House Committee on Natural Resources
Subcommittee on Fisheries, Wildlife and Oceans
Testimony of Juan Pablo Arce, Director of Latin America and the Caribbean, NatureServe
Legislative Hearing on H.R. 4455, Wildlife Without Borders Authorization Act
June 24, 2008, 10 a.m.

INTRODUCTION

Good morning. My name is Juan Pablo Arce, and I am the Director of the Latin America and Caribbean program for NatureServe. Thank you very much for the opportunity to appear before the committee to speak about our experience with the Wildlife Without Borders program.

NatureServe is a non-profit conservation organization. Our mission is to provide the scientific basis for effective conservation action. We represent an international network of conservation programs —known as natural heritage programs or conservation data centers—operating across the U.S., Canada, Latin America and the Caribbean. We have three major objectives: First, to inform natural resource decision-making; second, to advance scientific understanding about our environment; and third, to work with partners to build conservation capacity.

TRAINING PROGRAM

Since 2001, NatureServe has been helping to build conservation capacity in Latin America and the Caribbean by developing a series of training activities for biodiversity conservation, conservation planning, species distribution modeling, and environmental policy.

For the last two years we have worked with the U.S. Fish and Wildlife Service's Wildlife Without Borders program to carry out training programs in Latin America. I'd like to share with you the results from a two-week course on effective implementation of environmental policy that we held at the National University of Costa Rica just one month ago, in late May. The training was for graduate-level wildlife management students and protected areas decision-makers.

The primary goal of the training was to share innovative procedures for analyzing and evaluating the implementation of environmental policy within the existing social, economic and biodiversity conservation context. The course was held at the International Institute of Conservation and Wildlife Management and was part of the masters degree program in conservation at the National University of Costa Rica. Thanks to support from the Wildlife Without Borders program, the students received this training at no cost to themselves. It was attended by 10 graduate students (from Costa Rica, Mexico, and Chile), five graduate program professors (from Costa Rica and Mexico), and five middle-level decision makers (from Guatemala). Also attending were six current decision-makers and protected areas managers from Costa Rica, Nicaragua, and El Salvador, representing government and non-profit organizations.

Using a practical case study from Guatemala, we demonstrated ways to integrate biodiversity data with social and economic information, using methods from the social

sciences as well as the natural sciences. The course was divided into two sessions: First, a four-day Species Distribution Modeling course, towards completion of a short modeling project using the student's own data for a species of interest. Second, a five-day Analysis of the Implementation of Environmental Policy course, integrating selected biodiversity data from the first session into the social and economic framework of analysis.

I was the principal organizer and instructor of this integrated training activity, joined by several expert colleagues. I can tell you from this personal experience that the enthusiasm and commitment to conservation shown by the students we reached was remarkable. These are the future leaders, policy-makers, and protected areas managers of their countries. It was clear that the personal connections across borders that grew among the participants were as important as the subject matter itself.

It was fascinating to see how the students and the professionals interacted and what they learned from each other. Particularly since it's clear that these graduate students, once they enter the professional world, will be the ones making the decisions for those organizations in just a few years.

An important part of the training was the fact that we were looking not just at environmental factors alone, but at how environmental policy is affected by the social and economic situation in each country, and must take them into account. Policies and recommendations that may make sense here in Washington, D.C. often look very different to a policy-maker working in a relatively poor area in Central America. Here, for example, we may think of the value of forests principally for the wildlife that they protect. To people living there, however, an even more important value of forests may be providing clean drinking water, wood for fuel, and preventing the hillside from eroding during the next tropical storm.

LESSONS LEARNED

In delivering these training sessions over the past two years, we have learned some important lessons which I would like to share today.

First, **focus on people**. No conservation effort in Latin America will be successful in the long run unless it builds the capacity of the people who live and work there. External advice and assistance help, but ultimately people in each country must have the tools, expertise, and resources to conserve their own lands and waters.

Second, **work across borders**. It's clear that biodiversity threats cross borders: habitat fragmentation, deforestation, invasive species, and climate change are just a few examples. Our responses have to cross borders too. The training we presented crossed borders, both in terms of the case studies used, the students who have attended, and the subject matter. As Conrad Lautenbacher, head of the National Oceanic and Atmospheric Administration, recently stated: "Everything is connected in our Earth system. It's science without borders."

Third, **embrace innovation**. The students and policy-makers we are working with in Latin America are just as sophisticated as those here in the United States. They are tackling complex questions using the latest innovations in scientific methods, such as

predictive modeling of species ranges), information technology tools, (such as advanced GIS software), and social sciences methodologies (statistical analysis tools). In fact, in the true spirit of "training the trainers", perhaps someday soon the Wildlife Without Borders program can bring these Latin American graduate students here to share their knowledge and train us in the United States!

In conclusion, we at NatureServe strongly endorse the Wildlife Without Borders Act and encourage Congress to authorize this program and strengthen it in the years to come. On behalf of NatureServe, I want to once again thank the committee for this opportunity and also to salute the staff of the U.S. Fish and Wildlife Service for their excellence and professionalism. Thank you.

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PROJECT BACKGROUND

As the world community seeks to replace unsustainable development patterns with environmentally sound management, a key challenge is the need to create a sense of common purpose, especially among the academic and government sectors. Our project was based on the premise that sound methods for analyzing the distribution of endangered species and the implementation of environmental policy are a fundamental prerequisite, as well as a catalyst for collaboration between the scientific community and concerned decision-makers. Even though the distribution of biodiversity is a key factor in establishing effective environmental policy, making a meaningful connection between the two remains a major challenge in Latin America.

This graduate-level training provided practical tools for assessing species distributions, social and economic conditions, and legislative policy information that can be used to monitor the status and effectiveness of protected areas. The case study for this training was developed based on an existing NatureServe project, funded by the Tinker Foundation, about the conservation of Dry Forests in Guatemala. The social, economic, and environmental data generated by the Guatemala project was the basis for the examples used during the training. Thus, we were able to leverage the results of current work funded through private sources to improve the quality of the training funded via the Fish and Wildlife Service.

GOAL AND OBJECTIVES

The goal of this initiative is to train students, faculty and decision makers to analyze the distribution of high priority species within and near Latin American protected areas, and apply the results from a Central American case study in development of sound environmental policies for biodiversity conservation in a sustainable development framework.

PROJECT OUTCOMES, 2008

- Trained 20 participants (graduate level students and decision makers) in the use of methods, mathematical models and statistical tools for environmental policy analysis and species distribution modeling.
- Informed participants about the importance of evaluating policy and conservation as key factors for sustainable development and opportunities to declare and/or evaluate protected areas status.
- Provided participants the ability to apply this knowledge to protected areas work in their own countries in the future.
- Created personal and professional connections among future protected areas decision-makers from four countries.

DESCRIPTION

Species Distribution Modeling course (May 19-23, 2008):

- Lectures providing background on the development of distribution modeling techniques, their application in conservation biology and resource management, modeling environments to choose from, statistical considerations, use and availability of environmental data layers, and interpretation of results

- Hands-on practice using distribution models such as BIOCLIM, MAXENT, and Random Forests
- Completion of a short modeling project using the student's own data for a species of interest
- Class presentations and discussion of independent projects

Analysis of Implementation of Environmental Policy course (May 26-30, 2008):

- Presentations on basic concepts, methodology, and statistical tools for policy analysis
- Interactive GIS training within a group-study framework
- Analysis of a Central American case study in implementation on Environmental Policy using
- Integration of Species Distribution Modeling results into the statistical and spatial analysis of environmental policy
- Spatial representation of products using Geographic Information Systems (GIS)

COORDINATION AND INSTRUCTORS

Juan Pablo Arce, Director, LAC Section Support. Juan Pablo has extensive experience in policy, and conservation, which was gained through previous employment as the Bolivia Country Director for Conservation International, former Vice Minister of Natural Resources and Environment in Bolivia, and former project manager for the Paraguay Environmental Policy project. In June 2007, Juan Pablo was the instructor of an Environmental Policy training activity at UNA. Sponsored by the FWS, the course trained 16 graduate students representing four Latin America countries. He has a Master of Science in Rural and Land Ecology Survey from ITC, The Netherlands.

Bruce E. Young serves as NatureServe's Director for Species Science and will oversee the Species Distribution Modeling course. Young has 20 years of experience collaborating with Latin American scientists on conservation-related projects. Based in Costa Rica (and thereby facilitating coordination with UNA colleagues), Young has previously coordinated a species distribution modeling course in Lima, Peru, for 30 participants representing five countries. In addition, he coordinated the Moore Foundation project that used distribution modeling techniques to predict the distributions of 782 species of plants, birds, mammals, and amphibians endemic to the Andes in Peru and Bolivia. He has a Ph.D. in Zoology from the University of Washington, USA.

Santiago F. Burneo is biologist at the Pontifical Catholic University of Ecuador (PUC) whose research has focused on Mastozoology. He has Masters in Conservation Biology of the International University of Andalusia, Spain and currently serves as curator of the Mastozoology Section of the Museum of Zoology and professor at the College of Biological Sciences and Biogeography in areas such as geographic information systems. He has worked in geographical distribution model since 2002 in collaborative projects and workshops with Dr. Robert Anderson and Dr. Catherine Graham.

Kazuya Naoki is responsible for the Centre for Spatial Analysis (Laboratory GIS) Institute of Ecology at the Universidad Mayor de San Andres, La Paz, Bolivia. He has taught various subjects: Ecology of populations and communities, Conservation Biology, Biostatistics, Wildlife Management, among others, for both undergraduate and graduate from four universities. His main research interest is the spatial pattern and the determinants of distribution and abundance of different agencies at the micro and macro in the Andes. He has a BA in Biology at the University of Costa Rica and Ph.D. in Biological Sciences from Louisiana State University, USA.

PARTICIPANT COMMENTS

Participant comment, 2007 training:

"I think that the training sessions in legislation, analysis of information and interpretation of the results were of major benefit for our individual capacity building. Since in many cases we are more familiar with the biological aspects, learning about these other aspects helped us see the problem in a much more global way." – *Carol Sánchez, International Institute for Wildlife Management and Conservation. Graduate student, Universidad Nacional de Costa Rica (UNA), Costa Rica*

Participant comment, 2008 training:

"This training really expanded my knowledge. I appreciate the opportunity to participate. This course has awakened my expectations in terms of how to seek information needed to implement the theme of environmental policies with data from my own country." – *Mildred Rivera, National Environmental Information System (SINIA), Ministry of Environment and Natural Resources (MARENA), Nicaragua*