

THE SCHOOL FOR FIELD STUDIES

ANNUAL REPORT

1996-97



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*Educating for a
Sustainable Environment*

SFS Mission:

THE MISSION OF THE SCHOOL FOR FIELD STUDIES IS TO PROVIDE HIGHLY MOTIVATED YOUNG PEOPLE FROM THE U.S. AND ABROAD WITH AN EXCELLENT PRACTICAL EDUCATION IN ENVIRONMENTAL STUDIES, IN ORDER THAT THEY MAY BECOME MORE ENVIRONMENTALLY LITERATE/AWARE AS WELL AS MAKE IMMEDIATE AND FUTURE CONTRIBUTIONS TOWARDS THE SUSTAINABLE MANAGEMENT OF THE WORLD'S NATURAL RESOURCES.



David Liscio

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Cover photos: Robert Singer, Ken Weagle, Susan Gardner, Wayne Vos, David Silverberg and Liana Babbar

1996-97 Curriculum

The Center for Rainforest Studies

Yungaburra, Queensland, Australia

Fall and Spring Semester Programs:

Tropical Rainforest Management

Summer Courses: Tropical Reforestation

The Center for Sustainable Development Studies

Atenas, Costa Rica

Fall and Spring Semester Programs:

Studies in Sustainable Development

Summer Courses: Alternative Strategies for Preserving

Tropical Ecosystems

The Center for Wildlife Management Studies

Athi River, Kenya

Fall and Spring Semester Programs:

Wildlife Ecology and Management

Summer Courses: Community Wildlife Management

The Center for Marine Resource Studies

South Caicos, Turks and Caicos Islands, BWI

Fall and Spring Semesters:

Marine Resource Management

Summer Courses: Marine Parks Management

The Center for Coastal Studies

Bamfield, British Columbia, Canada

Fall and Spring Semesters:

Coastal Rainforests and Marine Resources

Summer Courses: Conserving Marine Resources

and Coastal Rainforests

The Center for Wetland Studies

Baja, Mexico

Spring Semester:

Wetland Management: Preserving an Ecosystem,

an Economy, and a Community

Summer Course: Preserving Coastal Wetland Diversity

Introduction

Since its founding in 1980, The School for Field Studies (SFS) has become the country's largest institution of higher education devoted exclusively to applied environmental studies. Through SFS programs, young people come to understand the complexities of environmental issues in an international context as they prepare to assume leadership and responsible participation in 21st century business and society.

The objective of The School's unique community-based program is twofold: education and conservation. SFS seeks to provide an excellent practical education that is both *interdisciplinary* - combining ecology, resource management, economics and ethical issues - and *applied* - through directed research. Each of the six SFS field Centers serves as a conservation research facility and develops partnerships with community groups who help design and facilitate projects that involve students, faculty and partners working together to create long-term habitat and ecosystem sustainability.

We believe it is critical that, as tomorrow's leaders, high school and undergraduate students develop a well-grounded understanding of the complexities and dynamics of environmental issues - *and of what they can do to bring about solutions.*

Through their locally-focused field work, SFS students make a direct and tangible contribution to improving natural resource management in the regions of their Centers. Students learn to identify and compare multiple solutions to specific environmental problems. Mastering problem-solving skills becomes a daily issue as the complexities of working in the "real world" and in a country different from their own create obstacles as well as opportunities. Students are faced with finding ways to work as a team and learn to work collaboratively with peers, faculty and community partners. Through this process, students come to understand the trade-offs between the economy and the environment. *The result is more sophisticated students able to think, problem solve, strategize, and act in a professional capacity.*

By the end of their SFS semester, each student is provided with knowledge, skills and reinforcement of values that inspire them to ACT on behalf of the environment throughout the rest of their lives. The message of empowerment that students receive through a demonstration of their ability to make a difference is one that distinguishes SFS programs. Indeed, every year our students tell us that attending an SFS program was a positive, life-changing experience.

SUMMARY

<i>Founded:</i>	<i>In 1980, as a nonprofit educational institution</i>
<i>Governance:</i>	<i>Board of Trustees, elected by Members of the Corporation</i>
<i>Funding:</i>	<i>Tuition, fees, and tax-deductible contributions from individuals, foundations, and corporations</i>
<i>Program Types:</i>	<i>Undergraduate semester and summer programs</i>
<i>Field of Study:</i>	<i>Environmental Studies and Applied Ecology</i>
<i>Academic Credit:</i>	<i>Through Boston University and 22 affiliated colleges and universities</i>
<i>Class Size:</i>	<i>32 students per program</i>
<i>Semester Design:</i>	<i>3 science and social science courses, 3 case studies (3 weeks each) and a 200+ hour Directed Research field project with faculty and local conservation partner(s) involvement. 16 credits.</i>
<i>Summer Design:</i>	<i>1 course, 1 case study and a 3-week Directed Research project with faculty and local conservation partner(s) involvement. 4 credits.</i>

Equal Opportunity

Admissions to The School for Field studies is opened to qualified students without regard to sex, race, sexual orientation, color, national and ethnic origin, economic status, physical or mental disability or other protected status. SFS is a 501(c)(3) non-profit educational institution.

Letter from the Chair



I have been Chair of the Board of Trustees of the School for Field Studies (SFS) since we opened in 1980 and have been Acting President since the Annual Meeting in October, 1997. SFS's mission—and mine—is to deliver to our students “an excellent practical education in environmental studies, so that they may become more environmentally literate and aware and make immediate and future contributions towards the sustainable management of the world's natural resources.” That is exactly what we continue to strive to do.

We believe that a student needs not only to acquire the tools of information, but also to experience the use of those tools to change the world. At SFS a young person learns to understand the linkages between the economy and the environment and to successfully demonstrate these linkages to the client he or she serves. This understanding is the goal of our educational model at SFS. We teach environmental problem-solving by engaging students in the process of implementing sustainable development.

Our educational model includes many assorted elements, therefore our list of accomplishments includes many diverse items. In addition to the many accomplishments list on the following pages, here are some of the things the Staff and Board are especially proud of having accomplished in FY97:

- We educated 612 students in the field, an increase of 41 students over last year. Of these students, 53% received over \$450,000 in SFS financial aid to enable their participation.
- General and tuition revenues increased 5.2% over last year, enabling us to retire the FY96 deficit, end the year in the black, and top the \$5 million income mark.
- We opened a new Center for Wetland Studies at Magdalena Bay, Mexico, funded by generous foundation support and a first-of-its-kind debt swap for environmental education.
- Two staff-members took sabbaticals this year, first Bernardo Aguilar, then Liana Babbar. We are proud of their long records as Center leaders in Costa Rica.
- Two Centers—Australia and Turks & Caicos— participated in *sitesALIVE!*, an on-line, interactive program with high school and elementary school students.
- Our own SFS home page was introduced: www.fieldstudies.org
- The Center for Coastal Studies in British Columbia was honored at the most significant First Nation Potlatch ceremony in a decade.
- Senior government officials in the Turks & Caicos Islands, including the Governor, attended student presentations of their directed research projects.
- Significant progress was made in integrating the environmental problem-solving model into programming as can be seen in the increasing number of Center-initiated projects that reflect a truly applied problem-solving approach.

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We were all sorry to receive Jim Elder's resignation in October. His vision, to create a place where ordinary students can do the extraordinary and that recognizes and channels the deep desire of young people to make a difference in the world, served the test of seventeen years.

Under Jim's leadership, SFS has become a leader in environmental education serving over 8,000 young people, the vast majority of whom value their SFS experience immensely. His innovative “debt for environmental education swap” with Mexico set a precedent in the financial and environmental education worlds. The partnership he helped to forge with *sitesALIVE!* now brings the SFS mission into the homes and schools of thousands of young people around the globe. He leaves SFS with the strongest balance sheet in our history including fund balances exceeding three million dollars, and with a reorganized staff that is well positioned to lead SFS into the next century. We are glad that Jim will be able to continue to offer his ideas and counsel in a new role as Consultant to the Board.

As the year ends, the staff and I feel a tremendous sense of accomplishment. At the same time, we face many significant and exciting challenges in the days ahead. We will work hard to meet them.

Terry G. Andreas

Terry Andreas
December, 1997

Comments From SFS Constituents

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I worked for seven years at an environmental consulting firm and just started a new job as a civil engineer in the Groundwater Group of the East Bay Municipal Utility District - my community's water company. I love working in water resources and I continue to be committed to environmental protection.

Jennifer Hyman,
Civil Engineer, SFS
Program: Adirondacks,
Summer 1985

”

I am really impressed with the students work and the initiative of your centre in devising such worthwhile, hands on research opportunities.

Dr. Steve Goosem,
Senior Principal Scientist,
Australia's Wet Tropics
Management Authority

“

The SFS experiences have been a marvelous addition to our Biology curriculum at Davidson. Students return to campus with the self-assuredness that comes from having their sense of the world, and their place in it, challenged. Their experiences totally integrate learning and living so that the boundaries of the “academic world” and the “real world” dissolve. They have developed skills in problem solving, critical thinking and research. In summary, the SFS experience develops leaders, both in and out of the classroom.

Verna Case,
Professor of Biology,
Davidson College

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The studies conducted by SFS will be of considerable value in the development of a theme of managing for biodiversity for the area.

Robert Redhead,
Manager, Heritage
Resource Conservation,
Pacific Rim National
Park

“

I could see the fish scales from the cannery lining the beaches. I could see the oil slicks floating on the water. I could see the problems were real and that something needed to be done. The program heightened my awareness from something distant to something very real.

Rafael McDonald-Tovar,
Princeton University,
SFS Program: Baja,
Summer 1997

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Magdalena Bay is one of the largest remaining intact wetlands on the Pacific coast. For centuries the Bay has supported some of the world's most productive fisheries, attracting local and foreign fishers and whalers. Today, many economically important fish, shellfish and crustacean fisheries are near collapse because their stocks are depleted.

With the welcoming of its first students in February, 1997, the Center for Wetland Studies (CWS) became the first permanent institution with a resource management agenda in the Magdalena Bay region. Work has begun to realize the long-term objectives of the Center:

- To provide U.S. and Mexican undergraduates with a non-traditional and problem-oriented environmental studies curriculum;
- To facilitate greater access to the region for those who wish to work on resource problems and to coordinate and develop a research agenda in response to the needs identified by community, national and international groups to preserve the wetland biodiversity as well as fisheries resources in light of economic development pressures.

The development of strong directed research (DR) projects will guide the Center program over the next several years. These include:

- Identifying a majority of the sources of marine and coastal contamination in Puerto San Carlos;
- Sampling the water quality of Magdalena Bay to provide data in support of understanding the effects of humans on the productivity of the Bay. This work has contributed to the development of a monitoring program and a joint project with the Puerto San Carlos cannery to improve the treatment of the plant's wastewater that is dumped into the Bay;
- Assessing the potential for aquaculture of scallops as an

Center for Wetland Studies Partners:

To date, these include formal relationships with: Pronatura (a Mexican environmental NGO); the Autonomous University of Baja California Sur; the Interdisciplinary Center for Marine Sciences (CICIMAR); and the Center for Capacity-Building, Sustainable Development, and Environmental Education of SEMARNAP (Mexican Secretariat of Environment, Natural Resources and Fisheries). The Center is also working with the Regional Center for Fisheries Research of SEMARNAP; the State Department of Fisheries Development; Conservation International Mexico; the Nature Conservancy's Northern Mexico program; and the Puerto San Carlos cannery.



Mary Jane Albanese



Marilyn Kazmers/SharkSong



Susan Dew McCreedy



Susan Gardner



Mary Jane Albanese

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Rob Robinson

“I used to feel the best answer to our problems was to declare all open land wilderness and stop development, population growth, and just about every other socio-economic activity. My SFS experience showed me that the best method for dealing with environmental problems is something different: compromise. It's not that someone is always right and someone is always wrong. Everybody has a stake in something and conflicts are a natural result. People need to be given the option of getting involved and helping to solve these problems themselves.”

Richard Shefferson,
Northeastern Illinois University

economically and ecologically sustainable small-scale industry;

- Assessing the impact of boats on the gray whales that visit the Bay each year -- an issue of great importance to the fledgling tourism industry in the region;
- Collecting socio-economic information to be used in designing a management strategy for the new crab fishing industry;
- The beginning of a long-term, community-based, capacity-building project for decision-making regarding sustainable development. This DR project culminated with a student organized, first-of-its-kind community meeting that brought together representatives from the different sectors in Puerto San Carlos (e.g., fishing, tourism, commerce, industry, labor, and education) to begin identifying the problems faced by residents of the Bay.

During the summer, Magdalena Bay was chosen as the sustainable development test site for the state of Baja California Sur by SEMARNAP (Mexican Secretariat of Environment, Natural Resources and Fisheries) under its program to establish regional pilots for sustainable development. Under invitation by SEMARNAP, the Center is playing a leadership role in the process to plan the Magdalena Bay Sustainable Development Zone. We are particularly pleased by this because it demonstrates that the Center can be a magnet for conservation activity and a catalyst for protection and management of the region.

The Center for Coastal Studies (CCS) provides an ideal location to examine questions related to forest land use, issues of native peoples, salmon production and use, near-shore marine ecology, and ecotourism. The Center is located on Barkley Sound on the west coast of Vancouver Island. The watershed extends relatively far east across the island and as such represents an array of wet to dry coastal forest ecosystems. Barkley Sound has been providing resources and sustenance to people for thousands of years. Today, the Sound represents a range of significantly human-modified environments.

■ Student directed research (DR) evaluated the potential of a 400 hectare area for a community woodlot in Bamfield which would give the local community the opportunity to manage a portion of crown lands towards community objectives. The DR developed a preliminary inventory of forest structure, site quality and harvestable material.

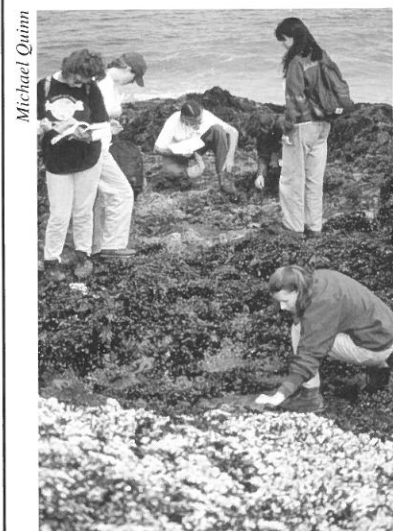
■ Students learned stream assessment techniques through a DR project that accomplished assessments on 3 sections of Frederick Creek. A map and graphs of the information were produced. Recommendations were made for restoration of two sections.

■ Students participated in two public review and comment processes for proposed forest development (logging) plans for the Bamfield region. Following this process, community members were invited to the Center for a two-day lecture and field workshop led by a fisheries biologist and a forest practices investigator. Students and community members were taught how to assess streams and roads for compliance with the BC Forest Practices Code and how to collect data adequate for use in court proceedings. This workshop was directly responsible for a number of meetings among First Nations and Bamfield individuals and the major forest tenure holders in the region. These were important in terms of informing the

Ground truthing of the third block on flora, fauna, cultural heritage markings and overall landscape characteristics found this block to be a forest corridor, important to maintaining the biodiversity and structure of the ecosystem and, through slope gradient measurements, map analysis and general field observations, to demonstrate potential for landslides and sedimentation after logging.

■ As a direct result of student and faculty work, the community of Bamfield has become more meaningfully involved in ensuring that better forest practices become the norm in the region. In May, seven students and a

~ Page 8 ~



Michael Quinn



Michael Quinn



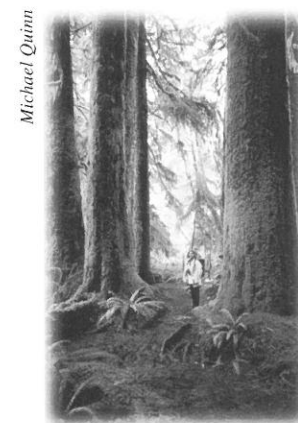
David Silverberg



Michael Quinn



~ Page 9 ~



Michael Quinn

“Wildlife habitat, stream characteristics and land gradients-I learned how these are related and why there are regulations concerning logging practices. I've learned a lot about the forest tenure holders and how their policies affect the forest and First Nations communities. I don't think you can manage a forest cutblock-by-cutblock. It has to be done on a larger scale.”

Elizabeth Moody,
Western State College, Colorado

Elizabeth was one of six spring '97 students who received a rare invitation to remain for the summer and live on First Nation land. The students continued their work as Forest Practices Code compliance investigators as volunteers. Their stream assessments and studies of the biodiversity of the area will help Provincial officials determine land-use priorities and the scale of logging to be allowed in the area.

community about what is going on around them and what is at stake in particular cases.

- Three student DR projects evaluated three areas, or cutblocks, proposed by forest tenure holders for logging. Students assessed these blocks to see how well the loggers' silviculture prescriptions and other assessments kept to BC's Forest Practices Code. Oversights, missing data and inaccurate forest prescriptions were identified, including:
 - ✧ significant cultural heritage markings;
 - ✧ unidentified streams;
 - ✧ green-up in adjacent previously harvested cutblocks not at the required minimum;
 - ✧ streams inaccurately classified as non-fishbearing;
 - ✧ underreported bear habitat.

faculty member attended a First Nations Potlatch to celebrate the end of mourning for the father of a local Huu-ay-aht Chief and to pass his name to his son. One of the first ceremonies was to express thanks to the SFS contingent for working to restore the territories of the honored Chief.

Costa Rica: Sustainable Development Studies

Students at The Center for Sustainable Development Studies (CSDS) participated in research designed to maintain and implement long-term conservation projects. The conservation initiatives include an Operational Management Plan for the Cerro Atenas (ZPCA) and Rio Grande (ZPRG) Protected Zones, Ecosystem Health Assessments, Sustainable Agriculture Production, Integrated Pest Management, Gender Roles, and Medicinal Plant Use.

CSDS students continued research efforts from past semesters to evaluate the health of ecosystems using a scientific method created by Center faculty. Students

studied two Protected Zones, looking at social, economic and ecological data and how this information can be used to better manage the conservation of the area.

Altogether, seven protected zones have been studied in a project to prioritize future goals for managed ecosystem health. The project suggests the use of integrated approaches (including social and economic elements) in developing solutions to conservation problems.

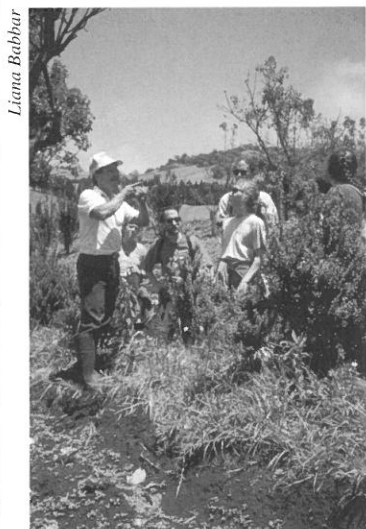
Students continued research as part of the Center's program for the study and control of white flies, one of the most damaging pests for farmers in the region. The

program has included Integrated Pest Management options using natural extracts of medicinal trees found in the region and the identification of weed hosts which could be used to control the flies. Suggestions have been made for selected management and reduced pesticide use and will be made as technological recommendations through the extension agency of the Ministry of Agriculture in Atenas.

A new series of gender role projects began with SFS students conducting four workshops in different communities in the county. In the local town of Atenas, women were taught natural pest control mechanisms and

A new student project relating to perennial cropping systems was introduced. The work focused on coffee plantations and the addition of a nitrogen fixing legume to the soil which it is hoped may reduce the need for chemical fertilizers. Future research will examine the outcome.

CSDS has a working agreement with the Institute of Legal Research of the University of Costa Rica. Through this agreement, the Institute has developed a series of diagnostic studies on the state of environmental regulations in Costa Rica. Studies have included the evaluation of the effectiveness of riparian zone



Liana Babbar



Liana Babbar



Moises Leon



Oscar Luke



Liana Babbar



Liana Babbar

The experience of being able to apply what I was learning to the physical world around me had a profound impact on the way I view my surroundings now.

Rachel Graham,
Clark University

Just as economists and politicians need to look at the environmental effects of their actions, conservationists must include socio-economic perspectives in their efforts. I've learned that local involvement and benefit from conservation is the only way to really make it work.

Elizabeth Helmer
University of Michigan

composting for home gardens. Women reacted positively to the workshops which provided an open forum for exchanging ideas on organic gardening methods and validating the contribution these women make to the home economy.

A student DR project completed an inventory of medicinal trees in the Rio Grande Protected Zone and examined women's use and production of medicinal plants. Students developed information on which species were frequently used, how many are cultivated by locals, which species are purchased, and where and how much of these products are available. Together with the gender role projects, this project seeks to retain diminishing local knowledge in the community and maintain the diversity of medicinal plant species.

management and reforestation incentive regulations among others. Through these studies, the Institute makes recommendations to the National Legislative Assembly for legal reforms.

CSDS students increased SFS community relations by conducting a series of environmental education and English speaking programs for the school children. In addition to the classes, the students assisted in painting park benches, fixing roads, building a basket ball court, and volunteering at the local elder home and at the orphanage.



Bill McComas

Turks and Caicos Islands: Marine Resource Studies

Students at the Center for Marine Resource Studies (CMRS) in the Turks and Caicos Islands (TCI) conducted studies in marine ecology, resource assessments, marine environmental education and the monitoring of critical environmental impacts.

■ An assessment of lobster and conch stocks together with a survey of the number and location of fish traps within marine park boundaries was conducted. Information from these studies is being used to provide the Department of Environment and Coastal Resources (DECR) with the most recent estimates of conch and lobster abundance which will be incorporated into the TCI conch fishery management plan and quota regulations.

■ Habitat assessments of sites for artificial lobster shelters (casitas) were done and prototype casita designs were constructed and deployed in two critical nursery sites west of South Caicos island. The project is showing early potential to significantly reduce juvenile lobster mortality and increase lobster yields.

■ Studies were done to determine the feasibility of tourism development on East Bay, South Caicos and the usefulness of Integrated Coastal Management (ICM) as an approach for guiding this type of development. Students mapped the bay, assessed the marine organisms and terrestrial vegetation of the area as well as consulted with TCI government officials, developers, international and local nongovernmental organizations (NGOs) and residents of

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South Caicos changed my environmental outlook very much. I come from America where it is easy to be concerned with the environment because we have the money and the options to do so. Going to an island that survives on its resources alone gave me a different perspective on conservation.

Kathleen E. Feasel,
University of Massachusetts

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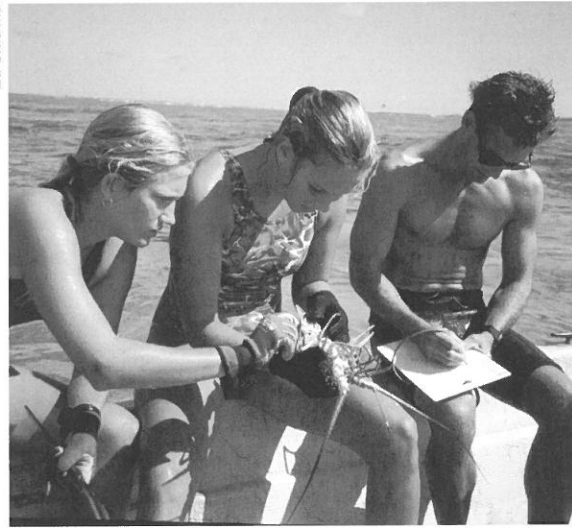
Matt Weedon



Bob Singer



Ed Stashko



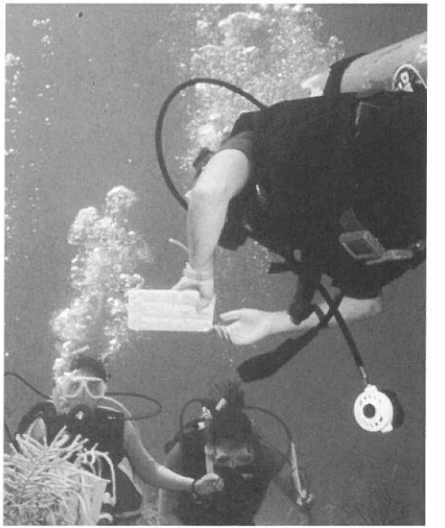
Bob Singer



Beth Bader



Matt Weedon



~ Page 12 ~

Jim Elder



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Directed research was my favorite part of the program because it really allowed the students to become leaders. We were able to formulate a research project from design to final draft and present it. I had the honor of presenting my research groups' conclusions to the Governor of the Turks and Caicos Islands and other officials. This gave me a feeling that all my hard work was worth something.

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Brendan J. Reed,
University of Richmond

South Caicos to investigate the issue of sustainable development for this region.

■ A presentation of SFS directed research (DR) projects to the TCI Government was held in Grand Turk, the seat of government for the islands. It was a collaborative project by SFS and the DECR. Emphasis was placed on the need for SFS and the TCI government to create a formal and official partner/client relationship in order to achieve common environmental problem solving goals. Aside from strengthening the professional bonds that exist with our current clients/partners, this seminar/workshop aroused serious interests from other government agencies and private industries on forging new partnerships and client relationships with SFS.

■ Students at the Center took part in an innovative pilot program called *sitesALIVE!*. In the program, SFS students share their research and learning experiences with U.S. elementary and middle school students through images and text made available over the Internet. *SitesALIVE!* was identified by *USA Today* as one of their “hot” Internet sites for superior educational content.

■ SFS students offered environmental education programs and tutoring in the local elementary and high schools and hosted a Sea Day at the Center for local school children. Sea Day is an event held at the Center which helps elementary school students learn more about their ocean environment through hands-on interaction with sea life in a salt water pool and activities focused on the marine life which surrounds their island but of which many residents know very little.

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Australia: Rainforest Studies

Research and field work at the Center for Rainforest Studies (CRS) focused on land management practices and the restoration of degraded forests, pasturelands, and watersheds with the goal of helping to strengthen and revitalize the greater Tableland Ecosystem.

Fall 1996 & Spring 1997 CRS students completed cost benefit analyses of several riparian reforestation projects in Bromfield Swamp Creek and Johnstone River. This information assisted the Wet Tropics Tree Planting Scheme (WTTPS) in developing a strategy to encourage the participation of more local farms in reforestation. Students also evaluated the local and global benefits of reforestation on land values and on specific interest-

holders such as dairy farmers and residential land owners. The results from both semesters were given to WTTPS and summarized in pamphlets designed to show farmers and shires (regional political representatives) the benefits of riparian restoration (cleaner water, improved stream flows, reduced erosion, etc.).

Students worked with Water Watch, a water quality monitoring program within the Department of Natural Resources that involves community volunteers to collect data. Students conducted bacterial analysis of several creeks and developed protocols for future testing. The CRS Center Director requested equipment from the Millipore Corporation, Bedford, MA, to enable the program to sample the bacteriological parameters

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The forests of the world contain vast amounts of beauty and biodiversity. These forests hold the key to life for many organisms on the planet. Humans cannot survive without the forests and forests cannot survive without help from humans. Much of what I learned about rainforest mechanics can be applied to any type of forest in the world. Now I am volunteering at local grade schools, teaching young children the importance of preserving forests.

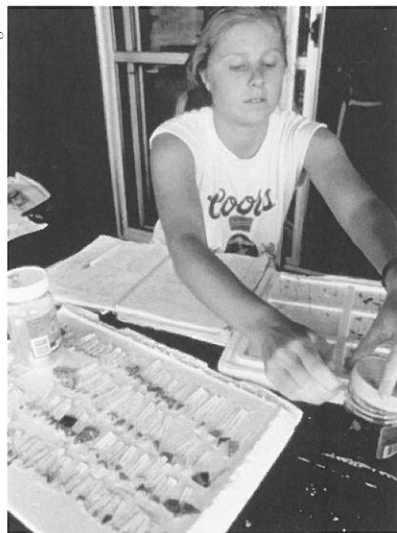
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Geri Marie Urban,
University of Wisconsin

Ed Stashko



Ed Stashko



David Bathgate



Ken Weagle



Ed Stashko



David Bathgate



Ken Weagle

which can severely impact the potability of surface waters. The request was granted and the equipment will support more in-depth water quality analysis in the future.

Continuing support was provided to the Atherton Shire Council (ASC) in the restoration and management of the Tolga Scrub, a 26 hectare, rare fragment type 5b notophyll forest listed as a flora preservation reserve. Results of a previous year's research project contributed to the creation, in Fall 1996, of the Tolga Scrub Management Committee. This committee includes an SFS representative.

CRS summer students produced a detailed reforestation management plan for one of the largest plots on the Center property. Directed research (DR) projects conducted throughout the year, such as weed species

investigation and soil type analysis, provided the baseline data needed to design the land preparation and to select the appropriate species for the SFS planting. The plan is designed to produce 12,000 seedlings per year. Implementation of this plan will provide CRS with a demonstration project for rainforest restoration in the area region. It will increase the center's local profile and provide continuing on-site research opportunities for students and staff.

Over 2,000 tropical rainforest trees were produced in the Center shade house and planted by CRS students as part of the ongoing CRS project to connect two rainforest fragments and establish a corridor for wildlife.

“

I realized that there are a lot of people in this world who care about saving our natural resources; it is just a matter of finding them. When we all get together, we can accomplish a lot of hard work. One day my classmates and I helped plant hundreds of trees as part of a reforestation project . . . We saw similar plantings that had been done by SFS students in the past, and it was amazing how fast these trees had grown in such a short period of time. You have to start somewhere . . .

”

Rebecca M. Caswell,
Simmons College

Diana Swan



The Center for Wildlife Management Studies, known locally as Jua Kali, is located on Game Ranching Ltd. (GRL) an 81 square kilometer experimental game ranch.

A group directed research (DR) project entitled "A Zoning Proposal for Game Ranching Ltd. (GRL)" organized data on the ranch's main areas of interest: rangeland management, biodiversity, profitability and wildlife harvesting. Data was collected by fieldwork and from secondary sources (mainly past SFS research), analyzed, and the various interactions between different areas identified. Recommendations on how land-use zoning would reconcile the various trade-offs were

presented. Some common conclusions were reached. For example, herbivore numbers should be increased; mowing for hay should be confined to specified areas; certain ungulate species (e.g. wildebeest, kongoni) should be harvested to a greater extent, while for others (e.g. Thomson's gazelle) harvesting should be limited or even halted.

A student Geographic Information System (GIS) project produced maps that overlaid vegetation types with annual rainfall data and plant production rates. The project demonstrated that using GIS could improve the existing wildlife management operations on GR by providing information for a better determination of

animal stocking rates and cropping quotas and better predictions of the fluctuations in these parameters from year to year.

Students worked on an issue of major concern to ranchers and pastoralists regarding the presence of wildlife on their land - the fear that wild animals provide an excessive tick-borne disease reservoir. The International Center for Insect Physiology and Ecology (ICIPE) is investigating integrated pest management (IPM) and has had one dramatic success using parasitic wasps on a tick species in a different part of Kenya. Students found several parasitized ticks (out of the thousands they collected) and ICIPE will attempt to

As hard as it was to try and come up with plausible solutions to the problem of conserving elephants, while attempting to minimize human/elephant conflicts, it was amazing to be experiencing it first-hand, instead of just reading about it in a text book, or seeing it on a video.

Erin Cleere,
University of Vermont



Michelle Gadd



Dick Garstang



Dick Garstang



Wayne Vos

We were submerged in the Maasai culture. We participated in traditional dances and songs, shared meals, and were welcomed into the homes of community members. Villagers seemed eager to provide the information we were seeking and anxious to hear our results when we presented them. We exchanged ideas on wildlife utilization, conservation, tourism and game ranching. It was an experience to be remembered by both cultures, for we each learned much about our own lives by experiencing one radically different.

Kristen Schmid,
Farleigh Dickinson University

breed these for release on GRL as a test project.

Students and faculty initiated research projects with the Transmara Maasai, a pastoralist people who raise cattle. The Maasai are being pushed to turn to agriculture in nearby forest areas because rising human and cattle populations have degraded rangelands. While the Maasai consider the forest a valuable resource to be conserved, the fact remains that forest areas are being continuously destroyed to open more areas for cultivation and to reduce habitat for wildlife because wildlife destroy agricultural products. The result is diminishing wildlife and forest resources.

SFS students and faculty went to the area to hear views on the future of the region from the residents, to evaluate the existing natural resources, to identify areas of conflict between existing land-use options, and to evaluate the possibilities of implementing a land-use plan.

Plans for long-term directed research projects were made.

At the moment there is no land use plan to ensure the long term survival and viability of the area's forest and wildlife resources. In fact, the history of wildlife conservation in forest habitats in Africa generally and in Kenya specifically is not impressive. The involvement of the CWMS in the region could be an ideal way to help develop viable options and approaches to conservation which would be widely applicable.

Financial Statements

STATEMENT OF FINANCIAL POSITION FOR THE YEARS ENDED AUGUST 31, 1997 AND 1996

ASSETS	1997	1996
Cash and Equivalents	\$ 1,969,546	\$ 1,921,841
Investments	1,610,155	1,531,650
Tuition Receivable (Net of Allowance for Doubtful Accounts of \$10,230)	423,099	222,563
Loans Receivable (Net of Allowance for Doubtful Accounts of \$24,625 & \$25,100, respectively)	269,883	254,814
Prepaid Expenses and Other Assets	231,793	277,689
Property and Equipment (Net of Accumulated Depreciation)	<u>1,694,850</u>	<u>1,236,800</u>
TOTAL ASSETS	\$ <u>6,199,326</u>	\$ <u>5,445,357</u>
LIABILITIES AND NET ASSETS		
Accounts Payable and Accrued Liabilities	\$ 299,539	\$ 320,029
Student Deposits and Deferred Revenue	2,103,533	1,866,740
Note Payable	<u>—</u>	<u>119,439</u>
TOTAL LIABILITIES	<u>2,403,072</u>	<u>2,306,208</u>
Net Assets		
Unrestricted:		
Undesignated	447,651	376,751
Designated for Plant Expansion	743,126	1,143,418
Designated for Student Loans	126,957	125,942
Net Investment in Plant	<u>1,694,850</u>	<u>1,117,361</u>
Total Unrestricted	3,012,584	2,763,472
Temporarily Restricted	655,270	247,277
Permanently Restricted	<u>128,400</u>	<u>128,400</u>
TOTAL NET ASSETS	3,796,254	3,139,149
TOTAL LIABILITIES AND NET ASSETS	\$ <u>6,199,326</u>	\$ <u>5,445,357</u>

~ Page 18 ~

STATEMENT OF ACTIVITIES FOR THE YEARS ENDED AUGUST 31, 1997 AND 1996

UNRESTRICTED REVENUES	1997	1996
Tuition and Fees	\$ 4,765,790	\$ 4,507,791
Private Gifts, Grants and Contracts	147,247	275,513
Other	<u>180,059</u>	<u>194,531</u>
TOTAL UNRESTRICTED REVENUES	5,093,096	4,977,835
Net Assets Released from Restrictions	<u>233,233</u>	<u>14,858</u>
TOTAL UNRESTRICTED REVENUES AND NET ASSETS RELEASED FROM RESTRICTIONS	<u>5,326,329</u>	<u>4,992,693</u>
UNRESTRICTED EXPENSES AND LOSSES:		
Administration	807,103	752,776
Marketing and Admissions	629,991	588,983
Center for Wildlife Management Studies	565,743	538,036
Center for Marine Resource Studies	554,870	524,576
Center for Coastal Resource Studies	464,065	505,174
Center for Rainforest Studies	429,984	393,732
Center for Sustainable Development Studies	408,905	394,434
Program - Headquarters	356,059	546,566
Center for Wetland Studies	242,292	—
Scholarship and Financial Aid	232,083	263,220
Depreciation	185,614	183,355
New Projects	98,458	115,657
Development	94,487	46,058
Interest on Indebtedness	6,327	14,717
Center for Island Management Studies	—	211,052
Loss on Currency Exchange	<u>1,236</u>	<u>7,594</u>
TOTAL UNRESTRICTED EXPENSES AND LOSSES	<u>5,077,217</u>	<u>5,085,930</u>
Increase (Decrease) in Net Assets - Unrestricted	<u>249,112</u>	<u>(93,237)</u>
Changes in Temporarily Restricted Net Assets:		
Contributions	641,226	245,947
Net Assets Released from Restrictions	<u>(233,233)</u>	<u>(14,858)</u>
Increase in Temporarily Restricted Net Assets	<u>407,993</u>	<u>231,089</u>
Increase in Total Net Assets	657,105	137,852
Net Assets, Beginning	<u>3,139,149</u>	<u>3,001,297</u>
Net Assets, Ending	\$ <u>3,796,254</u>	\$ <u>3,139,149</u>

~ Page 19 ~

Sienna Loftus



To double the impact of your gift, please check with your personnel office to see if your employer offers matching gift opportunities.

Consider the triple advantage of giving a gift of appreciated stock to The School for Field Studies: receive an income tax deduction for the full market value of your entire gift; avoid all capital gains taxes; make a more generous gift to the School at a lower cost to you.



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Include The School for Field Studies in your will and help us carry forth our two-fold mission of education and conservation - helping ordinary students do the extraordinary and directly contribute to the sustainable use of the world's natural resources, environmental protection and conservation.

For more information, call or write the Development Department at The School for Field Studies.

SFS Trustees and staff would like to join the large number of students who have written to us to say Thank You! to our financial supporters. Generous gifts from alumni, friends, foundations and corporations enabled 612 students to make significant contributions toward the sustainable use of natural resources and to receive an educational experience that will last a lifetime.

Over \$800,000 was received or awarded, including a most generous gift of \$500,000 from the Andreas Foundation, the second such award in recent years. The gift will enable the School to accomplish important program and Center improvements. We gratefully acknowledge the long-term, extraordinary commitment that the Andreas family has made toward the support of the School and its mission.

We are grateful for a grant from the Archer Daniels Midland Foundation which provided a major boost to the SFS Scholarship Fund, as did generous grants from the Beverly National Bank and the Roy A. Hunt, Sumner Gerard and Ohrstrom Foundations. Significant program grants were received from the Cricket Foundation for an alumni development program; the Curtis and Edith Munson Foundation for program support of the Center for Marine Resource Studies; the Homeland, National Fish and Wildlife, and David and Lucile Packard Foundations for support of the new Center for Wetland Studies; and the William P. Wharton Trust for raptor study at the Center for Wildlife Management Studies. We were very fortunate to receive an in-kind gift from the Millipore Foundation to support water quality monitoring at the Center for Rainforest Studies.

The Center for Wetland Studies officially opened and became the sixth SFS Center in February, 1997, the first Center start-up funded largely by gifts and grants. Construction was partially funded by a debt swap with the government of Mexico. This agreement, the first of its kind in support of an environmental research and educational facility, will allow the Mexican government to save funds on the retirement of existing debt while resulting in approximately \$350,000 income to the School over a two to three year period outside of the above mentioned gift income. Additional gifts are being accepted toward underwriting the construction project.

We are grateful to those donors who provided initial support to start the campaign to purchase a permanent facility for the Center for Coastal Studies.

The School would like to offer special thanks to several individuals for their substantial contributions in FY1997: Ms. Terry Andreas, Mr. & Mrs. G. Allen Andreas, Mr. & Mrs. David and Debora Andreas, Dr. Robert Carbonnell, Mr. & Mrs. Evan Davis and Mary Rothwell, Mr. & Mrs. Allen and Marla Huntley, Mr. Paul Marks, Dr. Josephine L. Murray, Ms. Terry Nixon, Mr. & Mrs. W. James Tozer, Jr., Mr. Henry Weldon and Mrs. John J. Wilson. Thanks to these donors and all those listed below, SFS was able to provide students an extraordinary learning experience and the opportunity to contribute personally to some of the key environmental issues of our time.

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1996-97 SFS
Students

1996-97 TOTAL ENROLLED: 612

Semester Students: 332
Summer Students: 280

GENDER

Female 72%
Male 28%

HOME REGION

New England 20%
Middle Atlantic 29%
West/Southwest 20%
Midwest 15%
South 14%
International 2%

MAJORS

Biology 41%
Environment 25%
Other Nat. Sciences 10%
Public Policy 6%
Humanities 5%
Economics 1%
Other 12%

YEAR IN SCHOOL

High School Seniors 3%
Freshmen 9%
Sophomores 42%
Juniors 36%
Seniors 9%
Graduates 1%

1996 / 1997 Faculty

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(Vice President for Program),
M.A. Urban Sociology, Boston College

Edward Stashko
(Education Director), Ph.D. Ecology and
Evolution, Northwestern University

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Finance & Operations Coordinator

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Education Director

SUSTAINABLE DEVELOPMENT
STUDIES CONSORTIUM AND THEIR
REPRESENTATIVES:

Dr. Eric Pallant
Allegheny College

Dr. David Firmage
Colby College

Dr. Michael K. Heiman
Dickinson College

Dr. Stephen Trombulak
Middlebury College

Dr. Jane Leu
University of Michigan

^Member of the Volunteer Alumni Program Team

AFFILIATE COLLEGES AND
UNIVERSITIES AND THEIR
REPRESENTATIVES:

Dr. Kerry Woods
Bennington College

Dr. Cutler Cleveland
Boston University

Dr. Attila Klein
Brandeis University

Dr. Todd Livdahl
Clark University

Dr. David Firmage
Colby College

Dr. Maria Elena Vieira-Branco
Connecticut College

Dr. Verna Miller Case
Davidson College

Dr. Juliana Mulroy
Denison University

Dr. Janet Wright
Dickinson College

Dr. Ray Heithaus
Kenyon College

Dr. Donald Kaufman
Miami University

Ms. Joanne Picard
Mount Holyoke College

Dr. Dennis G. Gordon
Santa Clara University

Ms. Valerie Eastman
Scripps College

Dr. Neil Ringler
SUNY College of Environmental
Science and Forestry

Drs. Daniel DiResta and Linda Farmer
University of Miami

Dr. Thomas Vawter
Wells College

Ms. Susan Brick
Whitman College

Alumni Report

Bruce Crawford
South Caicos,
Spring 1994
Current Position:
Environmental
Educator,
Chesapeake Bay
Foundation.
Our objective is to
teach 6th-12th
graders and adults
about the Bay's
ecology, diversity,
complex problems,
and to hopefully
inspire them to
help save the bay.
We use the outdoors
as our exclusive
classroom and
attempt to give
children critical
thinking skills
about the Bay and
its' problems.

Bonnie Baker
Kenya,
Spring 1995
Occupation: Field
Research Assistant
I just completed a
job on a collabora-
tive ecosystem
study on the
southern Chilean
Island of Chilee.
We have been
studying nutrient
cycling of a
temperate
rainforest.

Arundhati Das
Kenya,
Summer 1994
Occupation:
Volunteer Research
Assistant for the
Bombay Natural
History Museum,
Bombay, India and
Employed at an
Environmental
Impact Assessment
Firm.

Andrew Marshall
Australia, Fall
1994
Occupation:
Researcher for
National
Geographic.

Ella Vazquez
Dominquez
South Caicos.
Summer 1991
Occupation:
Employed at the
National
Commission of
Biodiversity, Baja,
Mexico

Geraldine Tierney
Hawaii,
Summer 1987
Current Position:
Environmental
Planner
Although an
undergraduate
biology major, the
first opportunity I
ever had to design
and conduct a
research problem
came during my
SFS program.
Since then, I've
spent many years
trying to bring
environmental
science into federal
government policy-
making.

Dave Gold
Baja, Spring 1990
Current Position:
Environmental
Consultant,
Tucson, AZ
Every day of my
SFS experience I
became more
confident of my own
abilities and more
willing to undertake
challenges. I am
currently working
on a team that is
developing policy
recommendations
to resolve major
water problems in
the Colorado River
Basin.

Wes Clow
Costa Rica,
Summer 1990
Occupation:
Manager of the
NY/CT Environ-
mental Spills
Division at the
Tyree Organiza-
tion, Brookfield,
CT.
My specialty is
cleaning up
hazardous waste.
Each incident is
different and you
have to decide
how to deal with it
to solve the
problem.
Problem-solving
was one of the
most important
things I learned
from SFS and I
use it everyday.



Chris Brueske
Colorado,
Summer 1988
Current Position:
Environmental
Consultant for
CH2M Hill, Denver,
CO
The work that SFS
conducts is very
directed and
hands-on; I have
found that the
specific skills I
developed at SFS
were very
marketable to
employers.
Research
experience I gained
at SFS allowed me
to obtain a series of
research and
graduate
assistantships, an
internship with a
Chicago-based
wetlands firm, and
my current job with
an environmental
consulting firm. I
still use the skills I
developed at SFS.

Sheridan Pauker
Australia,
Summer 1991
Occupation:
Congressional
Staff, employed by
Congressman
Henry Waxman to
work on climate
change and other
environmental
issues.

Kristen Drake
Palau, Spring 1995
Occupation: Peace
Corps Volunteer
I have been in
Niger since October
1996 and I was
amazed to find one
of my fellow SFS
alum among the
new group of
trainees this fall!
Two other people
from that same SFS
semester are Peace
Corps Volunteers in
Senegal.

Asher Cutter
Australia,
Spring 1996
Occupation:
Fulbright Scholar
My SFS directed
research project
alone yielded over
twenty undescribed
ant species. I am
currently at James
Cook University in
Townsville,
Queensland, where
my directed
research is an
elaboration of my
School for Field
Studies project.

Robert Fuhrmann
Kenya, Fall 1988
Occupation: Park
Ranger and
Naturalist at
Yellowstone
National Park
Working in the
park allows me to
use my back-
ground as a
naturalist. When
I'm not at the
visitor's center or
doing other
official park
ranger duties, I
am studying
wildlife. Cur-
rently, I'm
studying red fox
habitat use and
distribution in
northern
Yellowstone Park.

Carter Ong
Kenya, Spring
1995
Occupation:
Graduate Student
I am still living on
the same ranch
that SFS is on. I
am currently
conducting my
graduate work
with Leister
University,
England on the
Martial Eagle,
Africa's largest
and most
impressive eagle. I
am affiliated with
The National
Museum of Kenya
and The Peregrine
Fund.

Alexis S. Wright
South Caicos,
Spring 1993
Occupation: Fifth
and Sixth Grade
Science Teacher at
the Rye Country
Day School, Rye
NY.
My fifth grade
science
curriculum is
marine based, and
often in class I
relate stories from
my time with SFS
on South Caicos!
Thank You for a
wonderful
experience!