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Cover: Nohu Special Area in Hawaii Volcanoes NP,
overlooking the coastal lowlands and the Pacific
Ocean.

Conservation Education in Hawaii: Perspectives From a Park

By Charles P. Stone and Danielle B. Stone

Exciting events are under way in Hawaiian conservation biology circles.

Late in 1987, the John D. and Catherine T. MacArthur Foundation of Chicago donated \$3.5 million to programs in Hawaii. The B.P. Bishop Museum of Honolulu received \$765,000 of this to develop an educational program for island public schools, and \$45,000 for research on terrestrial invertebrates, a critical and little-known part of Hawaii's unique fauna. The Nature Conservancy of Hawaii received \$1.3 million for an "Islands of Life" campaign to identify, acquire, and manage imperiled Hawaiian ecosystems, and another \$500,000 to begin a Conservation Biology Initiative (CBI), a cooperative effort focusing on management and research on already-protected lands. In addition, the Sierra Club Legal Defense Fund received \$450,000 to continue legal work, the National Audubon Society \$275,000 to open an office in Hawaii, and the Natural Resources Defense Council, about \$85,000 to open a Hawaii office and attempt to influence the State government to better manage tropical forests. These events, made possible by MacArthur Foundation's generosity and concern for the nation's tropical forests, have encouraged and will stimulate other positive effects and cooperative attitudes in Hawaii.

A related and very encouraging sign is the appropriation of \$750,000 by the State legislature, for the first time, which will allow management, monitoring, and research activities on the State Natural Area Reserve System (NARS). Hawaii has 18 areas in this system, totaling over 100,000 acres, which have largely been "paper parks" until now. Although continual appropriations are needed, a start has finally been made in determining the status of the resources on the areas.

A recent focus on Hawaii's natural resources in the printed media also is apparent. The July 1987 issue of *Trends in Ecology and Evolution*, an article entitled "Aloha and SOS" in the February 2 *Boston Globe Magazine*, and the April 1988 special issue of *Bioscience* (see article by Stone, this issue) are some important examples.

The National Park Service has had a role in all these events, through leadership in natural resource management and research programs in Hawaii and participation in numerous planning, board, and committee meetings.

A Conservation Education Workshop

Another encouraging event, and the subject of the rest of this article, was a Conservation Education Workshop held in November 1987 at Hawaii Volcanoes National Park (HAVO). The four-day workshop was organized by the HAVO Research group in cooperation with the Divisions of Interpretation and Resources Management and was co-sponsored by the Hawaii Natural History Association. Initially, the Workshop was to have focused on Island Ecosystems, one of a successful series of Resource Management/Interpretation workshops started by WRO Chief Interpreter Dick Cunningham. However, for a number of reasons, WRO joined the Southeastern Region for an "Island Parks" workshop in Key Biscayne, Florida, instead of at Hawaii Volcanoes. Since we at Hawaii Volcanoes had already set the date and sent out preliminary announcements of a meeting with an island ecosystems/education emphasis, we decided to proceed on our own — our own financing, our

own agenda, our own speakers, and our own focus — conservation education.

A conservation education workshop in Hawaii was a natural followup to the symposiums on native ecosystems and alien plants we organized in 1984 and 1986. Hawaii is the best evolutionary theater in the U.S. and has the only tropical rain forests in the 50 states; it also has one of the worst problems with invasions of alien plants and animals anywhere. Yet public knowledge about the value of the State's natural heritage and the problems in protecting biological uniqueness and diversity is terribly inadequate.

Although the natural resources are of intergalactic value scientifically and at least of worldwide importance aesthetically and culturally, Hawaii has at present an environmental education program in only a few of the public schools, no structured interpretation or research capability in the State natural resource agency, no national Sierra Club or Audubon field offices, essentially no management (including inventory) of the State Natural Areas Reserve System, no coherent environmental voice, and no environmental magazine (although a conservation emphasis is now on the increase in other media). There is very limited access to natural areas on Oahu (the most populated island) for school children, and the natural resources of the other Islands (folks on Oahu call them the "Outer Islands") are rarely and barely mentioned — much less understood — by the vast majority of the State's population. We have one state university with graduate programs, but conservation biology is not a formal discipline there, nor is it emphasized in the curriculum.

The Workshop focused on Hawaii's problems in conservation education, and we tried to gather a diversity of speakers, points of view, agencies and organizations, and relevant occupations to exchange ideas and information about the conservation situation here and how to improve it. The usual interchange of ideas among people with diverse responsibilities and goals was certainly one

objective. But we also wanted to provide some basic information in non-technical language, for use by educators, lay persons, and decision-makers, about Hawaii's biological importance, uniqueness, and problems. And we hoped to help stimulate better participation in conservation education in Hawaii in active and effective ways.

How Was the Workshop Structured?

We stacked the deck toward human diversity. From a pre-registration sign-up we selected participants with diverse interests and occupations as well as affiliations. Attendance was limited by the accommodations, but we ended up with approximately 100 attendees (standing room only on the first day) plus another 30 or so who submitted papers and/or served as speakers, facilitators, and summarizers. Occupations or principal activities of all the participants in the Workshop, including those who wrote papers but did not actually attend, those who came to present their talks, those who came only to listen, and those who came to discuss issues, are listed in Table 1.

We grouped the presentations at the Workshop into seven sections, as follows:

Island Ecosystems — what's different, what's important?

Biological Diversity — what is it, what should be emphasized?

Human Impacts — what's important, what's negotiable?

Alien Plants and Animals — management, research, interpretation

Making Choices — what to do when you can't do it all

Communicating — television, written media, public programs

Conservation Education — what could/should we do in Hawaii?

We assembled, in time for handing out at the Workshop, drafts of 23 papers on key topics in Hawaiian



Interpretive walks, an old NPS standby, are still among the most effective introductory approaches to understanding.

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conservation biology, including conservation education. The authors of the essays are professionals more used to communicating in the jargon of their occupations, but we stressed the need for brevity, clarity, and non-technical writing, so that non-specialists would be able to extract meaning and messages to share with others. We were surprised at the enthusiasm and the good results when technical experts try to communicate with the lay public!

Realizing that followup is essential if there is an attempt to change the *status quo*, we asked for evaluations of the Workshop and the topic papers. Also, discussion periods of an hour or so for audience and speaker interaction, and a short synopsis and evaluation, were an integral part of each of the seven sessions.

We encouraged hands-on experiences: interpreted field trips to Special Ecological Areas (see Tunison, Stone, and Cuddihy 1986) (including a muddy rain forest); to a state-of-the-art interpretation facility, Thomas A. Jaggar Museum (featuring Hawaiian volcanism); and to the active lava flows. Workshop participants were also the target audience for outdoor education programs of the State Department of Education and the HAVO Division of Interpretation. Entertainment at the Workshop dinner was provided by a popular environmental education group, "Puppets on the Path," which in four years has spread the message of Hawaii's biological heritage through home-made puppets and original songs to audiences of all ages all over Hawaii and in various locations on the U.S. Mainland.

How to Package the Message

Experts counseled simplification, factuality, emotional involvement, accuracy, and even "eco-sleaze" to improve the process of getting conservation messages to audiences. A major message addressed to **scientists** and **resource managers** in NPS and other organizations is that some simplification, emotion, and a sense of fun and wonder help get points across more effectively than a deluge of accurate facts presented in precise scientific terms. Scientists and managers also were

encouraged to consider problems more in the context of others' needs and views, including developers.

Conservationists and educators need to consider which messages are most important and how and when to deliver them to selected audiences. For example, in Hawaii a major conservation goal is to keep ecosystems *intact* and *not invaded* by alien plants and animals. It follows that we usually manage for biological *diversity*, not *dominance* by one or a few species. Another message for us all is that conservation education is *necessary*, not just *nice*. Education is an integral part of the conservation effort, and educators need to know their subject matter. We need more emphasis on *specific messages* for target audiences rather than *mass media* for the general public. In effect, educators in all occupations can be part of a responsible management "team" for helping to preserve natural values.

We were amazed that at least one educator, who uses mass media primarily, seemed to feel that his objectivity and/or artistic freedom would be threatened by being even an abstract part of such a "team." Perhaps others would rather work independently too, but we think that the "team" concept is important, if only in the occasional and "sometimes" category.



Sole cleansing the shoes of runners in the Kilauea Marathon and Rim Runs at Hawaii Volcanoes NP is a ritual that has cut considerably the chances of introducing weed seeds from other areas and islands. About 18 species of alien plants were generated from unscrubbed soles in a previous year.

Administrators also were offered a variety of suggestions. Destry Jarvis, Vice President of the National Parks and Conservation Association, pointed to lack of a legislative mandate for interpretation and science comparable to that for law enforcement in NPS. Low budgets, lack of continuity, shifting (not necessarily shifty) leadership, and lack of effective integration of educators into the mission seem to be common problems of many organizations. Destry pointed out that organizational structure – high-level positions and accountability – in addition to adequate budgets is essential if objectives are to be accomplished. Wayne Gagné, B.P. Bishop Museum, suggested that streamlined bureaucracies can lead to more effective action and interaction. Most bureaucracies are resistant to new initiatives, including education, without a mandated organizational structure to accommodate them.

One speaker noted that "the future doesn't vote" and another, that there is a "lack of political will" in Hawaii to make decisions. Decisions often seem to be made far away by people with "money motives." State Representative Virginia Isbell urged conservationists to run for office and get the government to respond to the needs. Gary Machlis, University of Idaho, provided facts and figures about public apathy in the U.S. in contrast to wide public interest in risk-and-crisis situations (e.g. a baby trapped in a well). Hawaii radio and TV personality Michael W. Perry described the secret of his success as the "art of sleaze" – emphasizing the biggest, fastest, shortest, strongest, greasiest – whatever, as shown by experience, "grabs" the audience.

Whatever Turns You On

Lorin Gill, Educational Director of Moanalua Gardens Foundation, noted that establishing relevance (usually with risk such as emotional or personal involvement) and hands-on activities or experience were the two principles he has found most effective in conservation education. The attention of the public and of politicians can be attracted, interest aroused, and action or change provoked when audience and presenter meet on common ground and are involved together.

Wayne Gagné noted that the status of conservation education in Hawaii is that it has none! Others suggested that support – political, financial, material, and moral – is still badly needed. Lorin Gill stated that educators are being criticized because of three decades of frustration by "the secure, the arrived, and the scientifically astute"; however, educators are just beginning to get the support mentioned above. The need to bring Hawaii's limited human resources and expertise to bear on effective education about Hawaii's rapidly dwindling natural resources in the face of increasing threats was a theme that emerged strongly.

Where Do We Go From Here?

The workshop has already produced several results. **First**, proceedings, which we expect will provide "how-to" insights as well as summarize current thoughts and



Hawaiian geese, or *ne ne*, are Hawaii's state bird.

Table 1. Representation of various occupations at Conservation Education in Hawaii Workshop, based on official registration/participation list.

Occupation/Affiliation	Number of Participants	Percent of Total Participants
Interpreters/NPS	16	12.9
Educators/Schools	14	11.3
Educators/Private Sector	13	10.5
Educators/Scientists*	16	12.9
Scientists**	16	12.9
Natural Resources Managers/Federal	7	5.6
Natural Resources Managers/State, County	8	6.5
Natural Resources Managers/Private	1	0.8
Planners/State and County	3	2.4
Conservation Organization Representatives	6	4.8
Politicians/State	1	0.8
Attorneys	2	1.6
Mass Media/TV, Radio, Writing	4	3.2
Administrators/Federal, State, Private	12	9.7
All Others	5	4.0
TOTALS	124	99.9

* Combination of education and research functions

** Primarily research function

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good discussion, have been transcribed and await editing time. **Second**, a book of 34 essays, some handed out to Workshop participants for evaluation as to usefulness, format, level of presentation, and so forth, is scheduled for publication in 1988. The title of the volume is **Conservation Biology in Hawaii**. This paperback trade book will provide valuable source material on conservation biology in Hawaii in non-technical language and will include an extensive glossary.

Third, considerable publicity about conservation biology and education appeared in Hawaiian newspapers following the Workshop, and this is continuing. Portions of a few of the essays handed out at the Workshop have already been used in other outlets. **Fourth**, key working relationships have been strengthened or established among State, Federal, and private groups and among various individuals. For example, coordination of Hawaii Volcanoes NP research, interpretation, and resource management functions has increased, partly as a result of teamwork reinforced in organizing the Workshop. All participants agreed that a major followup effort would be a renewed emphasis on conservation education in Hawaii's schools. The Conservation Council of Hawaii and the Moanalua Gardens Foundation in Honolulu were chosen to lead this effort and have begun several major thrusts (helped by MacArthur Foundation grants to Bishop Museum), according to J. TenBruggencate (1988). They include:

1. Creating a permanent position for the State Environmental Education Specialist.
2. Developing a system to allow high school students to work independently on environmental education with graduate students or conservation organizations.
3. Researching the possibility of making environmental education a core curriculum (like math or English) in schools.

A **fifth** effect of the Workshop, and perhaps the most important, is the realization by representatives of many segments of society that conservation education for adults and young people must become a much more important part of conservation in Hawaii today. Without participation by the different ingredients in our "unmixed



Hawaii's natural history comes alive when Puppets on the Path perform stories, skits and songs depicting how ocean and forest creatures interact within Hawaii's unique ecosystem. Three women (The Anthurium Sisters) and more than 50 original puppets delight and enlighten Hawaiian audiences.

melting pot," much of Hawaii's biological heritage will be compromised even more before most citizens know its real value. The focus of our efforts must be sharpened, the efforts increased, and the public and key decision-makers must be better educated to the choices ahead.

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LITERATURE CITED

Dumanoski, D. 1988. Aloha and SOS. Boston Globe Magazine, February 7.

Miller, J.A. (ed.). 1988. [Entire issue] Hawaii's Unique Biology. Bioscience 38(4).

Sugden, A.W. (ed.). 1987 [Special Issue] Hawaiian Evolutionary Biology. Trends in Ecology and Evolution 2(7).

TenBruggencate, J. 1988. An island push for environmental education. Environmental Update. Sunday Star Bulletin and Advertiser, January 17, 1988. Honolulu. D-3.

Tunison, J.T., C.P. Stone, and L.W. Cuddihy. 1986. SEAs provide ecosystem focus for management and research. Park Science 6(3):10-13.