Nacional San Cristóbal de Huamanga	Ayacucho	Graduate School	Master	Chemical engineering sciences	Management and development of natural resources
Universidad Nacional de Ica San Luis Gonzaga	Ica	Graduate School	Master	Ocean sciences	

PRIVATE UNIVERSITY PROGRAMS: CONSERVATION AND SUSTAINABLE DEVELOPMENT

University	Location	Department	Degree	Field	Specialization
Pontificia Universidad Católica	Lima	Institute of Environmental Studies (IDEA)	Diploma	Rural and environmental education	Capacity building via workshops and short courses
Universidad Alas Peruanas	Lima	Faculty of Engineering of Natural Resource and Renewable Energy	Bachelor	Engineering of natural resource and renewable energy	
		Faculty of Engineering, Geography and Ecology	Bachelor	Geographic engineering and ecology	
Universidad Católica Santa María	Arequipa	Graduate School	Master	Environmental planning and management	
Universidad de Lima	Lima	Center of Environmental Studies	Diploma	Various environmental themes	Courses and consultancies
Universidad de Piura	Piura	Graduate School	Master	Environmental management and auditing	Distance learning Masters
Universidad del Pacífico	Lima	Research Center: Natural Resources and Environment	Diploma	Natural resources and environment	Short courses, elaboration of projects: logical framework, strategic planning; monitoring and

University	Location	Department	Degree	Field	Specialization
					evaluation
Universidad Inca Garcilazo de la Vega	Lima	Graduate School	Master	Social sciences	General ecology and ecology of Peru
Universidad Marcelino Champagnat	Lima	Graduate School	Master	Environmental education	
Universidad Peruana Cayetano Heredia	Lima	Faculty of Sciences	Bachelor	Ecology and environment	Diploma of specialization
Universidad Privada Antenor Orrego	La Libertad	Graduate School	Master	Urban environmental management	
Universidad Ricardo Palma	Lima	Graduate School	Master	Ecology and environmental management	

NGO / INSTITUTIONAL PROVIDERS OF CAPACITY-BUILDING TRAINING IN PERU

National Environmental Council

Program Details	
Programs/Courses Offered	Train personnel from governmental and local organizations, and NGOs in policy, environmental law, microenterprise, project design, monitoring and evaluation, lobby and communication strategies, org. management, clean technologies
Training Offered	Professional development, on-the-job
Location	Lima
Program Existence	7 years
Length of Courses	Courses offered 3 times/year
Strengths	—
Weaknesses	—
Target Audience	(30 participants) Organization staff, NGO personnel, government agency staff, partner organization staff, environmental consultants, lobbyists—participants come from throughout the country
Training Breakdown	Theory: 40%; Practical: 60%
Cost	Funding provided by World Bank, USAID and public resources for the courses; participants cover transport, accommodation, teaching and food
Funding Assistance	Supplier scholarships
Teachers	CONAM staff, national and international consultants, CDC (Center for Conservation Data – UNALM), SPDA (Peruvian Society of Environmental Laws), UNALM—supplier and partner staff and academic faculty
Partnerships	USAID, SPDA provide assistance with funding, planning and logistics
Selection Criteria	People who are involved in projects in the subject area of the course are usually selected; based on employer recommendations
Evaluation of Program	Surveys, reports and project results analyzed to determine organizational capacity gains
Advertisement	Publicized internally and through local partners, academic and government institutions, general mailings
Potential Future Programs	Desire to expand the existing program; need greater staff and funding capacity

INRENA (National Institute of Natural Resources & Natural Protected Areas)/ German Service of Technical Cooperation (DED)

Program Details	
Programs/Courses Offered	Train people working in natural protected areas in org management, natural and protected areas management, natural sciences, law, policy, GIS, monitoring—according to the needs of the protected areas; courses are organized for different educational levels
Training Offered	On-the-job training
Location	Lima
Program Existence	11 years
Length of Courses	1-week courses offered 3-4 times/yr; as well as on-the-job training for 2 or 3 professionals
Strengths	Enforce logging regulations and reseed Amazon forests; part of common baseline for Natural Protected Areas work; staff interchange; familiar with personnel and their needs; capacity to accomplish goals
Weaknesses	There are no special capacity-building programs
Target Audience	(30 participants) targeting mid-level government agency staff working throughout country
Training Breakdown	Theory: 50%; Practical: 50%
Cost	Unknown
Funding Assistance	Unknown
Teachers	Supplier and partner staff, external experts and consultants
Partnerships	BioFor
Selection Criteria	Employer recommendations, work history and education
Evaluation of Program	Measure participant capacity by conservation gains using surveys
Advertisement	—
Potential Future Programs	Expand exiting programs

INRENA – BioFor

Program Details	
Programs/Courses Offered	Environmental economics, GIS, protected areas management, monitoring, org management, computer skills, financial management
Training Offered	Professional and on-the-job
Location	Lima
Program Existence	—
Length of Courses	
Strengths	Designing a capacity-building strategy that combines practical and technical aspects, standardized training content and material; establishing permanent evaluation to improve programs; staff very receptive to training proposals; exchange of experiences strengthens protected areas management
Weaknesses	Need participation of more INRENA management offices and Lima staff; need better commitment to capacity building by management offices; management and technical functions are not clear inside the project; bureaucratic management
Target Audience	(25 participants/training) field staff of partner and conservation NGOs, and government agencies from throughout the country
Training Breakdown	Theory: 75%; Practical: 25%

Program Details	
Cost	Participant pays tuition fee
Funding Assistance	some participant-solicited grants for courses outside the country
Teachers	Supplier and partner staff, academic faculty, and external experts and consultants
Partnerships	USAID provides funding support
Selection Criteria	
Evaluation of Program	Measure participant and organization capacity through surveys and exams
Advertisement	Internal info dissemination, mailings
Potential Future Programs	Expand existing programs and coverage—scholarships for economic valuation; create a Forestry and Wildlife Department

INRENA – General Direction of Forestry and Wild Fauna (DGF and FS)

Program Details	
Programs/Courses Offered	Software management and computer skills; policy, environmental law; organizational management, monitoring, accounting and financial management; forestry management plans
Training Offered	Professional and on-the-job
Location	Lima
Program Existence	—
Length of Courses	Variable—at least 5 courses of 4 days per year
Strengths	INRENA designs training for their own personal; allow the decentralization of functions; more direct communication between the user and local forestry authority; understanding the users function and job will allow INRENA staff to better manage natural areas
Weaknesses	Lacks consistency—content is subject to legislation changes—hard to have a constant criteria
Target Audience	(20-30 participants) field staff, HQ and mid-level technical professionals from supplier organization and government agency staff from throughout the country
Training Breakdown	Theory: 40%; Practical:60%
Cost	Participant cost/day
Funding Assistance	—
Teachers	Supplier staff and partner staff
Partnerships	SPDA (Peruvian Society of Environmental Laws)
Selection Criteria	Employer and current projects
Evaluation of Program	Organizational capacity measured by reports outlining course and teacher quality
Advertisement	Internal information dissemination
Potential Future Programs	Improve training (content and covered area); identify demands and plan future trainings; diffuse forestry laws and management plans; need more staff and funding resources

UNALM (La Molina National Agrarian University)

Program Details	
Programs/Courses Offered	Masters in Forestry Resources Conservation—forestry, natural science, field research methods, resource management; Data Center for Conservation (CDC)—training in GIS, field research methods, natural resource and protected areas management,
Training Offered	Academic, professional and on-the-job training

Program Details	
Location	Lima
Program Existence	15 years
Length of Courses	CDC: (20-30 participants) o Short courses (3-4 days in length) offered 5-6 times/year o Forest Rangers courses offered for 3-5 days Master's program: (6-7 participants) o 2-year program
Strengths	15 years of experience in conservation training; connected to an academic setting with teachers and students; experience in Natural Protected Areas and Wildlife Management; provides technical information to increase country's capacity for conservation
Weaknesses	Lacking financial sustainability for programs
Target Audience	Graduate and undergraduate students, academic faculty, environmental consultants and engineers and lobbyists/activists from Conservation NGO staff, government agency and partner staff
Training Breakdown	Short courses: Theory: 30%; Practical: 70% Academic program: Theory: 60%; Practical: 40%
Cost	Tuition fee for the university program, training fee/ day for shorter courses
Funding Assistance	Scholarships from CONCYTEC (Science and Technology Council), Simmons Found
Teachers	Supplier staff and academic faculty, also foreign consultants from Brazil, Canada, UK, US
Partnerships	WWF, IUCN, PROFONANPE (National Foundation for Natural Protected Areas) assist with funding
Selection Criteria	Motivation, level of experience and interest; education and work history, recommendations
Evaluation of Program	Project methods and published results, number of students graduating—currently 66 graduates pursuing further degrees, 35 graduates working in conservation
Advertisement	Website, local partner organizations and academic institutions, NGO network, media and mailings
Potential Future Programs	Expand existing programs—need staff and funding; reorganize and promote greater participation, including students; Improve products ands publications, and Master's program

USAID-PERU

Program Details	
Programs/Courses Offered	Policy, environmental law & economics, GIS, resource management, project design, monitoring, communications and outreach
Training Offered	Professional development, on-the-job training
Location	Lima
Program Existence	1 year
Length of Courses	Depends on the BioFor program
Strengths	Programs based on needs of partners; good contacts and partnerships with main US NGOs and institutions to participate and strengthen projects
Weaknesses	No strategic training consolidation with INRENA; need to develop an evaluation mechanism
Target Audience	(several students) partner org staff and government agency staff working in national protected areas all over the country
Training Breakdown	—

Program Details	
Cost	Participant pays tuition fee
Funding Assistance	—
Teachers	Partner NGO staff, external experts and consultants
Partnerships	BioFor (INRENA), IRG, WWF oversee planning, logistics and implementation; AID covers funding
Selection Criteria	Depends on INRENA
Evaluation of Program	Developing methodology
Advertisement	Scholarships advertised through the media
Potential Future Programs	Expand existing programs: exchange with US institutions, participation of US institutions in training and experience exchange

World Wildlife Fund – Peru

Program Details	
Programs/Courses Offered	Conservation biology, policy, environmental law, GIS, project design, protected area and natural resource management, monitoring, lobbying, communications and outreach, financial management
Training Offered	Academic (scholarships), professional and on-the-job training
Location	Lima
Program Existence	—
Length of Courses	Variable—depends on the topic
Strengths	WWF has been working in the region for a long time—well established; tools learned in training can be applied in field – synergy between empirical and academic/technical knowledge; transfer of knowledge to different levels; great interest in participation by all the actors
Weaknesses	No plan designed specifically to train conservationists; target audience not well defined; scarcity of materials; no specific funds for capacity building
Target Audience	Variable short courses with 10-20 participants (some trainings have as many as 30) target org and partner staff, as well as the staff of conservation organizations and government agencies at the level of field staff, mid-level technical staff, policy makers, lobbyists, and media—participants come from Puerto Maldonado, Tarapoto, Pucallpa, Iberia, Contana and Requena
Training Breakdown	Theory: 40%; Practical: 60%
Cost	Participant pays tuition fee
Funding Assistance	Supplier scholarships and participant-solicited grants—Russell Train scholarships; External programs: Prince Bernard, Paul Getty/ Food, accommodation, and teaching during the training
Teachers	Supplier and partner staff, external experts and consultants
Partnerships	World Bank provides funding, planning, logistical, and implementation support; UNALM Center for Conservation Data
Selection Criteria	Current projects
Evaluation of Program	Measure participant and organizational capacity gains through conservation gains through surveys and project results
Advertisement	Internal info dissemination—WWF information web, NGO network, media and mailings
Potential Future Programs	Expand existing programs and create new programs with more funding—create programs for technical advise on forestry management, modernize forestry sector

Peruvian Society of Environmental Law (SPDA)

Program Details	
Programs/Courses Offered	Emphasis on lobbying and environmental education—policy, environmental law, communication and outreach, organizational management
Training Offered	Professional and on-the-job training
Location	Lima
Program Existence	15 years
Length of Courses	Frequency varies; courses last 2-3 days/week
Strengths	Working on environmental laws for 15 years; knowledge, experience, and credible organization; good communication
Weaknesses	Lack of material support and limited funds and few people to develop courses and materials
Target Audience	(25 participants at a time) targeting mid to high-level policy decision makers, environmental consultants and activists from conservation NGO staff and government agency staff as well as graduate and undergraduate students from throughout the country, esp. Piura, Iquitos, Cusco, Arequipa and Lima
Training Breakdown	Covers both theory and practical application
Cost	Fee/day
Funding Assistance	—
Teachers	Supplier and partner staff, external consultants and experts
Partnerships	Partners provide funding support
Selection Criteria	—
Evaluation of Program	Measure organizational capacity and conservation gains through surveys
Advertisement	Mailings, posters
Potential Future Programs	Need more funding and a better job market in order to expand existing programs and create new programs—present forums, provide Master's in Environmental Laws and a Center for the study of Environmental Law

International Resources Group (IRG)

Program Details	
Programs/Courses Offered	Policy, environmental law and economics, project design, monitoring, communications and outreach, org management, financial management
Training Offered	Academic, professional and on-the-job training
Location	Lima
Program Existence	—
Length of Courses	—
Strengths	Generates synergies between NGOs, base organization groups, technical and science staff, and local authorities; local training focus – identify local capacities and strengthen them, answer to local needs; generation of an information system; integrate needs of technical, management and administrative personnel and local actors; objective selection of projects and teams utilizing specialists from all over Peru
Weaknesses	Technical gaps in some areas; need to develop systematic evaluation process; poor inclusion of "opposite" actors in the process (INRENA, public sector, etc.); need to disseminate information (publications, videos, etc.) about projects more effectively among

Program Details	
	different actors and stakeholders
Target Audience	Mid-high level technical professionals, policy makers, lobbyists, media and environmental consultants from partner org staff, conservation NGO staff, government agency staff, as well as academic faculty, undergraduate and graduate level students and local communities
Training Breakdown	Theory: 30%; Practical: 70%
Cost	Participant pays tuition fee
Funding Assistance	Supplier scholarships and participant solicited grants—research fellowships
Teachers	Supplier and partner staff, academic faculty, external experts and consultants
Partnerships	USAID provides assistance with funding, planning and logistics
Selection Criteria	Motivation, synergy between institutions
Evaluation of Program	Measure partner and organizational capacity through conservation gains through surveys, project reports and results; evaluations at the end of the program
Advertisement	Local partner orgs, NGO network, academic and government institutions, and media
Potential Future Programs	Expand fellowship program on economic valuation; increase capacity building involving government and public personnel (Ministry of Economy, Ministry of Fisheries, National Council for Environment-CONAM, members and assessors of Parliament, etc.); Training on project management and execution (different places and subjects: technical characteristics, valleys management, economic valuation)

Conservation International – Peru

Program Details	
Programs/Courses Offered	Field Research methods: Rapid Assessment Program (RAP), Forestry & Eco-industry—conservation biology, natural sciences, natural resource and protected areas management, microfinance, project design, monitoring and evaluation
Training Offered	Academic, professional and on-the-job
Location	Lima
Program Existence	11 years
Length of Courses	Variable: short courses (3-5 days length)
Strengths	Skills and experience to develop key courses for biodiversity conservation and improved management techniques.
Weaknesses	No training program for CI-Peru; training related to project needs; limited funding for developing training curriculum.
Target Audience	Org and partner staff, conservation NGO staff, government agency staff, and community members—field and HQ staff, policy makers, mid-level technical professionals, environmental consultants, lobbyists, media, as well as university students from Madre de Dios, Puno, Ucayali, Junin and Amazonas
Training Breakdown	Theory: 30%; Practical: 70%
Cost	Cost to participant/day
Funding Assistance	CI-Peru; participant solicited grants for short courses: food, transport, accommodation
Teachers	Supplier staff, external consultants and foreign experts
Partnerships	—

Program Details	
Selection Criteria	Based on current projects
Evaluation of Program	Measure of participant and organizational capacity through surveys
Advertisement	NGO networks, internal info dissemination, media
Potential Future Programs	Expand RAP, intensify capacity-building programs and create new programs: conservation projects management

The Nature Conservancy – Peru

Program Details	
Programs/Courses Offered	Emphasis on planning the conservation of sites or areas—conservation biology, natural resource and protected areas management, project design, monitoring and evaluation, organizational management
Training Offered	Professional development training for partners
Location	Lima
Program Existence	—
Length of Courses	Varies from 1-2 months in length to 6-8 days in length for short courses
Strengths	Exchange of experience, information and personal contacts; planning methods for natural protected areas; flexible planning methods and well-trained instructors
Weaknesses	Methods are taken from a different technical context; little involvement in socio-economic aspects
Target Audience	Participants mainly mid-level technical professionals from partner organizations: SPDA, ProNaturaleza, CDC; Governmental agencies: INRENA; and Local authorities/Half range technical professionals—targeting places where partners have projects: Pisco, Iquitos, Tingo Maria and Lima
Training Breakdown	Theory: 50%; Practical: 50%
Cost	Cost/day
Funding Assistance	Grants for capacity building outside the country/ Food, transport, accommodation, and materials for short courses
Teachers	TNC and partner staff, external experts and consultants
Partnerships	Partners assist with planning, logistics and implementation
Selection Criteria	Involvement with TNC projects
Evaluation of Program	Organization capacity measured through surveys and questionnaires
Advertisement	Internal info dissemination, local partner orgs
Potential Future Programs	Expand existing programs to Universities and to an eco-regional analysis level—need funding and greater demand in order to do this

Econews Peru

Program Details	
Programs/Courses Offered	Training in production of technical documents and programs related to conservation—policy, communications and outreach, natural resource and protected areas management
Training Offered	On-the-job training
Location	Lima
Program Existence	—
Length of Courses	—
Strengths	Personnel related to conservation projects, 15 years doing research, policy planning and development; credibility and alliance with

Program Details	
	national and international media
Weaknesses	Poor demand for environmental subjects on media; minimal knowledge on environmental subjects on media; new organization with scarce funds; no specific training developed
Target Audience	Field and HQ staff of organization, policy makers, media and students—locals and people related to any Econews project
Training Breakdown	Theory: 30%; Practical: 70%
Cost	Cost/day
Funding Assistance	—
Teachers	Supplier staff
Partnerships	W. Alton Jones Foundation and Mitsubishi (Peru) provides funding support
Selection Criteria	Work history and involvement with current projects
Evaluation of Program	Measure conservation gains; demand for training
Advertisement	Information dissemination, NGO networks and website
Potential Future Programs	Expand actual programs to other locations; develop a training line—need additional funding and demand

FANPE Project

Program Details	
Programs/Courses Offered	Conservation biology, policy, environmental law, field research methods, org management, natural resources and protected areas management
Training Offered	Professional and on-the-job
Location	Lima
Program Existence	—
Length of Courses	Variable
Strengths	Adequate funding; work on the basis of a planned strategy
Weaknesses	Little capacity of management from public sector; bureaucratic; qualified staff with few benefits that encourage them to stay
Target Audience	Natural protected areas personnel, field and HQ staff of INRENA, partner NGO staff and government agency personnel
Training Breakdown	Theory: 40%; Practical: 60%
Cost	Participant pays tuition, room and board
Funding Assistance	Supplier scholarships and participant-solicited grants
Teachers	Partner NGO staff, external consultants and experts
Partnerships	GTZ (German government), DGANP (General Direction of Natural protected Areas) provide assistance with funding, planning, logistics and implementation
Selection Criteria	Established by DGANP-INRENA; priority given to INRENA personnel
Evaluation of Program	Organizational capacity: teachers, contents, and surveys
Advertisement	Internal information dissemination
Potential Future Programs	Expansion of programs depends on DGANP-INRENA needs

National Fund for Natural Protected Areas in Peru (PROFONANPE)

Program Details	
Programs/Courses	Natural sciences, conservation biology, policy, environmental law,

Offered	field research methods, protected areas management, project design, monitoring/evaluation, communications and outreach, org management
Training Offered	Professional and on-the-job
Location	Lima
Program Existence	—
Length of Courses	Variable
Strengths	Credibility; private institution that is non-political; ability to manage important funds; specialty in Natural Protected Areas management; low operational costs
Weaknesses	Trying to increase their work area; need to strengthen finances before expanding reach
Target Audience	Mid-level technical professionals from partner orgs and government agencies working in protected areas
Training Breakdown	Theory: 50%; Practical: 50%
Cost	Participant pays tuition fee
Funding Assistance	Participant-solicited grants
Teachers	Partner NGO staff, external experts and consultants
Partnerships	INRENA provide assistance with planning, logistics and implementation; PROFONANPE covers expenses
Selection Criteria	—
Evaluation of Program	Measure participant and organizational capacity through surveys and reports
Advertisement	Internal information dissemination; webpage
Potential Future Programs	Increase the number of Natural Protected Areas receiving funds from PROFONANPE

Peruvian Foundation for Nature Conservation (ProNaturaleza)

Program Details	
Programs/Courses Offered	Capacity building and occupational training; workshops for community members—management of protected areas and natural resources
Training Offered	On-the-job training
Location	Lima
Program Existence	15 years
Length of Courses	Depends on the course
Strengths	Application of theory in the field and ability to show achievements; committed and experiences staff; participation integrated into all project components
Weaknesses	Need to strengthen staff in different fields; no specific training program exists
Target Audience	Mid-level technical professionals from org and partner staff, conservation NGO staff; students and media
Training Breakdown	Theory: 40%; Practical: 60% (with some field work)
Cost	Tuition, room and board
Funding Assistance	Supplier scholarships; participant-solicited grants
Teachers	Supplier staff, external experts and consultants
Partnerships	TNC and INRENA provide funding
Selection Criteria	Based on the project
Evaluation of program	Project results, capacity of participants and benefits to conservation
Advertisement	By invitation through meetings
Potential Future Programs	Create new programs for personnel working in protected areas; train park guards; create a capacity-building institution

Institute of Peruvian Amazonía Research (IIAP)

Program Details	
Programs/Courses offered	Earth sciences, environmental economics, remote sensing and GIS, natural resource management, microenterprise
Training offered	Professional development and on-the-job training
Location	Iquitos
Program Existence	23 years
Length of Courses	Depends on the course and participant interest
Strengths	Staff is very experienced and valuable; international cooperation; pioneering research in the area; transfer of knowledge with direct users on sustainable development of natural resources; independent agency; has the infrastructure, credibility and experience in specific themes, such as Forestry Certification; long-term strategizing; well-developed information system and well-positioned regionally, nationally and internationally
Weaknesses	Economic and financial resources limited; research is costly and difficult; needs greater international support; lack of some specialists for management of forests and bodies of water
Target Audience	Field staff and mid-level technical professionals from org and partner staff, conservation NGO and government staff; academic faculty and students from Amazon region
Training Breakdown	Theory: 40%; Practical: 60% (with some fieldwork)
Cost	Participant pays room and board
Funding Assistance	Supplier scholarships; participant-solicited grants
Teachers	Supplier staff, external consultants and experts (from France, Finland, USA, Brazil)
Partnerships	Provide funding support
Selection Criteria	Current projects
Evaluation of Program	Measure quality of courses and professors through surveys
Advertisement	Internal information dissemination, NGO network, local org partners, academic institutions, mailings and Internet
Potential Future Programs	Expand diffusion of knowledge; create research scholarships; create biotechnology labs

Amazonian Center of Environmental Education and Research (Fundación ACEER)

Program Details	
Programs/Courses Offered	Field research methods, GIS, natural resource management, org management
Training Offered	On-the-job training
Location	Iquitos
Program Existence	3 years
Length of Courses	varies
Strengths	Only institution in Iquitos that works in the area to improve the quality and focus of education and to increase conservation in the region; low operating costs; program is generated by meeting with local people; institutions working with ACEER offer support international education program
Weaknesses	Reduced staff size due to limited funds; infrastructure and equipment is limited; difficulties implementing and institutionalizing

Program Details	
	activities
Target Audience	(60 participants) mid-level technical professionals, students and professors and community members from Iquitos and Puerto Maldonado
Training Breakdown	Theory: 40%; Practical: 60% (plus fieldwork)
Cost	Participant pays tuition, room and board
Funding Assistance	Supplier scholarships; participant-solicited grants
Teachers	Supplier and partner NGO staff, external experts and consultants
Partnerships	OTS (Organization for Tropical Studies) provides funding, as well as assistance with planning, logistics and implementation
Selection Criteria	Current projects
Evaluation of Program	Capacity of participant and organization through surveys and project results
Advertisement	NGO network, mailings
Potential Future Programs	Expand and provide opportunities for local organizations; create community jobs and develop projects minimizing environmental impacts; support the development of community organizations, leadership and management

Peru Association for the Conservation of Nature (APECO)

Program Details	
Programs/Courses Offered	Natural sciences, policy, management of natural resources and protected areas, project design, communication and outreach, environmental education
Training Offered	Academic, professional and on-the-job training
Location	Lima
Program Existence	20 years
Length of Courses	Depends on the course
Strengths	Transfer of knowledge; teamwork between specialists in environmental education and training staff; maintains continuity; graduates have become leaders in their communities; good equipment
Weaknesses	Little capacity to publicize and to sell the achievements of the programs; lack of new training staff
Target Audience	(30 participants) field staff and mid-level technical professionals from org and partner staff, conservation NGO and government staff; students from throughout the country
Training Breakdown	Theory: 50%; Practical: 50% (with some fieldwork)
Cost	Participant covers tuition, room and board
Funding Assistance	Supplier scholarships and participant-solicited grants
Teachers	Supplier staff, academic faculty, external experts and consultants
Partnerships	WWF, Fish and Wildlife Service, National Businesses, Ministry of Education provide funding support
Selection Criteria	Work history and current project
Evaluation of Program	Participant and organizational capacity measured through surveys
Advertisement	Internal information dissemination, academic institution, media and mailings
Potential Future Programs	Raise funds to expand existing programs and create new programs

Universidad de la Amazonía Peruana (UNAP)

Program Details	
Programs/Courses Offered	Master's program: Natural and earth sciences, conservation biology, environmental economics, field research methods, natural resource management, microenterprise, project design,
Training Offered	Academic training
Location	Iquitos
Program Existence	13 years
Length of Courses	2 year program
Strengths	—
Weaknesses	—
Target Audience	(22 participants) org staff and conservation NGO staff, students from Lima (UNALM, UNMSM), Piura, Cuzco, as well as Spain, Germany and England
Training Breakdown	Theory: 60%; Practical: 40%
Cost	Participant pays tuition, room and board
Funding Assistance	Research grants
Teachers	Supplier and partner NGO staff, academic faculty, external experts and consultants
Partnerships	University of Kent, University of Florida, National University of Colombia provide funding, planning, logistical and implementation support
Selection Criteria	Project work
Evaluation of Program	Participant and organization capacity measured through surveys and project results; 65 graduates pursuing further degrees, 2 graduates working in conservation, 1 graduate in high-level position
Advertisement	Internal information dissemination, academic institution, media and mailings
Potential Future Programs	Create PhD program, scholarship program and research exchanges

Universidad Nacional San Antonio Abad del Cusco (UNSAAC)

Program Details	
Programs/Courses offered	Master in Ecology and Natural Resources—natural and earth sciences, conservation biology, field research methods, management of natural resources and protected areas,
Training offered	Academic training
Location	Cuzco
Program Existence	5 years
Length of Courses	2 year program
Strengths	—
Weaknesses	—
Target Audience	(30 participants/year) org staff, conservation NGO and government agency staff; students; the majority come from Cuzco
Training Breakdown	Theory: 40%; Practical: 60% (plus fieldwork)
Cost	Participant pays tuition, room and board
Funding Assistance	Supplier scholarships
Teachers	Supplier staff, external experts and consultants
Partnerships	Provide funding support
Selection Criteria	Participant interest
Evaluation of Program	Organizational capacity through program results; 40 graduates pursuing further degrees, 5 graduates working in conservation, 2

Program Details	
	graduates in high-level positions (government/NGO/consultant)
Advertisement	Website
Potential Future Programs	Modify existing program to include training in biotechnology and biological diversity

Universidad Nacional Mayor de San Marcos (UNMSM)

Program Details	
Programs/Courses Offered	Master in Amazonian Studies—policy, environmental law, field research methods, natural resource management, org management, communications/outreach, monitoring and evaluation
Training Offered	Academic training
Location	Lima
Program Existence	4 years
Length of Courses	—
Strengths	Innovative interdisciplinary program; one of few conservation education programs focused on the Amazon; has both classes in Lima and in field
Weaknesses	Funding limitations and dependence on foreign funding; no permanent staff; ad-hoc curriculum
Target Audience	(12 participants/yr) attracts students from Amazon areas and people interested in developing projects in the Amazonian rainforest—includes conservation NGO and government agency staff and environmental consultants
Training Breakdown	Theory: 40%; Practical: 60%
Cost	Participant pays tuition fee
Funding Assistance	Some supplier scholarships and participant-solicited grants
Teachers	Academic faculty, external consultants and experts
Partnerships	Mc Arthur Foundation provides funding, planning, logistics and participant selection support
Selection Criteria	Experience on the Amazonian rainforest, interest in the Master's program, undergraduate marks, and work history
Evaluation of Program	Participant and organizational capacity measured through surveys—26 graduates pursuing further degrees, 3 graduates in high-level positions in government/NGO/consulting
Advertisement	Local partner orgs, academic institution, media/press
Potential Future Programs	Expand existing programs through greater publicity and publications; invest in a research fund; create greater cohesion with institutions from the Amazonian-Andes region to attract more foreign students, develop partnership with other institutions, attract more/better teachers (national and international), and promote student and professional exchanges

NATIONAL SYSTEM OF PROTECTED AREAS IN THE STATE OF PERU

Categorias	*Base Legal*	*Fecha*	*Ubicacion Politica*	*Extension ha*
Parques Nacionales (9)				**4 812 509.84**
Cutervo	Ley Nº13694	08.09.61	Cajamarca	2 500.00
Tingo Maria	Ley Nº15574	14.05.65	Huanuco	4 777.00
Manu	D.S.Nº0644-73-AG	29.05.73	Cusco Y Madre De Dios	1 532 806.00
Huascaran	D.S.Nº0622-75-AG	01.07.75	Ancash	340 000.00
Cerros de Amotape	D.S.Nº0800-75-AG	22.07.75	Tumbes Y Piura	91 300.00
Rio Abiseo	D.S.Nº064-83-AG	11.08.83	San Martin	274 520.00
Yanachaga-Chemillen	D.S.Nº068-86-AG	29.08.86	Pasco	122 000.00
Bahuaja-Sonene	D.S.Nº 048-2000-AG	04.09.00	Madre De Dios Y Puno	1 091 416.00
Cordillera Azul	D.S.Nº 031-2001-AG	22.05.01	San Martin, Loreto, Ucayali Y Huánuco	1 353 190.84
Reservas Nacionales (9)				**3 221 376.00**
Pampa Galeras	R.S.Nº157-A	18.05.67	Ayacucho	6 500.00
Junin	D.S.Nº0750-74-AG	07.08.74	Junin Y Pasco	53 000.00
Paraca	D.S.Nº1281-75-AG	25.09.75	Ica	335 000.00
Lachay	D.S.Nº310-77-AG	21.06.77	Lima	5 070.00
Titicaca	D.S.Nº185-78-AA	31.10.78	Puno	36 180.00
Salina y Aguada Blanca	D.S.Nº070-79-AA	09.08.79	Arequipa Y Moquegua	366 936.00
Calipuy	D.S.Nº004-81-AA	08.01.81	La Libertad	64 000.00
Pacaya Samiria	D.S.Nº016-82-AG	04.02.82	Loreto	2 080 000.00
Tambopata	D.S.Nº 048-2000-AG	04.09.00	Madre De Dios	274 690.00
Santuarios Nacionales (6)				**48 113.10**
Huayllay	D.S.Nº0750-74-AG	07.08.74	Pasco	6 815.00
Calipuy	D.S.004-81-AA	08.01.81	La Libertad	4 500.00
Lagunas de Mejia	D.S.Nº015-84-AG	24.02.84	Arequipa	690.60
Ampay	D.S.Nº042-87-AG	23.07.87	Apurimac	3 635.50
Manglares de Tumbes	D.S.Nº018-88-AG	02.03.88	Tumbes	2 972.00
Tabaconas-Namballe	D.S.Nº051-88-AG	20.05.88	Cajamarca	29 500.00
Santuarios Historicos (4)				**41 279.38**
Chacamarca	D.S.Nº0750-74-AG	07.08.74	Junin	2 500.00
Pampa de Ayacucho	D.S.Nº119-80-AA	14.08.80	Ayacucho	300.00
Machupichhu	D.S.Nº001-81-AA	08.01.81	Cusco	32 592.00
Bosque de Pomac	D.S.Nº034-2001-AG	03.06.01	Lambayeque	5 887.38
Reserva Paisajistica (1)				**221 268.48**
Nor Yauyos - Cochas	D.S.Nº033-2001-AG	03.06.01	Lima Y Junin	221 268.48
Zonas Reservadas (15)				**7 849 583.71**
Manu	R.S.Nº0151-80-AA-DGFF	26.06.80	Madre De Dios	257 000.00
Laquipampa	R.M.Nº00692-82-AG/DGFF	05.10.82	Lambayeque	11 346.90
Apurimac	R.S.Nº0186-88-AG/DGFF	28.04.88	Junin Y Cusco	1 669 200.00
Pantanos de Villa	R.M.Nº00144-89-AG/DGFF	29.05.89	Lima	396.00
Tumbes	R.M.Nº0594-94-AG	28.09.94	Tumbes	75 102.00
Algarrobal el Moro	D.S.Nº02-95-AG	13.01.95	Lalibertad	320.69
Chancaybaños	D.S.Nº001.96-AG	14.02.96	Cajamarca	2 628.00
Aymara Lupaca	D.S.Nº002-96-AG	01.03.96	Puno	300 000.00
Gueppi	D.S.Nº003-97-AG	03.04.97	Loreto	625 971.00
Rio Rimac	D.S.Nº 023-98-AG	23.12.98	Lima	Franja de 28

Categorias	*Base Legal*	*Fecha*	*Ubicacion Politica*	*Extension ha*
				Km.
Santiago - Comaina	D.S.N° 005-99-AG	24.01.99	Amazonas Y Loreto	1 642 567.00
Allpahuayo - Mishana	D.S.N° 006-99-AG	04.03.99	Loreto	57 667.43
Alto Purus	D.S.N° 030-2000-AG	07.07.00	Madre De Dios Y Ucayali	5 101 945.00
Amarakaeri	D.S.N° 028-2000-AG	07.07.00	Madre De Dios Y Cusco	419 139.00
Cordirella Colan	R.M.Nº0213-2002-AG	06.03.02	Amazonas	64 114.74
Bosques De Proteccion (6)				**389 986.99**
A.B. Canal Nuevo Imperial	R.S.Nº0007-80-AA/DGFF	19.05.80	Lima	18.11
Puquio Santa Rosa	R.S.Nº0434-82-AG/DGFF	02.09.82	La Libertad	72.50
Pui Pui	R.S.Nº0042-85-AG/DGFF	31.01.85	Junin	60 000.00
San Matias-San Carlos	R.S.Nº0101-87-AG/DGFF	20.03.87	Pasco	145 818.00
Pagaibamba	R.S.Nº0222-87-AG/DGFF	19.06.87	Cajamarca	2 078.38
Alto Mayo	R.S.Nº0293-87-AG/DGFF	23.07.87	San Martin	182 000.00
Reservas Comunales (2)				**651 158.11**
Yanesha	R.S.Nº0193-88-AG-DGFF	28.04.88	Pasco	34 744.70
El Sira	D.S.Nº037-2001-AG	23.06.01	Huanuco, Pasco Y Ucayali	616 416.41
Cotos De Caza (2)				**124 735.00**
El Angolo	R.S.Nº0264-75-AG	01.07.75	Piura	65 000.00
Sunchubamba	R.M.Nº00462-77-AG	22.04.77	Cajamarca	59 735.00
54 Areas Naturales Protegidas				**17 543 499.83**
Superficie Del Peru (Ha)				**128 521 560.00**
% Del Peru Protegido				**13.65**

Annex 6

PEOPLE INTERVIEWED

US/UK PROVIDERS: INTERVIEW CONTACTS

Institution/NGO	Name of Contact	Position	Contact Information
American Museum of Natural history – Center for Biodiversity and Conservation	Eleanor Sterling	Director	sterling@amnh.org
Cambridge University, Conservation Biology Group	Andrew Balmford	Senior Member	a.balmford@zoo.cam.ac.uk
Cornell Center for the Environment	Tad McGalliard	Program Manager New Projects, Student Services, and Development	tnm2@cornell.edu
Duke University, Nicholas School	Karen Kirchoff	Director of Career Services	kgki@duke.edu
Duke University, Nicholas School	Randy Kramer	Professor of Resource and Environmental Economics	Kramer@duke.edu
Duke University, Nicholas School and Center for Tropical Conservation	John Terborgh	Nicholas School Professor, Director of Center for Tropical Conservation	manu@duke.edu
Duke University, Sanford Institute of Public Policy	Jonathan Abels	Program Director, Duke Center for International Development at Sanford	abels@pps.duke.edu
Fauna and Flora International	Robert Garner	Director of Sound Wood Program and Director of Development	ffi-use@fauna-flora.org
Harvard University, Kennedy School of	Bill Clark	Harvey Brooks Professor of International Science,	William_clark@harvard.edu

Institution/NGO	Name of Contact	Position	Contact Information
Government		Public Policy and Human Development	
Harvard University, Kennedy School of Government	Calestous Juma	Fellow, Science, Technology and Public Policy Program	Calestous_juma@harvard.edu
Institute of International Education	Peggy Blumenthal	Vice President, Educational Services	pblumenthal@iie.org
Institute of International Education	William Dant	Humphrey Program Director	wdant@iie.org
Institute of International Education	Stacy Rhodes	Vice President for Global Development	srhodes@iie.org
World Conservation Union - IUCN	John Waugh	Senior Multilateral Relations Officer & Deputy Executive Director	Jwaugh@iucnus.org
Organization for Tropical Studies	Nora Bynum	Academic Coordinator	elb@acpub.duke.edu
Organization for Tropical Studies	Katrina Brandon	Senior Research Fellow at Conservation International	k.Brandon@conservation.org
Oxford, Environmental Change Institute	Rob Whittaker	ECI Acting Director	robert.whittaker@gog.ox.ac.uk
Oxford, Environmental Change Institute	Terry Dawson	ECI Research Fellow	terry.dawson@eci.ox.ac.uk
Oxford, Environmental Change Institute	Ian Curtis	ECI Development Officer	ian.curtis@eci.ox.ac.uk
Princeton Environmental Institute	Janet Gruschow	Executive Director	gruschow@princeton.edu
Royal Society for the Protection of Birds/Birdlife International	Ken Smith	Head of Aquatic Research, Conservation Science Department	Ken.smith@rspb.org.uk
Smithsonian	Jim Comiskey	Monitoring and Assessment of Biodiversity Program	jac@ic.si.edu
Smithsonian	Rebecca Hamel	Monitoring and Assessment of Biodiversity Program	rhamel@simab.si.edu
Stanford University, Department of Biological Sciences	Paul Ehrlich	Professor, Biological Sciences and Director of Center for Conservation Biology	pre@stanford.edu
Stanford University,	Gretchen Daily	Bing Interdisciplinary Research Scientist	gdaily@stanford.edu

Institution/NGO	Name of Contact	Position	Contact Information
Department of Biological Sciences			
Stanford University	Sara Hoagland	Associate Director, Interdisciplinary Graduate Program in Environment and Resources and Stanford Environmental Initiative	shh@stanford.edu
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The Nature Conservancy	Richard Devine	Partner Capacity Program	rdevine@tnc.org
The Nature Conservancy	Bill Raynor	Country Director	braynor@tnc.org
The Nature Conservancy	Betsy McGean	Advisor, Asia-Pacific Conservation Leadership Initiative	bmcgean@tnc.org
The Nature Conservancy	Audrey Im	Program Coordinator, Asia-Pacific Conservation Leadership Initiative	aim@tnc.org
The Nature Conservancy	Marlon Flores	Partner Capacity Program	mflores@tnc.org
UC Santa Cruz, Environmental Studies Department	Greg Gilbert	Associate Professor	ggilbert@cats.ucsc.edu
United Nations Environment Program – World Conservation Monitoring Centre	Philip Bubb	Program Officer	Philip.bubb@unep-wcmc.org
University of Florida, College of Natural Resources and Environment	Steve Humphrey	Dean	humphrey@ufl.edu
University of Florida, Program for Studies in Tropical Conservation	Susan Jacobson	Director, PSTC and Professor of Wildlife Ecology and Conservation	JacobsonS@wec.ufl.edu
University of Florida, School of Forestry and Resource Conservation	Dan Zarin	Associate Professor of Tropical Forestry, SFRC and Executive Director of Forest Management Trust	zarin@ufl.edu
University of Florida, Tropical Conservation and Development Program	Marianne Schmink	TCD Director and Professor of Latin American Studies and Anthropology	schmink@tcd.ufl.edu

Institution/NGO	Name of Contact	Position	Contact Information
University of Florida, Tropical Conservation and Development Program	Jon Dain	Lecturer and Executive Committee Member	jdain@latam.ufl.edu
University of Florida, Tropical Conservation and Development Program	Hannah Covert	Assistant Director	hcovert@latam.ufl.edu
University of Kent, Durrell Institute of Conservation and Ecology	Nigel Leader-Williams	Director	N.Leader-Williams@ukc.ac.uk
University of Michigan, School of Natural Resources and Environment	Patti Myers Kardia	Assistant Director of Student Services	patmyers@umich.edu
University of Oregon, International Studies	Linda Fuller	Director	lofuller@oregon.uoregon.edu
University of Washington, College of Forest Resources	B. Bruce Bare	Dean	bare@u.washington.edu
University of Washington, Zoology	Judy Farrow	Graduate Program Coordinator	farrowj@u.washington.edu
University of Wisconsin	Ray Guries	Faculty, Department of Forest Ecology and Management	rpguries@facstaff.wisc.edu
USAID	Cynthia Gill	Acting Biodiversity Team Leader	cgill@usaid.gov
World Bank Institute / Environment Department	Stefano Pagiola	Economist and –Policy Analyst, Economics and Pollution Team	spagiola@worldbank.org
World Bank Institute / Environment Department	Gunars H. Platais, Sr.	Environmental Economist	gplatais@worldbank.org
Wildlife Conservation Society	Kent Redford	Vice President, Conservation Strategy, International Conservation	khredford@aol.com
World Resources Institute	Kenton Miller	Vice President, International Development and Conservation	Kenton@wri.org
World Wildlife Fund	Shaun Martin	Education for Nature Program	Shaun.martin@wwfus.org

Institution/NGO	Name of Contact	Position	Contact Information
World Wildlife Fund	Bronwen Golder	Senior Research Fellow, Coordinator, Asia-Pacific Ecoregion Action Program Support Initiative	Fyfe-golder@xtra.co.nz
Yale School of Forestry and Environmental Studies (F&ES)	Gustave Speth	Dean	Gus.speth@yale.edu
Yale F&ES	Michael Dove	Professor	—
Yale F&ES	Lisa Curran	Associate Professor	—
Yale F&ES	Mark Ashton	Associate Professor	—
Yale F&ES	Chad Oliver	Professor	—
Yale F&ES	Oswald Schmitz	Professor	—
Yale F&ES	Bradford Gentry	Lecturer	—
Yale F&ES	David Skelly	Associate Professor	—
Yale F&ES	Gordon Geballe	Associate Dean	—
Yale F&ES	Peter Otis	Director of Career Development	—
Yale F&ES	Timothy Gregoire	Professor	—
Yale F&ES	Emily McDiarmid	Director of Admissions	—

BRAZIL REPORT: INTERVIEW CONTACTS

University/Institution	Name of Contact	Telephone	Email
Federal University of Minas Gerais (UFMG)	Ricardo Motta Coelho	(31) 3499–2605	rmpc@icb.ufmg,br
Federal University of Pará (UFPA)	Vitctoria J. Isaac	(91) 425–0249	victoria@amazon.com.br
Federal University of Mato Grosso do Sul (UFMS)	Erich Arnold Fisher	(67) 387–7555	efisher@nin.ufms.br
Federal University of Uberlândia (UFU)	Paulo Eugênio A. M. de Oliveira	(34) 3218–2243 R25	poliveira@ufu.br
Federal University of Mato Grosso (UFMT)	Marinez Isaac Marquêz	(65) 615–8878	m.marque@zaz.com.br
Federal University of Rio Grande do Sol (UFRGS)	Norma Luiza Würdig	(51) 3316–7712	wurdinl@vortex.ufrgs.br
National Institute for Amazon Research (INPA)	Tânia Margareth Sanaiotti	(92) 643–1833	—
Universidade de Campinas (UNICAMP)	José Roberto Trigo	(19) 3788–6321	trigo@unicamp.br
Federal University of Rio de Janeiro (UFRJ)	Reinaldo Luiz Bozelli	(21) 2270–4950	bozelli@biologia.ufrj.br
University of São Paulo (USP)	Astrid de Matos Peixoto Kleinert	(11) 3091–7604	astridkl@ib.usp.br
University of Brasília (UnB)	Helena Castanheira de Morais	(61) 307–2592	morais@unb.br
International Institute for Education in Brazil (IIEB)	Maria Jose Gontijo	(61) 327-7525	maria@iieb.org.br

INDONESIA REPORT: INTERVIEW CONTACTS

Institution/NGO	Name of Contact	Department/Program
Bogor Agricultural Institute	Siswoyo	Department of Biodiversity Conservation
Cyclops Environmental Education Foundation	Timei Womperer, Yayak Masfiah, Jefry Aronggear	Training and Education
Fauna and Flora International	Dr. Jito Sugardjito	Program Co-coordinator
Forest Watch Indonesia	E.G. Togu Manurung, PhD	Director, Database Management of Indonesian Forestry
Indonesian Institute for Forest & Environment	Latipah Hendarti	Executive Director
Indonesian Institute for Forest & Environment	Ika Hikmawati, Nani Saptariani, Ulfa Hidayati, Mia Siscawati	Environment Education, Community Developing and Public Awareness
Natural Resources Management Program (EPIQ-USAID)	Timothy Brown	Policy and Planning
Papua State University (Universitas Negeri Papua/UNIPA)	Yohanes Rahawarin; Rully Wurarah	Biodiversity Study Center
Telapak Indonesia Association	M. Yayat Afianto	Campaign on Terrestrial Issues
The World Bank	Sumaryo Soemardjo	Rural Development
The Nature Conservancy	Tiene Gunawan	Communication and Outreach
University of Indonesia	Didi M. Indrawan	Department of Biology
World Wildlife Fund for Nature Indonesia	Rini Ratna Adriani	Environmental Education
World Wildlife Fund for Nature Indonesia – Sahul	Erita Nurdiani	Outreach

MADAGASCAR REPORT: INTERVIEW CONTACTS

Institution/NGO	Name of Contact	Position/Department
Communication Agency (AGECO)	Rafamantanantsoa Nifaliana Andrianjafinoro	Coordinator
Training Center for Community Development Namana (CCDN)	Hary Jaona Rakotobe	Director
Training Center for GIS and Environment (CFSIGE)	Rabarimanana Mamy Herisoa	Project chief
National Agronomy High School (EASTA)	Milijaona Solofonirina	Director
Ecole Supérieure des Sciences Agronomiques (ESSA)	Rajoelison Lalanirina Gabrielle	Chief Department of Forest and Water
Experimentation and Training Center for Natural Resources Management for Rural Communities (FAFIALA)	Andriamahenina Ranarivelo Marthe Angéline	Director
Training Center for Agricultural Skills (FORMAGRI)	Ranoro Sahondra Yvette Gisèle	Director
National University (IHSM)	Ravelo Vololona	Director
National Institution for Tourism and Hotelery (INTH)	Rabenitany Noromanana	Chairman
Faculty of Natural Sciences (FSM) , National University	Rakotondravony Daniel	Chief Department of Animal Biology
Savaivo	Rabevohitra Ravaoarisoa Marie Victoire	Director
Tefy Saina (TS) Association	Rafaralahy Sebastien	President

PERU REPORT: INTERVIEW CONTACTS

Institution/NGO	Name of Contact	Position/Department
Amazonian Center of Environmental Education and Research (ACEER)	Aura Murrieta / Aurora Reyes Ruiz	Director
AID-PERU	Jorge Elgegren	Biodiversity specialist
Peru Association for the Conservation of Nature (APECO)	Silvia Sánchez Huamán	Executive Director
Conservation International (CI)	Carlos Ponce	PERU-Office
Econews Peru	Walter Wust	Director
Project to Strengthen the National System of Natural Protected Areas (FANPE)	Sigfried Kastl	Director
Institute of Peruvian Amazonía Research (IIAP)	Denis del Castillo / Wilfredo Meza	President / Management Advisor
National Institute of Natural Resources Management (INRENA)	Eduardo Garcia	Biofor
National Institute of Natural Resources Management (INRENA)	Carlos Marcos	DGF and FS assistant
National Institute of Natural Resources Management (INRENA)/German Service of Technical Cooperation (DED)	Ulrike Wagner/ Ada Castillo	Direction of Natural Protected Areas
International Resources Group (IRG)	Patricia Fernandez Davila	PERU Permanent Representative
National Environmental Council (CONAM)	David Solano	Capacity building and Environmental Education Coordinator
Peruvian Society of Environmental Laws (SPDA)	Dr. Pedro Solano	
National Fund for Natural Protected Areas (PROFONANPE)	Fabiola Capuro	Technical Director
Peruvian Foundation for Nature Conservation (ProNaturaleza)	Jorge Ugaz	Executive Director
The Nature Conservancy (TNC)	Eduardo Durand	PERU-Office
Universidad Nacional Agraria La Molina (UNALM)	Pedro Vasquez Ruesta	Data Center for Conservation (CDC)
Universidad de la Amazonía Peruana (UNAP)	Lorgio Verdi Olivares	Post Graduate School Director
Universidad Nacional Mayor de San Marcos (UNMSM)	Oscar Espinoza	Social Science Faculty, Amazonian studies Master Coordinator
Universidad Nacional San Antonio Abad del Cusco (UNSAAC)	José Luis Venero Gonzáles	Coordinator of Master in Ecology and Natural Resources
World Wildlife Fund -Peru	Edgar Maravi	Director

Annex 7

CONSULTANCY TOR & INTERVIEW GUIDE FOR TRAINING SUPPLIERS

TERMS OF REFERENCE: IN-COUNTRY SUPPLY OF CONSERVATION EDUCATION AND TRAINING

Background

In partnership with The Gordon and Betty Moore Foundation and Conservation International, Conservation Strategy Fund (CSF) is researching conservation education and training in order to develop strategies to build capacity among tropical conservationists.

CSF will be implementing this effort over the next six months, and will undertake the following activities:

1. Conduct surveys of the consumers of conservation training to gain a better understanding of the types of capacity building most needed.
2. Conduct programmatic reviews and in-person interviews of several U.S. and U.K. universities and other institutions providing training to tropical conservationists.
3. Research suppliers of in-country training and education available in Brazil, Indonesia, Madagascar, and Peru.
4. Research capacity-building options in smaller countries with few training resources, including nations in West Africa, Caribbean and Melanesia.

Consultancy

This consultancy concerns point #3, above, conducting research and interviews of the providers of training to conservationists in the four target countries of Brazil, Indonesia, Madagascar and Peru.

Specifically, the consultants will identify the following:

1. Main conservation challenges in the country. This background section should be a brief (around five pages) overview of conservation challenges in the country, showing how these shape its human capacity-building needs.

2. Approximate number of conservation organizations, agencies and professionals active in the country. Organizations and public agencies should be listed by name.
3. Universities in the country where conservation professionals are trained, including strengths and weaknesses. The description and assessment of university programs should be conducted through a combination of personal interviews and review of published materials. Attached to these terms of reference are a guide to information that should be gathered on each institution and an Excel table that should be filled out by the consultant.
4. Other organizations that build capacity for ecosystem conservation, including strengths and weaknesses. Non-university organizations, such as NGOs and development agencies should be assessed in the same way universities are, using the attached supplier interview guidelines and Excel table.
5. List of most important institutions outside the country used by nationals to obtain conservation-related education and training. This list should also identify, in a sentence or two, the kinds of training and education most commonly sought at these institutions, but need not analyze them in any detail.

The outputs of the consultancy will include:

1. A written report summarizing the information gathered. The report should include the background section on conservation challenges, described above, as well as a summary description of the information gathered. The consultant should also provide their own conclusions and impressions of the data, including any quantitative analysis they choose to do (descriptive statistics for example).
2. Raw interview notes from in-person meetings with providers of education and training, including a short summary opinion of each organization/program; and
3. Excel tables that summarize information gathered during interviews.

Products of the consultancy will be delivered by April 30, 2002.

IN-COUNTRY SUPPLIER INTERVIEW GUIDELINES

For interviews with suppliers of training for conservation capacity building. *Please note that the bullet lists throughout this document are meant to help guide your research. They may not be complete lists, so please be specific in your answers to the questions.*

Programs in Place

What programs provide training and capacity building for conservationists?

- academic development
- professional development
- job training

What is/are the frequency and duration/s of the program/s?
Since when have the programs been in existence?

Logistics

Where does training take place?

What is the cost of the training?

- tuition, room and board
- cost per participant day (for short courses only)

Who provides the actual training?

- faculty
- organization staff
- staff of local partner organizations
- external experts/consultants (are these foreigners)?

Who, if any, are key partners in the following aspects of the program?

- funding
- development
- implementation

Participants

How many people attend the program?

Who is the target audience for the program?

- field or HQ staff
- staff of organization partners
- staff of conservation NGOs
- staff of government agencies
- mid to high level policy-makers

- mid-level technical professionals
- lobbyists/activists
- media
- academic faculty
- environmental consultants/engineers
- graduate or undergraduate students

What is geographic distribution of participants (where are participants from)?

How is the program publicized?

- in-house/internal information dissemination
- local organization partners
- NGO network
- academic institutions
- media
- website
- mailings

What are the criteria for participant selection?

How is participation supported?

- participant pays
- supplier scholarship
- participant-solicited grants

Content

What are the skills provided by the program? (be specific – examples below)

- natural sciences (e.g. ecology)
- earth sciences (e.g. geology, hydrology)
- conservation biology, environmental studies
- policy
- environmental law
- environmental economics
- field research methods
- remote sensing/mapping
- GIS
- natural resources management (e.g., forestry, agronomy)
- protected areas management
- micro-enterprise
- project design, monitoring and evaluation
- lobbying, strategic communication and media outreach
- organizational management

- computer and technical skills
- accounting and financial management

Does the training focus on how to apply the skills or when the skills are needed? (why is GIS useful vs. how to conduct a GIS analysis)

Is training content general, site-based or both?

How much hands-on/experiential learning, versus theory, is part of the training?

What materials are used in the training?

Performance Measurement

How does the organization measure success of the training program?

- surveys
- reports and published results
- project results

What do they measure?

- participant capacity
- organizational capacity
- conservation gains

For Universities:

- number of faculty with PhDs involved in the program (note foreign versus local degrees)
- number of graduates who go on for further degrees
- number of graduates working in conservation

Potential Programs

What else is this organization interested in or planning to do in the area of conservation capacity building?

- expand existing programs
- create new programs

What is necessary to undertake these new initiatives?

- staff
- funds
- more demand for the program from students/professionals
- job placement/better in-country job market

PLEASE REMEMBER TO INCLUDE YOUR GENERAL IMPRESSION OF THE TRAINING/EDUCATION PROGRAM S STRENGTHS AND WEAKNESSES IN YOUR WRITTEN REPORT.

Annex 8

LITERATURE REVIEW

CATEGORIES OF ARTICLES

1. Studies of training needs similar to this study
2. Examples of conservation programs that may or may not involve community-based training/education programs
3. Reviews of specific courses
4. Academic articles about environmental education
5. Sources of funding
6. Other non-relevant articles
7. Other References (not yet reviewed)

REFERENCES

1. Studies of training needs similar to this study	Relevance
Assessment of Capacity Development in the GEF Portfolio, GEF-UNDP Capacity Development Initiative, September 2000.	Not very relevant
Binger, A, *Country Capacity Development Needs and Priorities Regional Report for Small Island Developing States*, GEF-UNDP Capacity Development Initiative, September 2000.	Relevant
Bucher, EH, et al., *Country Capacity Development Needs and Priorities Regional Report for Latin America and the Caribbean,* GEF-UNDP Capacity Development Initiative September 2000.	Relevant
FSPI Island Consulting – Fry et al., *Building Capacity for Marine Conservation in the Western Pacific: a Framework for Collaboration* for Packard Foundation, 2000.	Relevant
Mugabe, J, *Scientific and Technical Capacity Development Needs and Priorities*, GEF-UNDP Capacity Development Initiative, October 2000.	Relevant
Mugabe, J et al., *Country Capacity Development Needs and Priorities Regional Report for Africa,* GEF-UNDP Capacity Development Initiative, October 2000.	Relevant
Pitkin, B, *Protected Area Conservation Strategy (PARCS) Training Needs and Opportunities Among Protected Area Managers in Eastern, Central, and Southern Africa*, Biodiversity Support Program (USAID), 1995.	Relevant
Szabo, P, *Mid-Career Professional Development for Environmentalists* for the Doris Duke Foundation, 2001.	Relevant
Zakri, AH, et al., *Country Capacity Development Needs and Priorities Regional Report for Asia and the Pacific,* GEF-UNDP Capacity Development Initiative, September 2000.	Not very relevant

2. Examples of conservation programs that may or may not involve community-based training/education programs	**Relevance**
Feral, C and Ellis, J, *Biodiversity Analysis for Africa*, Biodiversity Support Program (USAID), programs run from 1992-1996.	Somewhat relevant
Read and Cortesi, *Stories at the Forest Edge: The KEMALA Approach to Crafting Good Governance and Sustainable Futures*, Biodiversity Support Program (USAID), 2001.	Somewhat relevant

3. Reviews of specific courses	**Relevance**
Galindo-Leal, C, *Design and analysis of conservation projects in Latin America; an integrative approach to training*, Conservation Ecology 5(2), 2001.	Somewhat relevant
Lockheed*, Impact study of WorLD links for development*, World Bank Institute Evaluation Brief, Oct 2001.	Not very relevant
Lockheed*, Non-formal learning activities of the professional technical network FY 01*, World Bank Institute Evaluation Brief, June 2002.	Somewhat relevant
Lockheed*, The performance of WBI's core courses FY99-FY01*, World Bank Institute Evaluation Brief, Dec 2001.	Somewhat relevant
*OTS – Review of the 2001 US Decision Makers Cours*e for U.S. Fish and Wildlife, 2001.	Somewhat relevant

4. Academic articles about environmental education	**Relevance**
Jacobson, SK, *Evaluating Impacts on Graduate Education: The Conservation and Sustainable Development Initiative*, The Environmental Professional 17, 1995.	Somewhat relevant
Jacobson, SK, et al., *Building Graduate Programs: Integrating Conservation and Sustainable Development*, The Environmental Professional 14, 1992.	Somewhat relevant
McDuff and Jacobson, *Communication Skills: A Missing Conservation*, U of Florida in Conservation Development Forum, 1999.	Somewhat relevant

5. Sources of funding	**Relevance**
Gustafson, R, *Official Development Assistance for Biodiversity Activities,* Report for Moore Foundation, 2002.	Somewhat relevant
Lafontaine, A, *Assessment of Capacity Development Efforts of Other Development Cooperation Agencies,* http://gefweb.org/Documents/Enabling_Activity_Projects/CDI/cdi.html, as part of GEC UNDP Capacity Development Initiative, July 2000.	Somewhat relevant

6. Other articles with little relevance	**Relevance**
Barrett et al., *Conserving tropical biodiversity amid weak institutions*, Bioscience 51(6), 2001.	Not very relevant
Jacobson, SK et al., *Evaluating the effectiveness of capacity-building interventions aimed at promoting conservation and improved management of working forests,* proposal to NSF, PSTC University of Florida, 2002.	Not very relevant

7. Other references (not reviewed)
Cannon, JR, et al., *Training conservation biologists in human interaction skills*, Conservation Biology, 10:1277-1282, 1996.
Dasgupta, P and KG Maler, Environment and Development Economics.
Ehrlich, PR, *A world of wounds: ecologist and the human dilemma*, Excellence in Ecology Number 8, Ecology Institute, Olendorf/Huhe, Germany, 1997.
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SUMMARIES AND RELEVANCE

1. Similar Studies of Training Needs

Assessment of Capacity Development in the GEF Portfolio

This GEF-UNDP Capacity Development Initiative report is not particularly relevant in that it is more of a self-assessment of progress made within the institution to incorporate capacity development into projects, limitations faced in incorporating capacity development initiatives, and the difficulty of measuring impacts. Of particular relevance, though, is the environmental education and awareness raising campaign. One of the training activities in this area is the UNEP/UNESCO/BMU post-graduate program on environmental management. Projects also focus on developing methods for improved environmental management and analysis.

Country Capacity Development Needs and Priorities: Regional Report for Small Island Developing States

This GEF-UNDP Capacity Development Initiative report focuses on the capacity development needs in Small Island Developing States at the individual, institutional and systemic level in the areas of biodiversity, climate change and land degradation. The methodology used is the same as

outlined in the Latin America report. Broad individual capacity constraints are outlined, as opposed to specific future training needs. Capacity is limited in the following areas: identifying and monitoring biodiversity, developing sound policies, developing community-based conservation areas and action strategies, and strengthening formal, informal and public education on biodiversity.

Country Capacity Development Needs and Priorities: Regional Report for Latin America and the Caribbean

This GEF-UNDP Capacity Development Initiative report focuses on the capacity development needs in Latin America and the Caribbean at the individual, institutional and systemic level in the areas of biodiversity, climate change and land degradation. In order to assess capacity needs, authors used a questionnaire, conducted in-depth country studies in Colombia, Peru, Guatemala and Barbados, consulted regional experts and held a regional workshop. Individual capacity needs were not as clearly defined as they were in the Africa study. Needs were vaguely identified as the following: 1.) Training decision makers at the macroeconomic and national policy level (relevant to biodiversity), 2.) Training judges and other conflict resolution petitions on values, obligations, etc. related to biodiversity objectives, and 3.) Training civil servants of institutions in planning, administration and financing of conservation and sustainable development programs. The discussion of institutional training needs was brief and unclear.

Building Capacity for Marine Conservation in the Western Pacific: a Framework for Collaboration

This study for Packard Foundation by FSPI Island Consulting focuses on individual and institutional capacity building for marine conservation in Indonesia, Malaysia, Palau, PNG, Solomon Islands and the Philippines, and is relevant to this study. Through interviews with more than 200 individuals from over 60 organizations, institutional and individual capacity was assessed in this study. Capacity building was broadly defined as "the ability to define and produce results sustainably." The goal of the study was to recommend a framework for collaboration between NGOs, government and communities. Education and training falls under "longer-term capacity building"– actions taken include strengthening university curricula and training programs. The study proposes collaborative national learning networks and centers of excellence for marine conservation. Two areas of focus include mobilizing community and strengthening technical skills of current marine conservation practitioners. Education, sharing of tools, networking, etc. are "short-term skill building methods;" establishing youth programs and interactive conservation corps through schools will have longer-term impacts. The article includes a laundry list of capacity-building needs that focuses on individuals and organizations; the former focuses mainly on in-service and informal training and the latter focuses mainly on NGOs.

Scientific and Technical Capacity Development Needs and Priorities

This GEF-UNDP Capacity Development Initiative report by John Mugabe is not particularly relevant. It provides a definition of capacity building encompassing both individual and institutional needs. The majority of the report focuses on definitional and theoretical aspects of scientific and technical capacity-building needs. The final section discusses actual needs in developing country regions of Africa, Asia, Latin America and the Caribbean, Europe and Small Island Developing States. The three main areas where developing countries face limitations

include: 1.) Assessing the nature and status of environmental problems and the generation and management of information and knowledge on which to base responses to those problems, 2.) Formulating science and technology policies that address environmental problems, and 3.) Creating and/or strengthening scientific research bodies that focus on environmental problems.

Country Capacity Development Needs and Priorities: Regional Report for Africa

This GEF-UNDP Capacity Development Initiative report focuses on the capacity needs in African countries at the individual, institutional and systemic level in the areas of biodiversity, climate change and land degradation. Of particular relevance is the information gathered on biodiversity training needs, which are based on the ability of African countries to implement the Convention on Biological Diversity. In order to gather data on capacity development needs, a questionnaire was used (500 sent out with 50% return), national reports and background papers, in-country studies in South Africa, Senegal and Uganda, and a regional workshop was held with government representatives. The report identifies a number of areas where expertise is needed; the report further outlines five areas of expertise that are in short supply and high demand: 1.) environmental economics (85% of UNDP survey respondents identified lack of expertise in this area as a major limitation to valuing biodiversity), 2.) trade policy and law, 3.) taxonomy and related expertise, 4.) data/information management, and 5.) negotiation skills. Institutional limitations include lack of funding, organizational autonomy, inadequate staffing and insufficient equipment.

Protected Area Conservation Strategy (PARCS) Training Needs and Opportunities Among Protected Area Managers in Eastern, Central, and Southern Africa

This study by Barbara Pitkin discusses training needs of protected area managers in Africa, focusing mainly on building individual capacity with some information on institutional capacity building as well. This study is highly relevant. The PARCS study was implemented by World Wildlife Fund, African Wildlife Foundation and Wildlife Conservation Society. Phase I of the study was focused on training needs assessments and phase II was focused on training development. Similar to our survey, the study surveys and interviews over 200 protected area managers (highest ranking field-based decision-makers at a protected area) to determine needs within 16 African countries. Results were reported as follows: there was a need for training on intervention programs, ensuring visitor satisfaction, community-based conservation, developing policies and procedures, park planning, finance and accounting, creativity, problem analysis and evaluation.

According to the study, most managers receive training at the College of African Wildlife Management (CAWM) in Tanzania or the Ecole Des Specialistes de la Faune (EFG) in Cameroon. Additionally, non-degree training is only provided on an ad hoc basis. In some countries, protected area managers have no schooling beyond primary school. The study also found that in some countries, field positions do not hold adequate prestige to attract those with formal training in protected areas management. Managers also have little understanding of studies taking place in their areas because third-party researchers often do not communicate their research to them. Younger managers said that formal training was the most useful training they received, while older managers said on-the-job training was more useful. Managers look favorably on formal or certified training because it not only carries prestige and value, but also increases eligibility for higher positions. Most respondents hold degrees from domestic universities, but some hold degrees from Europe, Russia or the US.

The study notes that formal education requires a large amount of time, money and commitment. It also found that the shortage of funding and staff is a major problem at CAWM and EFG, and that programs are not keeping pace with the increasing demands of managers 'jobs. Given the emphasis on formal training, authorities do not make enough use of less expensive opportunities such as workshops, conferences and other trainings. Nevertheless, most managers agree that in-service training is an appropriate way to learn. Similar to our study, managers themselves did not identify finance and accounting as areas of greatest weakness, but when specific skill needs were assessed, the study team found managers lacking in these skills.

Mid-Career Professional Development for Environmentalists

This study by Peter Szabo for the Doris Duke Foundation focuses on mid-career professional development for environmentalists. While the study is based on professionals in the US, it is somewhat relevant. The study is organized by "education" vs. "award," where education has the goal of enhancing managerial and technical capacity and an award has the goal of revitalizing and stimulating highly productive individuals. According to the study, education covers the spectrum of low-involvement short courses to high-involvement university-based advanced degrees. The study noted that environment and natural resource schools are far behind their business counterparts in terms of flexibility (location, timing) and innovative coursework. The purpose of some major awards is to confer recognition; while others are more about networking, training, and providing resources. Mid-career professionals were not interested in further degree programs ("a lot of wasted time"). The study recommends an awards-based program to meet the stated needs of mid-career professionals and to "go deep" on individuals, but acknowledges that picking individuals is risky.

Country Capacity Development Needs and Priorities: Regional Report for Asia and the Pacific

This GEF-UNDP Capacity Development Initiative report focuses on the capacity development needs in Asia and the Pacific at the individual, institutional and systemic level in the areas of biodiversity, climate change and land degradation. The methodology used is the same outlined in the Latin America report. Individual capacity needs that were identified include: 1.) More specialists in biodiversity technical fields– i.e. taxonomy, bioprospecting, integrated ecosystem management and biosafety, and 2.) More local training– little information is available for trainers and they receive mostly on-the-job training; areas where training is needed include program planning, administration and proposal development, negotiation and implementation of conventions, as well as IT, networking and Internet. Constraints to capacity development at the institutional level include lack of coordination between agencies, poor management of government agencies, insufficient funding and unclear mandates, as well as a shortage of staff, equipment, facilities and information.

2. Examples of Conservation Programs and Training

Biodiversity Analysis for Africa

This study compiled by Chris Feral and Julia Ellis provides descriptions of a number of programs presented by the Biodiversity Support Program designed to advance conservation of biodiversity while improving human health and welfare. The study is somewhat relevant. Most programs of the Biodiversity Support Program were not particularly relevant, but five of the

most relevant projects are highlighted below. The first project specifically supported the training of Malagasy technicians, master's students and post-docs to create a team for data gathering, monitoring and evaluation. Another project trained Namibian community members to become Community Rangers and Natural Resource Officers and noted that there was a lack of willingness of supervisors to train Ministry of Environment and Tourism staff to better work with communities. Overall there was a general lack of qualified local human resources to support the project. A third project in Nigeria reported that the project was hampered by an inadequate number of trained staff with field experience. As a result, it was necessary to train field personnel in basic methods of plant taxonomy and classification via a course with 15 students and 24 guest lecturers. Another Nigerian project trained 60 participants in agricultural utilization of indigenous woody crops. A fifth project in Tanzania noted that training in agriculture, business, marketing, and maternal care is needed to improve the economic wealth of women and that the government alone is unable to provide necessary capacity-building services.

Stories at the Forest Edge: The KEMALA Approach to Crafting Good Governance and Sustainable Futures

This study by Read and Cortesi of the Biodiversity Support Program focuses on community-based training to community leaders in Indonesia provided by USAID and local NGOs. The study is somewhat relevant in that it highlights the fact that local training is most effective for addressing needs of communities and NGOs. Training is practical (e.g., how to create a community governance institution) and the study provides five examples of how local NGOs work with communities.

3. Reviews of Specific Courses

Design and analysis of conservation projects in Latin America; an integrative approach to training

This study by Carlos Galindo-Leal of Conservation International focuses on project design in Latin America for managing biological diversity as a means for increasing individual capacity. The study is most relevant for training specific to project design. Within the article are statements that the number of environmental professionals in Latin America is "extremely small," that most do not have postgraduate degrees, and that there is a lack of graduate training in conservation-related disciplines. It further states there is a great demand for integrated field courses in Latin America and that most training for environmental professionals takes place in developed countries. Language barriers and lack of information make it hard for in-country professionals to stay up-to-date. Other barriers to individual capacity building are the absence of skills to evaluate the validity of new information, and the lack of graduate level research skills. According to the study, in Latin America more weight is often given to years of experience than postgraduate degrees.

Impact study of WorLD links for development

This World Bank Evaluation Brief focuses on bridging the "digital divide" and is not particularly relevant. The article specifically focuses on Internet connectivity, availability of computer hardware and software, and technological education for secondary schools in developing countries.

Non-formal learning activities of the professional technical network, FY 01

This article discusses success factors in training World Bank staff and is somewhat relevant. The article notes that awareness and skills development happens through formal coursework, but adoption and adaptation of knowledge can happen through "non-formal" learning (i.e., brown-bag lunches, seminars, clinics and workshops). Success factors include motivated learners, strong facilitators, and provision of follow-up learning materials. Results: 1.) none of the non-formal formats worked better than others, 2.) hands-on learning was preferred, 3.) quality of the Bank's formal training was better than non-formal training, 4.) not enough hands-on training was provided, 5.) training tended to convey facts rather than analyze and evaluate facts, and 6.) few non-formal trainings were successful. In order for success, trainings need to have clearly-defined outcomes, and the target audience should be specified and facilitators need to understand their role.

The performance of WBI's core courses FY99-FY01

This article presents an evaluation of World Bank Institute's formal courses, which is somewhat relevant for our purposes. Three out of a total of 28 course offerings dealt with the environment. Regions of East Asia/Pacific, Latin America/Caribbean, and Africa gained the most from courses, while Middle East/North Africa, South Asia, and Europe/Central Asia found the courses least useful. Relevant factors for success: 1) establish metrics to evaluate effectiveness of the course, 2) choose topics that reflect regional demand, 3) collaborate with other parts of the Bank in giving trainings, and 4) assess needs of participants prior to tailoring training to needs.

OTS – Review of the 2001 US Decision Makers Course

This study for the US Fish and Wildlife Service focuses on building individual capacity for natural resource conservation in the tropics and is somewhat relevant to the research being compiled for the Moore Foundation. The course takes place in Costa Rica and includes a combination of lectures, case studies and site visits. This training is provided to mid- to senior-level individuals who demonstrate the breadth of experience and understanding of policies.

4. Academic Articles About Environmental Education

Evaluating Impacts on Graduate Education: The Conservation and Sustainable Development Initiative

This study by Susan Jacobson at the University of Florida is an evaluation of a new initiative by Pew Charitable Trust to build US-based interdisciplinary graduate programs in conservation and development . This focus on institutional capacity building of US-based university programs has relevance to this study. The study notes that the Pew Program also supplemented awards to universities with 30 scholarships in the amount of $15,000 each, annual meetings, and public promotion of the program. Institutions receiving grants enrolled more new students than those not receiving grant money. Granted institutions formalized stronger interdisciplinary linkages and courses, and graduate student learning activities were also greater with funded programs. The study includes lists of success factors to establish more successful programs.

Building Graduate Programs: Integrating Conservation and Sustainable Development

This study by Jacobson et al. focuses on building interdisciplinary US-based graduate programs in conservation and sustainable development at the institutional level via $300,000 implementation grants. The study is somewhat relevant in that it highlights the need for both interdisciplinary and more practical degree programs. Eleven Universities participated in planning stages for $30,000 each and three Universities proceeded through the implementation stage with up to $300,000 each. Four case studies were presented in the article— University of Michigan, Montana State, University of Wisconsin-Madison and University of Florida. Most were short programs focusing on students with some professional experience. Some programs focused on students from developing countries, while others focused on US students. Most programs were short to enable students to return to work quickly, and all programs emphasized networking within a cohort (e.g., some classes taken with only program participants).

Communication Skills: A Missing Conservation

This primarily US-based study focuses on communication skills as a form of individual capacity building and is somewhat relevant. The article argues that communication skills are possibly more important than disciplinary technical skills for success as an environmental professional. Conservation professionals in the US complain that their training was deficient in communication skills. Only half of US conservation biology programs offer classes in skills such as communications, leadership and advocacy.

5. Sources of Funding

Official Development Assistance for Biodiversity Activities

This report written by Robert Gustafson for the Moore Foundation is broken into four parts. *Part I*: Overview of Sources of Assistance is not particularly relevant. There is no explicit information about the amount of assistance provided for education/training. It does include general information on amount of assistance given to geographic regions. *Part II*: Overview of Sources of Assistance to Nations of the Congo Basin is slightly more useful. It includes a list of projects supported by bilateral donors. Only one project could be clearly linked to capacity building— an assessment of needs in the Central African Republic. *Part III*: Overview of Sources of Assistance to Indonesia and Papua New Guinea is also only slightly useful. A list of projects supported by bilateral donors shows that only one project could be clearly linked to capacity building— an ADB project entitled "Marine Sciences Education." *Part IV*: Overview of Sources of Assistance to Nations of the Amazon Basin is slightly useful in that it includes lists of recent projects supported by bilateral donors. It highlights very few programs (less than 5%) that are designed specifically with the goal of training and education. Of those programs, most are designed for community-based training rather than capacity building for conservation professionals. There are two exceptions— a "Training the Trainers" course and a GEF assessment of capacity building in Peru.

Assessment of Capacity Development Efforts of Other Development Cooperation Agencies

This study provides an overview of capacity development from the perspective of international development agencies. The study is somewhat relevant for how to implement a capacity development program. There is little, if any, overlap with this study in the organizations

interviewed. Not many specifics on programs or dollar amounts invested. The study outlines pitfalls, success factors, guidelines for assessing capacity development and other tools used and created by development organizations; it also reviews approaches of different development organizations for environmental capacity development.

6. Other Articles with Little Relevance

Conserving tropical biodiversity amid weak institutions

This study focuses on program/project design and is not very relevant— it defines institutions as societal rules and constraints (e.g., government and community institutions). The article states that both government and community institutions are often weak, so neither "pure fences-and-fines" or pure community-based conservation works. Rather, we should leverage the comparative advantages of different institutions by designing programs that involve multiple institutions. A somewhat relevant point is that the authors call for more investment in scholarship to find predictors of institutional comparative advantage and then decide which design options are most effective. Universities are also mentioned as institutions that may have a comparative advantage in certain aspects of program management (e.g. monitoring species population dynamics).

Evaluating the effectiveness of capacity-building interventions aimed at promoting conservation and improved management of working forests

This study focuses on forest conservation and management and is not particularly relevant. The study provides justification for why capacity-building efforts should be monitored and evaluated against goals, citing a plethora of methods for capacity building. One criticism is that the article only discusses the need to evaluate relative effectiveness and nothing about actual effectiveness.