



Pew
Scholars
Program

IN CONSERVATION
AND THE ENVIRONMENT

Biodiversity

1993



In Memory

Alwyn Howard Gentry 1945-1993

Born January 6, 1945, Clay Center, Kansas

B.A., Kansas State University, Manhattan, Kansas, 1967

M.S., University of Wisconsin, Madison, Wisconsin, 1969

Ph.D., Washington University, St. Louis, Missouri, 1972

1971-1972 Curator, Summit Herbarium, Panama Canal Zone

1972-1993 Curator, Missouri Botanical Garden

1972-1993 Adjunct Professor, Washington University

1976-1993 Adjunct Professor, University of Missouri-St. Louis

1980-1993 Adjunct Professor, St. Louis University

1990-1993 Conservation International Rapid Assessment Team

1991-1993 Pew Scholar in Conservation and the Environment

Alwyn Gentry was an expert on tropical plants. His knowledge of woody plants was regarded as unsurpassed by eminent scientists in the field. From 1967 to 1993, Al made more than 86 field expeditions to a total of 35 tropical countries, gave more than 68 invitational lectures at national and international symposia and conferences, taught numerous courses and workshops, supervised the thesis research of 20 students, published more than 208 books and articles, and collected more than 70,000 plant specimens. Al finished his 895-page *A Field Guide to Woody Plants of Northwest South America* in February of 1993.

On August 3, 1993, Al Gentry tragically perished along with four other conservation scientists in a plane crash along the coast of Ecuador while conducting field work as a member of Conservation International's Rapid Assessment Program.



Scholars, Advisory Committee and Staff in attendance at the 1993 Annual Meeting at Mountain Lake, Virginia.



1990-1993 Pew Scholars: Experts in Biodiversity Conservation

Pew Conservation Scholars are a unique group of experts on the conservation of biological diversity who have the extraordinary ability to combine scholarship with conservation action. As a group and individually they demonstrate a strong record in both research and problem-solving and apply their knowledge in very innovative and creative ways that promote environmental sustainability and the conservation of biological diversity. Pew Conservation Scholars recognize the complexity of problems and forces that threaten biological diversity, and they approach environmental problem-solving with an interdisciplinary perspective. The Pew Conservation Scholars are a valuable resource of information and expertise.

On the following pages you will find brief descriptions of the scientific and professional interests and expertise of 40 Pew Conservation Scholars. They were selected in 1990, 1991, 1992, and 1993 (the year in parentheses denotes the year in which each was selected). We have grouped them in general categories according to the primary emphasis of their work. As you will see, they represent a tremendous diversity of disciplinary perspectives (e.g., philosophers, biologists, physicists, economists, and lawyers), institutional settings (nonprofit conservation organizations, universities, and government), and geographic focus (U.S. and international). Key words are also included with each Scholar entry to provide for a quick scan of their particular areas of interest and expertise. A **Key Word Index** is located on page 33 that will provide a ready reference to the activities and expertise of these biodiversity experts. Refer to the **Scholar Directory** on page 35 for the address, telephone and fax numbers of each Scholar.



The Dense Tropics

The tropics represent the single most concentrated location of biological diversity on the planet. The density of species and ecological uniqueness of tropical ecosystems demand that intense attention be given to understanding the dynamics of these environments to ensure their long-term existence. Many of our Scholars focus the majority of their time and energy on these ecosystems. While many of the Scholars in this group began with traditional training in the biological sciences, the complexity of the problems they confronted required them to gain an understanding of the social, cultural, and economic forces that threaten tropical biodiversity.



Key Words

*Conservation
Ecology
Genetics
Management
Population biology
Tropical*

Kamaljit Bawa, Ph.D.

Dr. Bawa's (1991) research focuses on the causes and consequences of deforestation in the tropics. In trying to understand causes, he examines economic, cultural, and social forces that accelerate deforestation and other forms of environmental degradation. The ultimate aim is to assess how alternate policies for land use might be developed.



Key Words

*Deforestation
Ecology
Ecosystem
Education
Evolution
Tropical*

Rodolfo Dirzo, Ph.D.

Plant-animal interactions has been the primary focus of Dr. Dirzo's (1992) work at the Center for Ecology. This includes "defaunation" (the contemporary loss of animals), mostly large vertebrates, and its resulting impact on forest diversity. His current work focuses on the Lacandon forest region that straddles Mexico, Guatemala, and Belize, the largest extant tropical rain forest in Mesoamerica.



Key Words
Agriculture
Deforestation
Development
Greenhouse
Human carrying
capacity
Tropical

Philip Fearnside, Ph.D.

Dr. Fearnside's (1990) work centers on the relationship between human activities, such as agriculture, and tropical forest protection by seeking ways in which these two activities can be sustainably balanced. He has worked on some of the most controversial issues in the Amazon region, from challenging official Brazilian government estimates of the greenhouse emissions from deforested tracts, to revealing the true sources of deforestation.



Key Words
Botany
Forest
Policy
Population biology
Research
Tropical

Stephen Hubbell, Ph.D.

In addition to his ongoing academic research at Princeton University on the population biology of tropical trees, Dr. Hubbell (1990) has taken on a completely different mission—that of revamping the way in which the federal government approaches the issues of the environment. In meeting his goal of establishing a new federal entity, the National Institute for the Environment (NIE), he has lead a broad coalition of supporters at the grass-roots and at high policy levels from both the private and public sectors.



Key Words
Coastal
Indigenous knowledge
Marine
Protected areas
Sustainability
Tropics

Bernard Nietschmann, Ph.D.

In studying the peoples, environments, and species of the world's coastal zones, Dr. Nietschmann (1993) has documented the interdependence of biological and cultural diversity and the contributions of indigenous people to sustainable use of the environment. He plans to help establish, along the Caribbean coastline of Central America, a connected coastal conservation system of locally-managed protected areas that will involve many different cultural groups.



Key Words
Deforestation
Endangered species
Forestry
Keystone species
Migratory birds
Tropical

John Terborgh, Ph.D.

Dr. Terborgh (1992) is combining his interest in biodiversity and biogeography to establish a "before development" understanding of the diversity and distribution of plants and animals in the Peruvian Amazon. This "before development" will form a baseline of an unaltered natural habitat, one that can be used for comparison if and when this region is altered by development. Few, if any, such systematic "before development" standards have been developed by ecological scientists for this tropical region.



Key Words
Botany
Deforestation
Economics
Forestry
Sustainability
Tropical

Christopher Uhl, Ph.D.

Dr. Uhl (1992) works with Brazilian scientists developing a set of tools that allow municipalities in the Eastern Amazon to make decisions on landscape use based on high quality information, rather than solely on political convenience. His group aims to determine the ecological impacts and the economic significance of logging practices in the Eastern Amazon with the goal of developing ways of making these logging practices sustainable.



Key Words
Fire
Global
Island ecology
Land use
Nitrogen cycle
Tropical

Peter Vitousek, Ph.D.

Dr. Vitousek's (1990) wide-ranging interests include nutrient cycling in forest ecosystems and disturbed ecosystems, greenhouse gases, and biological invasions of exotic species. His ambitious goal is to connect biodiversity conservation concerns with the functioning of ecosystems and, ultimately, the workings of the biosphere; in effect, his research model is the equivalent of the catchphrase "think globally, act locally."





The Temperate Ecosystems

Although the tropical areas of the planet contain the highest concentration of biodiversity, the biological resources of temperate latitudes are of equal importance. The temperate world has its own set of fragile and complex ecosystems that are threatened by deforestation, degradation of air and water quality, climate change, and loss of habitat to encroaching development. The following Scholars have focused their efforts on temperate ecosystems.



Key Words
*Ecosystem
 Land restoration
 Ornithology
 Planning
 Protected areas
 Sustainability*

Enrique Bucher, Ph.D.
 Dr. Bucher (1992) has, for fourteen years, worked on the development of a multiple-species management plan for the Gran Chaco semi-arid savannahs of Argentina, Bolivia, and Paraguay. Enrique's work has focused on a wide range of ecosystem function and management issues in the Chaco, including pest management and conservation of rare parrot species.



Key Words
*Epidemiology
 Human health
 Pollution
 Toxic substances
 Water
 Wildlife*

Theodora Colborn, Ph.D.
 Dr. Colborn (1993) is a specialist in the effects of toxic chemicals on the health of wildlife and humans. Her early recognition of abnormal development in Great Lakes wildlife, due to chemical exposure, led to her innovative organization of other scientists who have called attention to the dangers of these effects to both humans and wildlife. Theo plans to assist researchers in designing studies to better understand these harmful effects.