Building a Sustainable Learning Community

1997–1998 Academic Year Report

prepared by the staff of the Office of Sustainability Programs
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To members of the UNH Community:

The following report provides a summary of the activities undertaken by the Office of Sustainability Programs (OSP) during its first year. Our office began in the fall of 1997 with the appointments of myself as director and Julie Newman as education and training coordinator. Denise Hart joined us in the spring semester as our communications coordinator. The establishment of OSP represents another growth step and a further commitment on the part of the university to integrate sustainability concepts and practices at an institutional level.

Sustainability is a new chapter in the story of UNH that combines the strengths of tradition and the creativity of innovation. It builds on UNH’s enduring commitment to preparing leaders in all professions to face the unique challenges of their generation and responds to the unprecedented need for the next generation to balance economic viability with ecological health and human well-being. OSP’s mission is to unite the UNH community in the common purpose of ensuring that all of our graduates advance this balance in their professional and civic lives.

My position as director is unique within this or any other university. My job, and that of my staff, is challenging in its purpose and scope. A typical day can include working with faculty, staff, administrators, and students on topics from global climate change and endocrine disruptors to sustainable landscaping standards and food waste composting. In the past academic year, I was invited to give talks for many campus groups, including the Faculty Senate, Residence Hall Directors, and Freshman Camp in addition to numerous state and national organizations. Many people—from the UNH community and beyond—want to know what sustainability is and what it means for UNH.

This breadth reflects the inclusive nature of sustainability and the connecting, integrating role it plays here at UNH. Perhaps the best analogy for this task is one that was offered by a member of the search committee for my position, who spoke about the university needing a conductor (of the orchestral variety, rather than the train) to lead this initiative. Knowing something about conducting, and now, a bit more about being a director of sustainability, I would say this is a very apt analogy. Like conductors, I can only act through collaboration. Standing on a podium and waving my arms will not produce any music if there is no orchestra there; and a great performance can only result from mutual respect, common purpose and a shared vision of where we’re heading that builds on technical competence and discipline.

So I invite you to join us, to share your ideas and talents and help to create a new model of education that works not only at UNH, but also serves as a roadmap for other institutions. Together, we can create a sustainable learning community dedicated to finding its right relation to ecosystem health, human well-being, and economic viability.

Sincerely,

[Signature]

Tom Kelly, Ph.D.
Director
Office of Sustainability Programs
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INTRODUCTION

UNH is already several steps ahead of many colleges and universities in becoming a sustainable learning community. Programs from across the university have been involved with what are now considered sustainability topics for decades. The activities of dedicated faculty, staff, administrators, and students, particularly over the last several years, successfully placed sustainability in a central role for the future of our institution—an enormous accomplishment.

The sustainability initiative took a major leap forward in 1996, when UNH received a multimillion dollar gift referred to as the Sustainable Living Endowment. The stated purpose of the gift is to stimulate synergies across disciplinary lines as well as enhance the quality of life and the human relationship to the natural world through education.

The Office of Sustainability Programs (OSP) evolved from this endowment, becoming a formal part of the university structure with the appointment of Tom Kelly, Ph.D. in July, 1997 to serve as director of sustainability programs. Dr. Kelly’s arrival was predicated by a national search, facilitated by a committee made up of senior administrators, faculty, staff, and students from across the university. Discussions during the search process resulted in a consensus for institutionalizing sustainability principles and practices at every level of the university.

During OSP’s first year, the endowment that supports the initiative nearly doubled from $6 million to $10 million. This will eventually provide OSP with an annual operating budget of approximately $500,000. The OSP endowment is administered by the UNH Foundation, per university policy. As a result, funding for projects, policy, and strategic initiatives has been established.

In addition to OSP staff and operating expenses, the 1997-1998 budget provided the project investment resources described in this report.

Sustainability is understood as the balancing of three interdependent objectives: economic viability, ecological health, and human well-being. In order to ensure that every UNH student graduates with the skills to reason through the complex choices raised by sustainability, it is necessary to build a learning environment that challenges all students to reason and act from a systemic perspective. OSP envisions this learning environment as one that teaches through both example and instruction.

Four objectives guide OSP’s approach towards the goal of building a sustainable learning community:

1. Ensure inclusive participation;
2. Link core functions to the educational mission;
3. Encourage and support well-grounded programs;
4. Maintain strategic networking and outreach.

The following report provides a summary of activities related to these objectives during OSP’s first year of operation.
ACTIVITIES RELATED TO OBJECTIVES

1. ENSURE INCLUSIVE PARTICIPATION

Coordinating diverse activities and people to achieve a university-wide objective requires a strong sense of ownership, responsibility and accountability on the part of all members of the community. For the '97-'98 academic year, OSP worked to increase the involvement of senior administrators, staff, faculty and students setting—and reaching—the goals of the sustainability initiative.

Our strategy is to engage organizational and administrative units of the university in a process of discerning how sustainability principles relate to their existing activities and objectives. As a result, sustainability objectives are being explored and debated by a broad spectrum of campus units and groups.

OSP staff coordinates closely with many campus offices, departments, organizations and committees as part of this objective. Examples include:

- Faculty Senate
- Division of Student Affairs
- MUB staff and Board of Governors
- Buildings and Grounds
- Facilities Design and Construction
- Endocrine Disrupters Research Group
- Climate Change Research Center of the Institute for the Study of Earth, Oceans, and Space (EOS)
- University Committee on International Studies
- Technology, Society and Values Program
- Kingman Farm
- Woodman Horticultural Farm
- UNH Foundation
- Alumni Affairs
- UNH News Bureau
- UNH Energy Office
- UNH Dining Services
- Administrative Services Redesign
- Department of Theatre and Dance
- UNH Cooperative Extension

This approach reflects OSP’s focus on institutionalizing sustainability and is closely linked to the second objective of linking core functions to the educational mission. These activities are critical steps in the process of building a sustainable learning community.

1997-1998 PROJECTS

1A. Communications Plan

OSP is developing a comprehensive communications plan for informing the campus community and other UNH constituencies about OSP-related activities and events.

In mid-February, Denise Hart joined the staff on a part-time basis as the communications coordinator. She is assisting OSP with developing a website, publicizing OSP-related activities, developing and planning special outreach events, coordinating communications and publicity for the various collaborative groups OSP supports, and maintaining strategic links with university offices like University Relations and the UNH News Bureau.

In collaboration with the director of alumni activities, Hart coordinated OSP’s involvement with the annual Ben Thompson Day celebration in April. Together with OSP staff, she developed the theme “UNH-Then and Now” and worked with OSP staff and student interns to create a series of educational exhibits for the event.

1B. Governance Structure

In addition to regular meetings with the Dean of COLSA, to whom the OSP Director reports, broad and ongoing consultation is occurring with faculty, staff and students linked to core functions and targeted subjects.

OSP is developing a number of advisory groups as they emerge from collaborative projects. This dynamic process allows OSP to grow and change in response to the university’s growth as a sustainable institution.
Currently, five working groups are forming to advise OSP on programs and projects related to:
- Biodiversity and Climate Change
- Sustainable Building and Construction Standards
- Sustainable Landscaping Standards
- Regional Sustainable Transportation
- Sustainable Policies and Practices for Administrative Services

In addition, OSP will appoint a steering committee in September, 1998, comprised of members of the UNH community, to advise and support its mission.

Consultations are also taking place to establish an international advisory board that reflects leading-edge thinking and practice linked to the umbrella themes of climate change, biodiversity and higher education reform.

1C. Education and Training

The UNH sustainability initiative focuses on educational outcomes as the key indicator of progress. With that goal in mind, OSP hired Julie Newman in September, 1997 to serve as the education and training coordinator. Newman develops and initiates a wide-range of educational program offering opportunities to discuss and explore sustainability-related topics. She also hires and supervises the work of the student interns for the program. Key activities of the education and training component include:

- Environmental Conservation 535
  Julie Newman and OSP director Tom Kelly taught an honors section of this course during the Fall, 1997 semester and plan to repeat this activity for Fall, 1998.

The EC 535 Environmental Conservation honors section provided a forum for students to contextualize information taught in the large lecture class through small group discussions, role plays, research, presentations, experiential education exercises and a final group project. Students were challenged to link global environmental issues to local issues and the UNH campus through research including water and energy conservation in the residence halls, restoration of the College Brook, food waste composting, and investigating the elements of a sense of place at UNH.

1 OSP Interns

OSP created and funded six student intern positions for the 1997-1998 academic year. Six students were hired representing a wide variety of majors, to assist with developing education and outreach programs, researching sustainability topics and providing support for the office. The students have been the catalyst for many of the student-based programs initiated during the year.

1 Residence Hall Education Pilot Program

The Office of Sustainability Programs and the Division of Student Affairs are collaborating on the development and implementation of a residence hall education program. Approximately 5200 students live on-campus.

The goal of the program is to cultivate a sense of place in the students by exploring the ecology of UNH through educational modules, conversation, and posters placed in strategic locations throughout the residence hall. As a result, an increasing number of students understand where their water comes from, where it goes and how they can help manage our watershed sustainably by practicing smart, responsible consumption.

During the fall of 1998, the program will expand to include educational posters and bulletin boards about the sources of electricity, usage charts that connect the financial and ecological impact of energy use and demonstrate the rewards of energy conservation.

The success of the residence hall education programs will be measured in terms of behavior change. Facilities management is supplying the energy use and water consumption figures for each of the residence halls and the Memorial Union Building. With this data, OSP will determine the impact of the education outreach programs upon the residence halls and the UNH community by tracking the water and energy use.
for campus buildings.

OSP is working in collaboration with Facilities, Student Affairs, the Sustainability Building Representatives and the Memorial Union Board of Governors to accomplish this program.

- **Memorial Union Building (MUB)**
  OSP is collaborating with the Director of the MUB and the MUB Board of Governors in the design and implementation a MUB Sustainability Education and Outreach program. The goal of the program is to link key sustainability issues to MUB educational programming.

  A sustainability education bulletin board (a 5'x5' area located on the free zone board – second floor) is being updated twice a month. OSP organized dialogues around principles of sustainability, placed water conservation posters in the bathrooms, organized the MUB Garden demonstration site and is in the process of developing a MUB building profile to highlight the interactions of MUB activities with the surrounding local and regional ecosystems.

  OSP has worked to develop the MUB Garden Working Group, a collaboration of OSP, the MUB Board of Governors (BOG), Buildings and Grounds and the New England Ecological Garden. The MUB BOG is supporting sustainable landscape design on the grounds surrounding the MUB. The initial project will be the site design and placement of a native tree and in the lawn area ringed by the traffic circle in front of the MUB. The landscape design of the circular site will create a link between the MUB and the sustainable landscaping surrounding Hood House. This project will be partially funded by the Office of Sustainability Programs and the MUB BOG with plans to draw in additional sponsors.

- **Watershed 2001**
  This was a full day event during the 1997 freshman orientation in which members of class of 2001 and other students planted a sustainable meadow on the east-west slopes behind the MUB. The planting, sponsored by OSP and designed and led by associate professor of landscape architecture John Hart, advanced the New England Ecological Garden concept into a high visibility spot at the center of campus.

- **Freshman Camp-1997**
  OSP Director Tom Kelly made a presentation to participants.

1D. **Underground Railway Theater Residency, June ’98**

OSP sponsored the residency of URT director Wes Sanders, in collaboration with David Kaye, assistant professor of theatre and dance at UNH. Sanders, a creator of a new theatre form known as “eco-cabaret,” directed a dozen students in performance skills and theatre techniques for developing a show that reflects sustainability issues on campus and in this region.
2. LINK CORE FUNCTIONS TO THE EDUCATIONAL MISSION

Students learn from everything around them, including the buildings and landscaping as well as the organizational culture that embodies the values of the community. This can be conceptualized as a continuum of curriculum in which administrators, staff, students and faculty are all viewed as educators and every aspect of campus life is part of the curriculum.

From this perspective, core university functions that traditionally are viewed as providing logistical support for the academic mission become an active and intentional part of the curriculum. Everything from orientation for new students and employees to the construction, operation, and maintenance of buildings and landscapes should be consistent with the university’s educational mission. In a sustainable learning community, the balancing of economic viability with ecological health and human well-being is evident in how we define and provide for the basic needs of our community. This extends the traditional model of learning from the interaction of student, teacher and course content to also include the interaction between student and place.

1997-1998 PROJECTS

2A. Sustainable Landscaping Standards, Master Plan and Demonstration Sites

OSP is collaborating with Facilities Design and Construction, Professor John Hart of the Thompson School, members of the New England Ecological Garden Steering Committee (NEEG), the department of plant biology, the MUB, the Parents Association and others, to accomplish three immediate goals:

- Establish a set of sustainable landscaping standards;
- Design and implement demonstration sites at the core of campus; and
- Develop a Master Landscaping Plan.

The standards and plan will influence and shape all landscaping projects to achieve aesthetic and biodiversity objectives with minimal use of chemicals, water, and mowing to ensure ecological health and economic viability.

In cooperation with the new director of the Thompson School, OSP funded release time for Professor Hart for the summer of 1998 and the 1998-1999 academic year. He is working closely with OSP, the Campus Planner and other members of Facilities Design and Construction who have direct responsibilities for campus landscaping. Hart is also involved with other faculty, staff and students to infuse the educational value of the landscape throughout the UNH community.

As a result of this effort, sustainability criteria are already being integrated into planning for the Entrepreneurial Campus as well as landscaping projects around the MUB and Hood House.

2B. Enhancing the Ecosystem Health of UNH’s “Emerald Necklace”

The core campus is surrounded by a mixed landscape of forest, wetlands and farms all used for teaching, research and extension. These landholdings provide unique and irreplaceable ecological, educational and recreational resources that are critical to building a sustainable learning community. In recognition of their value, we are using landscape architect Frederick Olmstead’s image of an “emerald necklace,” which he used to describe greenways he designed for the cities of Boston and Cleveland.

OSP is building on the work of UNH Cooperative Extension, the USDA Forest Service, NH Fish and Game, the UNH Woodlands and Natural Areas Office to raise awareness of this resource. OSP is collaborating with faculty, staff and students on several projects designed to enhance the ecological health, educational and recreational use of the area by the UNH community.

- Biodiversity Education Trail

This project links the core campus, emerging entrepreneurial campus, College Brook, Leawood Orchard and Thompson Farm through biodiversity education trails that will also provide research opportunities. The two interpretive trails
will involve:

- one trail heading west from the core campus, splitting to form a loop running through College Woods, the Leawood Orchard property and along the College Brook adjacent to Channel 11;
- another trail heading south from the entrepreneurial campus along the UNH easement to the Thompson Farm.

Together the trails will link Leawood Orchard and Thompson Farm, creating the Biodiversity Education Trail. The project will assess the feasibility of a heritage fruit orchard and New England Ecological Garden nursery at Leawood Orchard and the conversion of a portion of the horse barn at Thompson Farm into a sustainably designed and constructed meeting facility. OSP is working closely with Robert Eckert, professor of natural resources, and his research colleagues on a biodiversity assessment of the trails.

The project includes wetland restoration along College Brook in the field adjacent to Channel 11. OSP is collaborating with the department of animal and nutritional sciences, campus planning, faculty, staff, students, and external organizations to develop a three-year restoration plan. The planning process is being coordinated by research associate professor Fred Short of the department of natural resources and the Jackson Estuarine Laboratory. A variety of classes will be linked to the project. The results will enhance the ecological health of College Brook, provide greater biodiversity in the buffer zone between College Woods and roadways, create an enhanced natural laboratory for student projects and promote new recreational uses.

- College Brook

In the fall, OSP convened a meeting to address the poor ecological health of the College Brook and identify appropriate actions.

The meeting resulted in a student project from NR 775 Senior Projects. They worked with OSP as a client and Cooperative Extension staff as advisors. The project reviewed existing data on the brook and gathered some additional data through sampling and interviews. Their recommendations to OSP are being incorporated into a plan for short and medium-term actions.

2C. Sustainable Building Design and Construction

OSP is coordinating a working group to assemble data, analyze trends, clarify principles and identify external partners to arrive at a proposed set of sustainable building design and construction standards for the campus. The director of Facilities Design and Construction (FD&C), Paul Chamberlin, has agreed to review building and remodeling standards in light of trends in sustainable design and construction.

Campus planter Victor Azzi and Doug Bencks, campus architect, David Clark and Brenda Whitmore of FD&C along with Jim Dombrosk, campus energy manager, are active partners in this process as is Barbara Paiton, director of housing. Guy Petty, Thompson School professor of civil technology, has identified sustainable design and construction as the focus of his work for the next few years. Other UNH and external partners will participate, including the New Hampshire chapter of the American Institute of Architects.

2D. Foodwaste Composting

OSP strengthened a collaboration between Facilities, Dining Services and the department of plant biology to research ways that UNH might recycle the approximately 8 tons of food waste produced each week in the campus dining halls. OSP is addressing two significant issues connected with large scale food waste—collection and storage.

A proposal submitted in September, 1997 to support the composting project resulted in active collaboration with the Governor's Office, Coastal Zone Management, Office of State Planning and was subsequently funded. OSP provided matching funds to send a team from UNH to visit Rutgers University's cutting edge composting
operation and research facilities to further assess alternative approaches.

The group's efforts led to a partnership with the SOMAT Corporation to explore the possible purchase of a machine that grinds and extracts water from food waste. This would enable the collection and transportation of pre- and post-consumer food waste from dining facilities to the windrow composting system developed by Professor George Estes at Kingman Farm. A trial evaluation of the technology will begin during August, 1998 for six months.

This partnership calls for student research on the economics, biology, and psychology of food waste composting, as well as an assessment of the SOMAT technology. OSP's goal is 100% composting of the food waste stream from our dining facilities.

2E. Sustainable Transportation Working Group

OSP, with the support of the President's Committee on Transportation, convened a group of faculty from the Whittemore School, Resource Economics, Civil Engineering, Natural Resources and Geography and the Campus Planner to assess the feasibility of establishing a working group on sustainable transportation. The proposed group will develop teaching, research and extension activities related to sustainable transportation within the greater seacoast region, incorporating rail (Portland, ME to Boston, MA), bicycle and other modes of transport with a focus on reducing the health risks associated with transportation safety, air quality and greenhouse gas emissions. A subset of those present had previously developed and submitted recommendations to Governor Jean Shaheen on state transportation policy.

Next steps include identifying additional internal and external working group members, working with the campus planner to review the Campus Master Plan from a sustainable transportation perspective and identifying potential undergraduate, graduate and faculty research linking community development, land use planning and transportation. The group also identified potential collaborations with the American Planning Association, regional town planners and non-governmental organizations to develop possible student internships and collaborative research and education projects.

2F. Sustainable Policies and Practices for Administrative Services

OSP works closely with the Sustainability Building Representatives, a campus group dedicated to promoting sustainable practices in various administrative units of the university. OSP provides staff support for education and outreach activities and OSP staff attend the group's monthly meetings.

OSP collaborates with the training coordinator for the Administrative Services Redesign project to include sustainability concepts and principles as part of on-going training options.

Together with the College of Life Sciences and Agriculture (COLSA), OSP supported Research Associate Professor Fred Short to engage in a collaborative teaching project with purchasing director Diane Cotter exploring sustainable purchasing policies.

2G. Socially Responsible Investing

The traditional interpretation of fiduciary responsibility assesses financial performance only in terms of total return on investment. This isolates economic viability from ecological health and human well-being, creating an unsustainable framework. Socially Responsible Investing (SRI) is built upon an extended notion of fiduciary responsibility that broadens the criteria by which financial performance is measured to include ecological and human health impacts.

The confluence of kicking off a $100 million capital campaign and UNH's emergence as a national leader in sustainability point to a strategic opportunity and imperative to address this issue in a proactive and rigorous manner. The UNH Sustainability White Paper, issued in the spring of 1997, stated that "the UNH Foundation..."
will research and review the investment performance and level of diligence in the company selection of existing "sustainable" or "green" funds. In addition, the Marine Docents, a group of volunteers working with the Sea Grant Program, raised its own endowment and resolved to invest their endowment in an environmentally responsible manner.

OSP is working with the UNH Foundation, the Environment and Energy subcommittee of the Student Senate and other members of the UNH community to assess SRI options. Fiduciary responsibility is critical and must be understood and respected. The case for SRI can and must be made financially as well as ethically and politically.

2H. UNH Conference Office

OSP is working collaboratively with the UNH Conference Office to develop sustainable standards for running conferences at the university. The initial phase to create the standards will include assessing office practices and the types of materials that are used to produce conference publications.

For the 1998 season, OSP and the Conference Office produced a joint letter inviting all conference participants to become a part of the initiative through energy and water conservation while on campus and providing suggestions for personal actions.
3. **Encourage Well-Grounded Programs**

The principles, practices and science of sustainability grow from an unprecedented international consensus on appropriate actions in the face of risks to health and well-being of the world’s diverse communities. This international consensus emerged from rigorous debate and discussion within the international scientific community as well as through international political frameworks under the auspices of the United Nations.

Parallel to this, there is a growing body of literature addressing higher education reform and the psychology of learning and development, which overlaps significantly with sustainability in areas such as citizenship, interdisciplinary problem-solving and the importance of a systemic perspective to critical thinking. Some examples of the standard reference documents include:


2. The 1990 report of the United Nations World Health Organization titled “Potential Health Effects of Climatic Change” focusing on indicators of ecological and human health resulting from interactions of climate, ecosystems and social systems;


OSP is building its programs to ensure that they are consistent with or have well-reasoned and scientifically rigorous justification for deviating from consensus documents and literature.

1997-1998 Projects

**3A. BioScience and Society Lecture/Seminar Series**

OSP is collaborating with an interdisciplinary group of faculty to coordinate a university-wide series of lectures addressing critical issues in the areas of technology and biodiversity as they relate to ecosystem health and human health. The planning group includes professors affiliated with the Technology, Society and Values (TSV) steering committee, the Endocrine Disrupters Research Group, the Center for the Humanities, and Department of Plant Biology.

Dr. Louis Guillette from the University of Florida, offered two lectures in March on endocrine disrupting chemicals found in freshwater areas in Florida. Dr. Bernard Gert, professor of philosophy from Dartmouth College, offered a public lecture and seminar in April on biomedical ethics. OSP contributed to funding the speakers’ visits, provided media relations and publicity coordination, and invested in the video and audio taping of the series in order to maximize the educational impact through a tape library. Additional speakers, web page links and possible research and teaching activities linked to the broader subject of biodiversity are being planned as the series extends into the 1998-1999 academic year.

**3B. Global Change and Society**

OSP is developing a close collaboration with the Climate Change Research Center (CCRC) of the Institute of Earth, Oceans, and Space to link its scientific and educational activities to the campus through a climate understanding project. The collaboration links climate understanding to where people live and work on the UNH campus in the context of institutional and community policies and practices. The project strengthens the basis for citizens to address climate change issues through informed political participation and action at the personal and institutional levels.

The first step in this collaboration engaged more than 80 students studying Global Environmental Change (ES/EOS 405) in a pilot role play of negotiations for implementing the Kyoto Greenhouse Gas Reduction Agreement at UNH. In addition to OSP staff and Research Professor Cameron Wake, the simulation included representatives from UNH Energy Office, Public Service of New Hampshire, the Union of Concerned Scientists, UNH Facilities and the Office of the Vice President for Finance and Administration.
3C. Trickle Irrigation Project

The goal of this project is to demonstrate enhanced sustainability with the use of trickle irrigation. OSP is supporting the UNH Horticulture Farm with funding for this model system. By integrating trickle into the infrastructure of the research farm, commercial growers will have an opportunity to observe the basic components of the system and learn how it may be applied to their farms. UNH students and their parents will have opportunities to learn about trickle irrigation as a means of resource conservation with environmental enhancement. Community visitors, legislators, Cooperative Extension field staff, school groups, and others will be made aware of the practical aspects of this method of irrigation.

The foundation of this project is sustainability. As environmental issues become even more critical, the use of trickle will make a contribution in several ways:

- Provide approximately a 50% reduction in water usage;
- Provide a similar or greater reduction in energy inputs to pump the water;
- Reduce the incidence of foliar diseases;
- Improve placement of water and fertilizers to nourish plant growth;
- Reduce use of fertilizer;
- Reduce incidence of weeds, leading to less use of herbicides and less labor to control weed growth;
- By reducing water between rows, contribute to a better working environment in the fields.

3D. America, America Symposium

In collaboration with the Department of Theatre and Dance, OSP participated in this symposium exploring relations between the Americas through funding the campus visit of Dr. Guillermo Rodriguez, coordinator of conservation strategy for the nonprofit Fundación Pro-Sierra Nevada of Colombia. The nonprofit group is dedicated to protecting the world’s largest coastal mountain, the Sierra Nevada de Santa Marta in Colombia.

Rodriguez gave a lecture and video presentation during the symposium, spoke with students, and met with faculty at the Institute for the Study of Earth, Oceans, and Space to discuss his project. OSP is currently facilitating a plan to establish a research collaboration between UNH and the Fundación to assist with using remote sensing capabilities to document efforts to protect plant and animal biodiversity on the mountain.

3E. Mapping Our “Ecological Footprint” – A Guest Lecture with William Rees

Together with the department of natural resources, OSP invested in sponsoring a guest lecture given by William E. Rees, professor in the School of Community and Regional Planning at the University of British Columbia and noted urban planner. Rees is a proponent of a method of ecosystem evaluation known as the “ecological footprint,” which seeks to provide area-based indicators of sustainability and reduce human impact on ecosystems. The lecture, attended by approximately 50 people, was held in the Alumni Center and made available to the university and greater seacoast communities.

3F. Systems Thinking: Teaching/Learning Modules

During the 1997-1998 academic year, OSP developed a partnership with the Institute for Policy and Social Science Research (IPSSR) to develop 2-3 day workshops that train educators to integrate team building techniques and systems thinking into the standard curriculum. A systemic perspective is fundamental to sustainability because it enables students to understand and anticipate the indirect as well as direct effects of human actions.

The OSP education and training coordinator assisted in the creation of the training packets and adapting the 2-3 day training sessions to our case-based methodology.
4. MAINTAIN STRATEGIC NETWORKING AND OUTREACH

In its first year of activities, OSP has focused on internal networking to strengthen the foundation upon which the long-term sustainability program will be built. Nevertheless, active dialogue has been facilitated through a variety of external mechanisms. This will be an area of significant growth over the next three to five years.

1997-1998 Projects

4A. University Leaders for a Sustainable Future (ULSF)
ULSF is an international network of Universities that are signatories to the Talloires Declaration. ULSF’s secretariat is based at the Center for Respect of Life and the Environment (CRLE) in Washington, DC. Because of ULSF’s interest in the resources developed by the sustainability initiative at UNH, it agreed to fund a portion of the Education and Training position at OSP. This institutionalized collaboration will result in a variety of activities over the coming years linked to CRLE’s activities including its Religion and Ecology program, Sustainable Agriculture project and the Citizen’s Network for Sustainable Development.

4B. Center for Health and the Global Environment
OSP is continuing its close working relationship with Dr. Paul Epstein of the Center for Health and the Global Environment at Harvard Medical School. The Center is engaged in research and policy development linked to health impacts of global climate change, loss of biodiversity, stratospheric ozone depletion and UV-B radiation.

4C. Balaton Group
OSP is collaborating with Dr. Dennis Meadows of the Institute for Social Policy and Research at UNH to link with the work of the Balaton Group, which researches indicators of sustainability and scenarios for sustainability. The Balaton Group is an international, interdisciplinary network connecting more than 200 teachers, researchers and consultants dedicated to achieving more sustainable and equitable societies in their own nations.

4D. Fundación Pro Sierra Nevada
The work of the Fundación Pro-Sierra de Santa Marta is recognized by the international community as a model of participatory planning for conservation strategy in support of sustainable development. Located on the Caribbean coast of Colombia, the Sierra Nevada de Santa Marta area constitutes one of the most ecologically and politically complex regions of the world in which a comprehensive sustainable development plan has been formulated and institutionalized.

OSP is working with Dr. Guillermo Rodriguez, coordinator of conservation strategy for the Fundación, to develop an education and training partnership between UNH and the Fundación. The partnership will result in education and training activities that will support institutional development of regional universities in the Sierra Nevada and curriculum and research activities on the UNH campus.

4E. Department of Environmental Services
The Office of Sustainability Programs has developed a working relationship with the NH Department of Environmental Services (DES). The initial project will integrate DES education programs that focus upon Pollution Prevention, Water Use, Waste Disposal and Office Practice into OSP’s education and training programs in the residence halls and the MUB.
CONCLUSION

The University of New Hampshire is poised to take a quantum leap in its growing sustainability initiative, with impacts that will be realized across the university and far beyond. OSP plans to continue collaborating with members of the UNH community to build a culture of sustainability that empowers and emboldens through demonstration and example.

Our approach is rooted in a participatory process aimed at infusing sustainability into core functions through integration across institutional, sectoral and intellectual boundaries. OSP is working to assure that projects linked to sustainability at UNH are grounded in current practices and consistent with internationally accepted principles of sustainability. OSP seeks to maintain and encourage a free and open flow of innovative thinking and practices related to the campus sustainability initiative that encourages participation from all sectors of the university.
EXECUTIVE SUMMARY

The UNH Office of Sustainability Programs (OSP) is dedicated to advancing the efforts of faculty, staff, administrators, and students to place sustainability principles and practices at the center of the community’s activities.

Many programs from across the university have been involved with what are now considered sustainability topics for decades. The sustainability initiative took a major leap forward in 1996, when the university received a multimillion dollar gift. The purpose of the gift is to stimulate synergies across disciplinary lines as well as enhance the quality of life and the human relationship to the natural world through education.

OSP grew from this endowment, and director Tom Kelly, Ph.D. was appointed in July, 1997. Discussions during the search process built a consensus for institutionalizing sustainability at every level of the university. Julie Newman was brought on board in September to coordinate education and training programs, and Denise Hart joined the staff in February, 1998 to coordinate communications.

During OSP’s first year, the endowment supporting the initiative nearly doubled from $6 million to $10 million. The OSP endowment is administered by the UNH Foundation, per university policy. As a result of UNH Foundation valuation and pay-out policies, OSP’s 1997-1998 budget was approximately $200,000. In the future, it is anticipated that the endowment will provide an annual operating budget of about $500,000.

OSP defines sustainability as the balancing of economic viability with ecological health and human well-being. In order to address the complex choices raised by sustainability, it is necessary to build a learning environment that challenges all students to reason and act from a systemic perspective.

Four objectives guide OSP’s approach toward this goal:
1. Ensure inclusive participation;
2. Link core functions to the educational mission;
3. Encourage and support well-grounded programs;
4. Maintain strategic networking and outreach.

Objective #1 – Ensure Inclusive Participation
OSP seeks to engage organizational and administrative units of the university in a process of discerning how sustainability principles relate to their existing activities and objectives. OSP encourages a broad spectrum of debate in order to imbue all members of the community with a shared sense of ownership, responsibility, and accountability. This approach reflects OSP’s focus on institutionalizing sustainability.

A communications plan is being developed to facilitate sharing information with the community and provide opportunities for community input. One example of this was OSP’s participation in Ben Thompson Day with a number of educational exhibits.

OSP is developing a governance structure for its activities that reflects the consultations occurring with faculty, staff, and students. A number of advisory groups are emerging from collaborative projects. OSP seeks a dynamic governance process that allows it to respond to the university’s growth as a sustainable institution.

Five working groups are currently forming:
• Biodiversity and Climate Change;
• Sustainable Building and Construction Standards;
• Sustainable Landscaping Standards;
• Regional Sustainable Transportation;

A steering committee will form in September, 1998 to advise and support OSP’s mission. Discussions are also underway to establish an international advisory board.

Since the sustainability initiative serves an academic institution, it must focus on educational outcomes as key indicators of progress. One of OSP’s first activities was to work in coordination with Student Affairs and Academic Orientation to organize a “Sustainability 2001” initiative for the incoming freshman class of 1997. Key components included a presentation at Freshman Camp, the planting of a sustainable meadow, and a special honors section of EC335 (Environmental Conservation 535) taught by Kelly and Newman. OSP
continues to collaborate with the Division of Student Affairs on the development and implementation of a residence hall education program, for the approximately 5200 students living on campus. The goal of the program is to cultivate a sense of place in the students by increasing watershed and energy awareness.

OSP worked closely with the MUB Board of Governors and MUB director in the design and implementation of a MUB Sustainability Education and Outreach program that links key sustainability issues to MUB educational programming. OSP organized dialogues around the principles of sustainability and created a sustainability education bulletin board that is updated twice a month.

OSP sponsored the residency of the Underground Railway Theater in June to provide students an opportunity to participate in the development of a new form of theater known as the "eco-cabaret."

OSP used its resources to create six paid student intern positions for the academic year. The students represent a variety of majors, in keeping with the interdisciplinary focus, and support office research, education and outreach activities.

Objective #2 – Link Core Functions to the Educational Mission

OSP promotes the establishment of a sustainable learning community where everyone is an educator and everything is curriculum. This involves not just the traditional classroom experience of learning, but also the learning that grows from the interaction between student and place—and how we define and provide for the basic needs of our community. A continuum of curriculum—where everything from the landscaping and buildings to the organizational culture and formal classes—provides opportunities for discussing and learning the values of the institution.

In an effort to ensure ecological health and increase economic viability, OSP is collaborating with the department of plant biology, Facilities Design and Construction, the Thompson School, the New England Ecological Garden Steering Committee, the MUB, Parents Association and other groups to accomplish three goals:

- Establish a set of sustainable landscaping standards;
- Develop a Master Landscaping Plan;
- Design and implement demonstration sites at the core campus.

The standards and master landscaping plan will achieve aesthetic and biodiversity objectives with a minimal use of chemicals, water and mowing.

OSP funded release time for Thompson School Professor John Hart to coordinate the development of landscaping standards and infuse the educational value of the area landscape throughout the UNH community.

As a result of this effort, sustainable landscaping criteria are being used for landscaping projects around the MUB and Hood House, and being integrated into the planning for the Entrepreneurial Campus. Additional collaborations include a trail system known as the "Biodiversity Education Trail" project and the restoration of College Brook. OSP is working closely with Robert Eckert, professor of natural resources, and his colleagues to develop a biodiversity assessment of the trails.

A working group to develop a set of sustainable building design and construction standards is being pioneered by OSP and includes the Campus Planner, Facilities Design and Construction, the Thompson School, and the American Institute of Architects-NH chapter.

OSP is actively involved with investigating ways of recycling and composting the approximately 8 tons of food waste produced each week on campus. Collection and storage are two major issues being addressed, attracting additional funding from the Governor's Office, Coastal Zone Management, and the Office of State Planning. The project called for student research on the economics, biology and psychology of food waste composting, and an assessment of available technology. OSP's goal of 100% composting of the food waste stream at UNH will assist the formation of a "closed-loop" agricultural system, reduce the watershed burden of discharging the present levels of food waste and provide an institutional model for other facilities throughout the state.
Sustainable transportation is a subject critical to the seacoast region in terms of reducing the health risks associated with air quality, greenhouse gas emissions, and transportation safety. Working with the support of the President’s Committee on Transportation, OSP convened a group of faculty to assess the feasibility of establishing a campus working group to explore possible teaching, research and extension activities on the topic.

During the academic year, OSP worked closely with the Sustainability Building Representatives, a campus group promoting sustainable office practices throughout administrative units of UNH. An OSP staff member attends the monthly meetings and OSP has invested in staff support for education and outreach activities of the group. One of OSP’s goals is to strengthen and enhance the functioning of existing campus groups addressing sustainability issues.

OSP assisted the training coordinator for the Administrative Services Redesign with infusing sustainability principles and concepts into ongoing training options. The office also provided support to Professor Fred Short for a collaborative teaching project about sustainable purchasing.

If economic viability is isolated from ecological health and human well-being, an unsustainable framework is created. Fiduciary responsibility from a sustainable perspective seeks to establish the financial management of assets in a manner that balances all three components of the sustainability triangle. OSP is working with the UNH Foundation and other members of the UNH community to assess institutional options for engaging in socially responsible investing (SRI). SRI extends financial performance criteria beyond simple gain to also include an evaluation of the ecological and human health impacts our investments produce.

The UNH Conference Office and OSP have worked together to develop sustainable standards for running conferences at the university. The initial phase is an assessment of office practices and the types of materials that are used to produce conference publications.

Objective #3 – Encourage Well-Grounded Programs

The principles, practices and science of sustainability grow from the United Nations 1992 Earth Summit that developed international consensus about appropriate actions in the face of deteriorating ecosystems world-wide and the subsequent risks to the health and well-being of the world’s diverse communities. OSP is committed to building and supporting programs that are consistent with or have well-reasoned and scientifically rigorous justification for deviating from these consensus and standard reference documents.

With this as a framework, OSP is collaborating with an interdisciplinary group of faculty to coordinate a university-wide series of lectures addressing critical issues where bioscience and technology converge to impact the environment and human health. The planning group for the “BioScience and Society” series includes professors affiliated with the Technology, Society and Values (TSV) steering committee, the Endocrine Disrupters Research Group, the Center for the Humanities, and the Department of Plant Biology. Guest lecturers presented on endocrine disrupting chemicals found in freshwater areas of Florida and biomedical ethics. The series will extend into the 1998-1999 academic year.

OSP is working closely with the Climate Change Research Center (CCRC) of the Institute for the Study of Earth, Oceans, and Space to link its scientific and educational activities to the campus through a climate understanding project. A first step in this effort engaged more than 80 students studying Global Environmental Change (ES/EOS 405), and a number of university and state offices, in a pilot role play of negotiations for implementing the Kyoto Greenhouse Gas Reduction Agreement at UNH. The exercise was used as an educational tool for researching and debating the issues involved with climate change.

OSP invested in the UNH Horticulture Farm’s model trickle irrigation project. By integrating this irrigation method into the infrastructure of the farm, commercial growers will have the opportu-
nity to observe the basic components of the systems and learn how it may be applied to their farms. Trickle irrigation cuts water use by approximately 50%.

OSP sponsors visiting lecturers, residencies, etc. in order to further its academic mission. A visit by Bill Rees, noted urban planner and proponent of a method of ecosystem evaluation known as the “ecological footprint” was sponsored together with the department of natural resources. Dr. Guillermo Rodriguez was sponsored by OSP to visit UNH as part of the “America, America” symposium. Dr. Rodriguez coordinates conservation strategy for efforts to protect the world’s largest coastal mountain, located in Colombia.

Through a partnership developed with the Institute for Policy and Social Science Research, OSP is working to integrate team-building techniques and systems thinking into the standard curriculum. A systemic perspective is essential to sustainability because it enables students to understand and anticipate the indirect as well as direct results of human actions.

Objective #4 – Maintain Strategic Networking and Outreach

OSP focused primarily on developing internal networks during its first year of activities. Active dialogue with a number of external organizations is occurring and projected to grow during the next three to five years.

University Leaders for a Sustainable Future (ULSF), an international network of universities committed to sustainability practices and principles, has entered into a formal collaboration with OSP. ULSF agreed to fund a portion of the education and training position at OSP in support of the sustainability educational resources being developed at UNH.

OSP maintains a close working relationship with Harvard Medical School’s Center for Health and the Global Environment under the direction of Dr. Paul Epstein. The Center is involved in research and policy development linked to health impacts of global climate change, loss of biodiversity, stratospheric ozone depletion and UV-B radiation.

OSP is collaborating with Dr. Dennis Meadows of the Institute for Social Policy and Research at UNH in several ways. One of these is a link with the Balaton Group, an international collaboration of researchers and activists concerned with global environmental depletion and indicators of sustainability.

Dr. Guillermo Rodriguez of the Fundación Pro-Sierra de Santa Marta in Colombia, is working closely with OSP to develop an education and training partnership with UNH. The Fundación is recognized internationally as a model of participatory conservation strategy planning in support of sustainable development. The partnership will support institutional development of regional universities in the Sierra Nevada region and research activities at UNH.

A working relationship with the NH Department of Environmental Services (DES) was established by OSP, with a focus on pollution prevention, water use, waste disposal, and office practices educational programs.

Conclusion

The work of OSP is rooted in a participatory process aimed at infusing sustainability into core functions through integration across institutional, sectoral and intellectual boundaries. The office works to ensure that projects linked to sustainability at UNH are grounded in current practices and consistent with internationally accepted principles of sustainability.

OSP will continue collaborating with members of the UNH community to build a culture of sustainability that empowers and emboldens through demonstration and example.
Office of Sustainability Programs: 
Investing Resources 
To Build a Sustainable Learning Community

- educational infrastructure
- professional development
- faculty release time
- visiting scholars/practitioners
- conferences
- student interns/projects
- demonstration sites/exhibits
- dining hall, residence hall/MUB staff projects

Curriculum Continuum

Building a Sustainable Learning Community
Office of Sustainability Programs
1997-1998 Academic Year Report
Building a sustainable community: Q&A with Tom Kelly

Q: What is sustainability?
A: Sustainability is the balancing of economic viability, ecological health, and human well-being. It requires that we reason from a systemic perspective. For example, recycling is not sustainable if we are not also purchasing recycled-content goods to strengthen the market for recycled materials; and even that is not sustainable if we are consuming and recycling excessive amounts of resources.

With this perspective in mind, many activities that we now think of as sustainable have been happening at UNH for years. For example, COLSA has been researching and promoting Integrated Pest Management, which reduces the amount of agricultural chemicals used. It's more efficient, less polluting and healthier. So, we could say that from a systemic perspective, sustainability is a smart, responsible way of conducting our affairs.

Q: How do you know when sustainability is achieved?
A: Sustainability at UNH is about education — building a learning environment that challenges all students to think and act systematically. It's sort of like being in shape — something you're constantly working at. We advocate that every student leave UNH with the skills to reason through the complex questions raised by balancing economic viability with ecological health and human well-being. We will develop a series of educational outcomes to serve as indicators for how we're doing our job. The key indicator of progress will be discernible knowledge, awareness and skills by UNH graduates across all disciplines.

Q: What does the Office of Sustainability Programs (OSP) do?
A: OSP approaches the campus as a single continuum of curriculum, where everything is curriculum and everyone is an educator. Our office collaborates with faculty, administrators, staff, and students to identify and support projects that help advance program objectives.

Key areas we're working on include global change and society, biodiversity and society, transportation and sustainable landscapes, and among others. We learn what people are doing, facilitate links with other related campus projects, and often invest in their work to make it happen in a way that increases its educational impact and scope.

One example on the operations side is food waste composting. Each week, the dining halls at UNH produce 10 tons of food waste. We're collaborating with faculty from plant sciences, Dining Services, and Facilities to refine and institutionalize an existing plan to establish food composting on campus.

Our contribution has included identifying the latest food grinding technology to reduce the volume of waste and forming an agreement with the company to have UNH serve as a demonstration project. Finally, along with COLSA, Dining Services and several external funders, we have earmarked some of our program resources to build a storage shed to help manage the waste.

For more specific examples of what we do, check our website at www.sustainability.unh.edu.

Q: What happened to sustainability grants?
A: The initial grant program predates this office, and we are compiling reports on those projects. OSP is interested in supporting projects consistent with our objectives and priorities.

We are in the process of developing goals and funding priorities for a grant program. Once these are established, we would send out requests for proposals. We are planning to have a grant policy in place by January, 1999.

This is but one of a variety of ways to support campus sustainability objectives. Others include buying out faculty time for specific projects, sponsoring faculty and staff professional development, and investing in the campus infrastructure.

Q: Who are the staff members for OSP?
A: I came to UNH last July from Tufts University where I was directing an international network of universities, the Association of University Leaders For A Sustainable Future (ULSF), promoting sustainable development issues linked to research and education.

Julie Newman joined OSP in September, 1997, as the education and training coordinator. Her position is jointly funded by ULSF and UNH.

Julie's work has focused on developing and implementing educational opportunities that support the sustainability initiative. People that she is collaborating with include the Sustainability Building Reps and Student Affairs staff.

Denise Hart came to OSP in February to serve as our part-time communications coordinator. She supports OSP-affiliated projects with special events, planning, publicity and media relations.

Submitted by the Office of Sustainability Programs
On-Campus News

Summer, 1998

Conserving Water, Building Community

by: Jen Villeneuve, Office of Sustainability Programs Intern

What do water, Scott Hall and education have in common? Talk to some 1997-1998 Scott Hall residents and you will discover that there is a lot to be learned about such an essential resource. Last spring, three interns from the Office of Sustainability Programs (OSP) and a handful of Scott Hall residents took action to promote water conservation. Their efforts included a bulletin board, a water fact sheet for the famous “potty libraries,” posters and a program that was held on April 21, 1998 in the main lounge. Together, the students built a community through creating awareness and taking action!

The bulletin board built with participation from Scott Hall residents was displayed during the semester and included facts about water, suggestions for conserving and a basic illustration and definition of a watershed. One of the most interesting facts stated was that only 3% of the Earth’s water is fresh. Other facts focused on the uses of water in food production, product manufacturing and human consumption.

“I had no clue what a watershed was; never mind an understanding of how pollutants enter into it and what that had to do with me,” said one student working on the project. “I sense that there are a lot of other students who also have no idea.”

A watershed is the land that water flows across or under on its way to stream, river or lake. After receiving the results from a survey conducted by OSP in Scott and Sawyer Hall, the students discovered that more than half of the residents surveyed had no idea what the UNH water source is. UNH lies within the Oyster River watershed and primarily uses the Oyster River for its water needs. The Lamprey River is used sometimes in a drought. The April 21st presentation, lead by five first year students, featured an in depth description and hands-on discussion of a watershed.

“Conserving water was something that my parents always taught me, and it was reinforced by my own ecological awareness. When you get into the habit of doing something, it doesn’t always enter your conscience thought. It’s been an experience for me to take a step back and try to articulate something that has become so natural for me,” said OSP intern Mindy Monroe.

How does one educate to move from knowledge to action? This is perhaps the biggest challenge when building a sustainable campus. Through a collaborative effort with Residential Life, Energy Facilities, Dining Services, and others, OSP plans to tackle this problem head on.

The water conservation program is just one facet of OSP’s broader initiative. In 1997, UNH formalized its commitment to sustainability and formed the Office of Sustainability Programs. This past year the office employed six student interns. Their majors ranged from Engineering and Forestry to Art and Journalism. OSP is committed to educating the UNH community. The office’s programs are grounded in the belief that everything is curriculum and everyone is an educator.

OSP will be launching a variety of activities you can be a part of in the fall. Plans are underway for a mountain bike tour of the Oyster River watershed, which will begin to orient students to a sense of place at UNH. The Residence Hall program will continue with Christensen Hall and others. For more information, contact Education and Training Coordinator Julie Newman at (603) 862-0172 or Student Interns, Jen Villeneuve at (603) 862-2959. Get involved!

Building a Sustainable Learning Community
Office of Sustainability Programs
1997-1998 Academic Year Report
College of Life Sciences & Agriculture Insight

Summer 1998

Sustainability

Where Science Meets Life

New bioscience lecture series tackles critical questions

Lou Guillelle insists he's a biologist, not a sociologist. Yet, when the professor of zoology from the University of Florida was approached by the state to help them keep the alligator a "renewable resource," he was intrigued. What does it take for alligators to reproduce in Florida, the alligator population was not on an even keel—in some areas they were dying out, while in others their population was steady.

He wondered what was making a difference.

For Bernard Gert, professor of philosophy at Dartmouth College, the job of a philosopher is to make knowledge explicit by exploring the implications and the inconsistencies decisions and actions provoke. "We all know what's moral and what's not," he points out, noting a 99.97% agreement on most moral matters.

Our human ability to discern morality may enter a period of flux when science forges ahead and presents new choices. Is cloning (making exact genetic replicas of living creatures) morally acceptable? How about when cloning is paired with genes that are manipulated and changed through genetic engineering, thereby creating a new, genetically altered life? Gert, the philosopher, found himself wrestling with such biomedical problems when he was asked to serve as the first ethicist for the Human Genome Project, a $3 billion federally funded venture to map the human genome by the year 2005.

Troubling ethical and environmental questions often accompany the cutting-edge research in the area where biology, science, and the latter's impact on living organisms converge. Questions like these are being tackled by the speakers who visit UNH as part of a new lecture/seminar series, BioScience and Society: Issues in Biotechnology, Environment, Health, and Sustainability. Guillelle and Gert, the first two speakers in the planned, 18 month series, gave the UNH community a window on the complexities of bioscience.

"Sustainability at UNH is about students understanding the broader ecological and social context in which science and technology operate," says Tom Kelly, OSP director. "We want to assure that all students are equipped to ask, analyze, and reason through the complex questions raised by bioscience—both by investigating research issues and by being alert for unplanned bioscience events like agricultural-chemical runoffs that cause multiple order effects."

"The NSF is funding the video and audio taping of the series in order to maximize the educational outreach. The tapes may be borrowed through OSP by calling (603) 862-4207.

—Denise Hart

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