

January 2002

To: Gary Machlis, CESU Council Coordinator  
From: Dorothy H. Anderson , H.T. Morse Distinguished Professor  
Subject: Response: reviewer comments on Great Lakes-Northern Forest CESU proposal

The attached addendum is intended to add clarification to some of the material included in the initial proposal to establish a CESU for the Great Lakes-Northern Forest (GRLA) biogeographic area.

**ADDENDUM TO**  
**PROPOSAL TO ESTABLISH A COOPERATIVE ECOSYSTEM STUDIES UNIT**  
**FOR THE GREAT LAKES—NORTHERN FOREST BIOGEOGRAPHIC AREA**

With

**UNIVERSITY OF MINNESOTA**

As Host University

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### **I.A. Selection of Partners:**

The Great Lakes / Northern Forest (GRLA) CESU includes all or parts of 13 states (Minnesota, Wisconsin, Michigan, Illinois, Indiana, Ohio, West Virginia, Pennsylvania, New York, Massachusetts, Vermont, New Hampshire, and Maine). The host university is located on the western end of the GRLA CESU. Partner universities and non-university partners are scattered throughout the area and beyond the area's boundaries. The host university selected its initial university partners based on:

- geography—their proximity to the major resources (water and forests) of interest to the proposed GRLA CESU. At least one partner university is located in a state that borders one or more of the Great Lakes. In addition, the host and many of the partner universities are located in states with significant forested lands. The Eastern Region of the U.S. Forest Service includes all of the states in the proposed GRLA CESU. All of the states within the geographic boundary of the proposed GRLA CESU, except Massachusetts, contain at least one national forest. And,
- reputation—outstanding research, teaching, and outreach programs relevant to the major resources (water and forests) and the issues (e.g. population growth and more culturally diverse human population, urban sprawl, second home development, air quality, water quality, change in biodiversity in periurban areas, and growth in tourism and outdoor recreation) related to the use of those resources in the area encompassed by the proposed GRLA CESU.

In our opinion, the location of the host university (University of Minnesota) at the western edge of the proposed GRLA CESU is not a limiting factor. The benefits of the host's location are laid out in the original proposal. In addition, we add that the host university is only one player in the proposed CESU. We believe that if the GRLA CESU is to be successful, it's important that outstanding researchers at excellent facilities are located throughout the proposed CESU area. The universities, minority institutions, and non-university partners noted in the initial proposal are dispersed throughout the GRLA CESU area (in some cases outside the proposed area) and all of them are engaged in one or more areas of research relevant to the proposed CESU.

### **I.B. Partner Roles and Responsibilities:**

We anticipate that all university, minority university, and non-university partners will work cooperatively. The proposed host and all of the other partners listed in the initial proposal have extensive histories of working with federal, state, and local government agencies, other universities, and non-government organizations to address biological, social, and cultural resource issues facing the Great Lakes-Northern Forests area. In addition, many if not all of the partners listed have worked or it is in their mission to work across national boundaries. The Great Lakes border Canada. As such policies and implementation of policies on affecting the proposed area of the GRLA CESU has an impact on Canadian communities and the quality of their economic, social, and ecological environments.

#### **I.B.1. University and Minority University Partners:**

The proposed host (UMN), and many of the university and minority university partners included in the initial proposal have researchers and research capabilities to address a wide range of biophysical, social, and cultural resource concerns relevant to the GRLA CESU. For example, in addition to the host (UMN), the materials we received from Michigan State University, the University of Wisconsin, the University of Vermont, the University of Massachusetts, West Virginia University and Southern University all expressed their willingness and their institution's capabilities to address ecosystem concerns ranging from biological and physical aspects of forests and water to social and cultural

impacts individuals, communities, and lifestyles have on those resources. A number of different departments—including departments of ecology, forestry, water resources, fisheries and wildlife, recreation resource management, natural resource based tourism, plant biology, anthropology, geography, sociology, and landscape architecture—from these universities expressed interest in being a part of the proposed GRLA CESU. In addition, these universities boast significant resources in Centers established at their respective universities that address issues of concern to a GRLA CESU.

Other institutions such as Indiana University and Minnesota State University at Mankato specifically address their abilities to focus on social issues related to aging accessibility, and recreation. Institutions such as Michigan Technological University, SUNY, the University of Iowa, and the University of Toledo focused the materials they sent us on biological and physical aspects of understanding water and forestry dynamics. All of these universities also listed selected research Centers within their institutions that focus their energies on issues relevant to the proposed CESU.

Finally, institutions such as Fond du Lac Tribal and Community College, Haskell Indian Nations University, and Southern University and A&M College focused on the unique contribution they make to the GRLA CESU as educational centers capable of attracting a critical mass of American Indian and African-American students to biological, physical, social, and cultural areas of study related to natural resources and the environment. In addition, these institutions are in a key position to encourage their students to pursue graduate degrees in the biophysical and social sciences related to natural resources and to collaborate with scientists in other universities as well as with planners, managers, and administrators in government and non-government agencies.

#### ***I.B.2. Non-university Partners:***

The partner organizations serve a variety of roles that will facilitate the success of the GRLA CESU. For example, the American Indian Science and Engineering Society (AISES) is a national organization that provides opportunities for American Indians to pursue science-based careers with institutions, corporations, and government entities. This organization is key to the host, its partner institutions, and the agencies that support the CESU in their efforts to: a) create a more diverse student body and professional work force, b) develop a more complete understanding of the impacts resource management actions have not only on ecosystems but also on the beliefs and values of cultural groups living in (and apart of) ecosystems.

Other partners such as the Great Lakes Commission (GLC) and the International Association of Great lakes Research (IAGLR) serve as clearinghouses and/or maintain databases of research related to Great Lakes issues. The GLC also offers scholarships/fellowships for professionals working on issues of interest to the GRLA CESU. We see opportunities for our partners and ourselves to take advantage of the scholarships and fellowships offered by GLC. IAGLR holds an annual conference on current research in the Great Lakes. They also publish a quarterly journal—the Journal of Great Lakes Research—which could be an important tool in disseminating research results on Great Lakes topics. GRLA CESU partners may be able to attend the annual conference and present their work on research relevant to the Great Lakes. They may also be able to use the conference as a means of formally meeting with one another. IAGLR may also be interested in devoting an issue of their Journal to work being conducted by GRLA CESU partners.

The Great Lakes Forest Alliance (GLFA) works with both the public and private sectors on policy issues of interest to the proposed GRLA CESU. They also work to improve and diversify the Great Lakes regional economy so that it is sustainable economically, socially and culturally, and ecologically. Their interest in forestry issues across the region and in working with forestry professionals in universities and agencies can play a key role in helping to inform GRLA CESU partners on forestry issues and impacts in the area.

Of the 13 states included in the proposed GRLA CESU, most do not have much public land managed at the state level. States such as Minnesota, Wisconsin, and Michigan, though, have a great deal of public land managed by the state. In Minnesota the agency responsible for management of state public lands is the Minnesota Department of Natural Resources (MnDNR). They are a key partner organization for a number of reasons. They have a long history of: a) conducting in-house research on natural resource issues, 2) collaborating with UMN and universities on natural resource issues (both water and forests) relevant to the GRLA CESU, 3) providing research funding to UMN and other institutions working on natural resource issues, 4) working and cooperating with federal agencies in Minnesota (US Forest Service, USFWS, NPS) to manage state lands and resources that are adjacent to or within the boundaries of federal lands, and 5) developing models of cooperation between universities, state and federal agencies, tribal groups, and non-government organizations with natural resource responsibilities. We see their expertise in planning and management issues related to biophysical, social, and cultural issues affecting the Great Lakes as an important piece in attempting to apply research findings to on-the-ground realities.

The Minnesota Forest Resources Council (MFRC) provides a coordinating model of how federal, state, non-government organizations, and universities can cooperate to address natural resource issues relevant to GRLA CESU. MFRC is also an action model of 'how to get things done'. That is, they have been proactive in Minnesota in developing jointly acceptable guidelines for management of Minnesota's forest resource, undertaking research and diverting research dollars to cooperators at the federal, state, and university levels in Minnesota. MFRC's model of coordinating efforts among various groups (government, university, and non-government organizations) will be useful to GRLA CESU as it sets up its operating structure and its experience in working with a variety of partners.

The National Council for Air and Stream Improvement (NCASI) and The Nature Conservancy of Minnesota (TNC) are or are part of national organizations that work with government agencies, universities, and other private stakeholders to develop policies and support research aimed at improving the quality and sustainability of natural resources. TNC also works with various entities to acquire lands critical to conserving natural resources. Their links to groups in the Great Lakes region and across the country will enhance the GRLA CESU's ability to link partners with similar interests in the Great Lakes area.

Finally, the Science Museum of Minnesota (SMM) has a long history of working with university, government and non-government entities to support and conduct research on biological, social, and cultural issues relevant to the proposed CESU. They also provide high quality educational opportunities for students and professionals. SMM has worked with a number of the partners, including UMN, to develop professional training programs on a variety of natural resource related topics. SMM is an excellent resource when it comes to disseminating large amounts of technical data in language the public can understand. SMM is a nationally known leader in developing displays and educational materials that are attractive to and used by the public.

### **I.C. Collaboration and Coordination Among Partners:**

All of the partners listed in the initial GRLA CESU proposal currently collaborate with one or more of the other partners on research projects, development and teaching of professional courses, or planning and managing natural resources. We fully expect that those collaborations will continue and will expand as people within the partner institutions and agencies get to know one another and their capabilities better. All of the partners are familiar with and regularly use tools such as email and the World Wide Web to quickly connect with colleagues. One of the first things the host will do to facilitate collaboration and coordination among the partners is to set up a website for the GRLA CESU. The design of the website will be determined by the partners. We anticipate that the website

will become a primary tool for keeping all partners and other interested parties informed of the work we're doing and the collective expertise we have to address GRLA natural resource issues. The host will also arrange for annual meetings of all GRLA CESU partners as stated in the guidelines for hosting a CESU. Agenda items for the first annual meeting will include development and agreement upon a structure to coordinate efforts related to the GRLA CESU among all partners and discussion of the proposed website. We also anticipate that an annual report will be available on the website or as a pdf file for all partners and interested others. Other methods of communication such as special sessions at national, international conferences (e.g. George Wright Society, Society of American Foresters, International Symposium on Society and Resource Management, IAGLR's conference) will be taken advantage of whenever possible.

#### **II.A.1. Acceptance of 15% Overhead by All GRLA CESU Partners:**

The host university (UMN) has confirmed from all of its university, minority university, and non-university partners that their institutions will accept the 15% overhead rate on all direct costs without exception. Partner letters that did not include this language initially have been revised to include this language and are either on file or in the process of being sent. All letters should be on file by February 1, 2002.

#### **II.A.2. Organization of University of Minnesota and its Campuses:**

The University of Minnesota includes the main campus located in the Twin Cities of Minneapolis-St. Paul and three coordinate campuses located in Duluth, Morris, and Crookston. The main and coordinate campuses are not separate universities. They are one university comprised of several campuses. The main and coordinate campuses are centrally administered under one University President—Mark Yudof. The President's office is located on the main campus. The initial letter requesting that UMN be considered as the host university for the GRLA CESU automatically confirms participation of any and all of the University of Minnesota's campuses. It is anticipated that the Twin Cities and Duluth campuses will be most heavily involved in research, teaching, and outreach related to the GRLA CESU.

#### **III. Interest in Cultural Sciences:**

The host and several of the partners listed in the initial proposal have expertise in research aimed at cultural resources and their use or nonuse. For example, UMN's Department of Anthropology is well known for its work in ecological anthropology and cultural anthropology. In addition, UMN listed several Centers and Institutes—Cooperative Park Studies Program, Institute for Social Economic, and Ecological Sustainability, Center for Urban and Regional Affairs, Design Center for American Urban Landscape, and the Conflict and Change Center—in the initial proposal that have as part of their focus the study of cultures and the impacts of development and/or resource uses on cultural beliefs and values. Among the partner universities, Michigan Technological University mentioned the willingness of its Industrial History and Archaeology program and the research it supports into "historical relationships of societies and landscapes". The University of Vermont's Historic Preservation Program, housed in their Anthropology and Art Departments, the Community Development and Applied Economics Department, and the University's Environmental Studies Program also expressed interest in working on cultural issues. Fond du Lac Tribal and Community College promotes the "language, culture and history of the Anishinaabeg". They also have programs that focus on cultural diversity. They are interested in working with others in the GRLA CESU on cultural issues especially those relevant to American Indian groups in the area. Currently Fond du Lac has a program, Woodland Wisdom, with UMN that brings food science and nutrition education to communities in culturally relevant ways. The University of Massachusetts (UMASS) will also strengthen the GRLA CESU's ability to address cultural issues. The UMASS History Department has worked collaboratively other history departments in universities located in the GRLA CESU area and with state historical societies throughout the area. West Virginia University's

Division of Forestry recently added a new cultural resource management degree program track. Faculty and graduate students in that program will also add to the proposed CESU's ability to address cultural issues.

Several of the non-university partners—AISES, SMM, MnDNR—also have expressed an interest in supporting research, teaching and outreach efforts that involve issues related to cultural values and beliefs relevant to natural resource management.

#### **IV. Minority Institution and Student Engagement:**

Many of the partner universities, including the host, have ongoing arrangements with several minority institutions across the country. For example, UMN has a program whereby urban forestry students at Southern University spend some time on UMN's campus studying urban forestry and participating in urban forestry internships. This program was initially facilitated by US Forest Service North Central Research Station's urban forestry program in Chicago. UMN currently has one graduate student enrolled who did his undergraduate work at an historically black college. UMN has programs with Fond du Lac Tribal College and White Earth Community College that have resulted in increases in American Indian enrollments in natural resources and agricultural programs. UMN has also worked with faculty at Haskell Indian Nations University to recruit students to graduate programs at UMN. Over time, at the graduate level, UMN has enrolled and graduated several African-American and American Indian students. Other university partners in the GRLA CESU have similar arrangements. We anticipate those arrangements would continue and be strengthened.

UMN is not unlike many of its partners. It has had limited but slowly increasing success at attracting and retaining students of color to both its undergraduate and graduate programs. Despite the number of linkages we have with minority institutions, support from agencies and others has been inconsistent. We are looking to the agencies and some of our non-university partners to help increase enrollments of students of color in the natural resources fields. The GRLA CESU will also work to increase exchanges between faculty at minority and non-minority institutions. Some of the non-university partners list scholarships and fellowships they currently give to professionals working in research areas related to the proposed CESU. These organizations might be able to facilitate exchanges. In addition, many of the federal partners—NPS, FS—have programs that bring faculty into their organizations for short and long-term research opportunities. We anticipate that a goal of the GRLA CESU's, which will be specified in its strategic plan, will address ways to facilitate existing linkages and ways to create new possibilities for minority universities' faculty and students to have greater involvement in natural resource issues relevant to the proposed GRLA CESU.

#### **V. Participation and Contribution of Non-university Partners:**

See I.B.2. above.

## **AMENDED LETTERS OF COMMITMENT**

- Southern University and A&M College
- Minnesota Department of Natural Resources
- Minnesota Forest Resources Council
- The Nature Conservancy of Minnesota
- University of Vermont
- Haskell Indian Nations University\*
- Indiana University\*

\* Letter not yet received

## **ADDITIONAL PARTNERS LETTERS OF COMMITMENT**

- University of Massachusetts—Amherst
- Great Lakes Commission\*

\*Letter not yet received

### **ADDITIONAL PARTNERS TO PROPOSED GRLA CESU:**

The University of Minnesota wishes to include at this time the University of Massachusetts-Amherst, and the Great Lakes Commission as new partners to the GRLA CESU. Information about these partners follows.

#### **University of Massachusetts-Amherst**

##### **Contact person from UMass-Amherst with primary CESU administrative responsibilities:**

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##### **Role and Mission Statements of Academic Departments participating in the CESU:**

###### **Natural Resources Conservation (NRC)**

*Mission:* The Department of Natural Resources Conservation will promote the stewardship of healthy and sustainable ecosystems that provide diverse human and community benefits. Our teaching, research, and public service will fulfill this mission by emphasizing conservation and integrated natural resources management. By virtue of this mission and our breadth of expertise, the department is uniquely qualified to provide an integrated environmental education, research results to professionals, and vital service to society in response to environmental problems and issues.

*Role:* To further our mission we have identified three areas of emphasis for the department that can contribute to the CESU: Human Interactions with Resource Conservation, Ecosystem Science and Management, and Plant and Animal Ecology and Conservation. We bring interdisciplinary groups of students, faculty, and resource professionals into classes, research projects and continuing education functions to address contemporary resource management issues.

NRC hosts a number of cooperative agreements between the Department and State and Federal agencies. For example, three Federal agencies are located on campus and interact with the Department, enhancing opportunities for graduate student education and management-related research:

the Massachusetts Cooperative Fish and Wildlife Research Unit [MaCFWRU] which is jointly sponsored by the National Biological Service, the University of Massachusetts, the Massachusetts Division of Marine Fisheries, Massachusetts Division of Fisheries and Wildlife, and the Wildlife Management Institute;

the Cooperative Marine Education and Research Program [CMER] which is a joint venture between the National Oceanographic and Atmospheric Administration's National Marine Fisheries Service and the University of Massachusetts;

the USDA Forest Service, which sponsors a laboratory of the Northeastern Forest Experiment Station as well as The Northeast Center for Urban and Community Forestry, and the Watershed Exchange and Technology Center.

###### **History**

*Mission:* The department offers undergraduate and graduate students the opportunity to study with nationally recognized scholars in programs leading to the B.A., M.A. (including public history concentration), and Ph.D. degrees. It also regularly holds colloquia and lectures and conducts in-service training for K-12 teachers through its History Institute.

*Role:* The History Department, in particular the department's Public History Program, which has both museum studies and historical preservation components, can play a role in the CESU with regard to Cultural History.

###### **Anthropology**

*Mission:* Anthropology is the study of people. Such a grand mission implies that we encroach on the territory of many other disciplines, but what is distinct about anthropology is our emphasis on holism, comparison, and compassion. Holism involves treating humankind from multiple perspectives: biological, historical, cultural, and political. Comparison means that our claims about humankind are based on a method of comparison of

different populations in different geographic and temporal settings. There are four subdivisions of anthropology that reflect our mission: archaeology, cultural or social anthropology, linguistic anthropology, and biological anthropology.

*Role:* The Anthropology Department is primarily involved through its Archaeological Services and through research into sustainability of cultures. For example, the Yucatan project is an example of a relatively recent endeavor where two faculty members and some graduate students have been studying the cultural and physiological effects of tourist development in the fragile ecosystem of Mexico's Yucatan Peninsula. Our European program on the other hand has been successfully sending faculty, graduate and undergraduate students to conduct field work from the Azores and Ireland to Transylvania and Slovakia and many points in-between. Closer to home, the Summer Field School in Archaeology examines material culture and provides a strong practical, methodological, and theoretical foundation for New England's past.

University of Massachusetts Archaeological Services, Forensic Anthropology Services, cooperative projects with nearby Historic Deerfield and other regional museums and educational institutions. University of Massachusetts Archaeological Services (UMAS) provides archaeological outreach to public and private organizations on a contract basis. While not formally part of the department's graduate program, UMAS employs many of our graduate students in contract research throughout the year. Many of our current students in archaeology have worked with UMAS, gaining valuable practical experience which they have incorporated in their training programs.

Our graduate program for 85 graduate students offers both the MA and the PhD degrees in programs that are individually tailored to each student's career objectives. The MA degree builds a strong but broad foundation in anthropology culminating in a master's paper or thesis. The PhD program requires an intensive development of research and scholarly competence culminating in original research represented in the PhD dissertation.

### **Landscape Architecture and Regional Planning**

*Mission:* Landscape Architecture and Regional Planning (LARP) focuses teaching, research and outreach in five areas of emphasis.

Application of Information Technology in Planning and Design  
Cultural Landscape Design and Management  
Ecological Landscape Planning and Design  
Planning for Growth and Economic Development in Regions  
Urban Planning and Design

*Role:* LARP hosts three Centers: Center for Economic Development, Center for Rural Massachusetts, and the Urban Places Project.

The Department continues to be extremely active and accomplished in the area of service/outreach. LARP is involved in leadership capacities with professional associations, journal boards, and accreditation and peer review panels. Perhaps our most significant achievements in this area are our professional outreach efforts. In this past year alone, we have provided outreach to over 40 communities and public agencies. Also of particular note is the receipt of the CFNR, UMass Amherst, and President's Office Award of Excellence in Outreach to the Department's Center for Economic Development, directed by John Mullin. Our latest addition in outreach is the Citizen Planner Training Collaborative led by Gisela Walker. This year 559 local officials from 186 communities participated in land use and planning related training programs with the CPTC.

### **Art**

The Art Department, particularly the Architectural Studies program is forming an Architecture program in collaboration with faculty from Engineering, Natural Resources Conservation, and LARP. The Design program is a fully accredited FIDER program (Foundation for Inter Design Education Research) leading to the qualification for the national licensing exam (NCIDQ). Two options are provided within the Design Area: the concentration in Interior Design, for the student who plans to enter into the profession after graduation and the concentration in Architectural Studies, for the student who plans to prepare for entry into a graduate program in architecture.

**The Role of UMass-Amherst in the GRLA CESU.** UMass Department of Natural Resources Conservation can bring research expertise, graduate training, and continuing education opportunities to the Great Lakes-Northern Forest CESU in four primary areas:

*Ecosystem Science and Management.* The focus of this area is to understand the complexity, organization, and dynamic processes that define ecosystems, including social systems, and develop multidisciplinary approaches for managing ecosystems to maintain ecological integrity and human benefits. Sustainable management of forests, freshwater, and estuarine ecosystems, all of which are interconnected at the regional scale, is critical to sustaining human and ecological health and well being. We are capable of providing information to CESU agencies through the Resource Mapping group that has provided aerial photo interpretation and GIS data for a variety of projects as well as the USDA Forest Service Watershed Exchange and Technology Center and the Northeast Wildlife Habitat Research Unit of the US Forest Service. Faculty from the Department of NRC, Landscape Architecture and Regional Planning, Resource Economics, Plant and Soil Science, Geosciences, and Civil and Environmental Engineering contribute to this area.

*Cultural Values and Historic Preservation.* Several departments at UMass can bring expertise to issues of identification, protection, and restoration of cultural and historic sites. In the northeastern U.S. and Great Lakes Region, which has a long history of both indigenous cultures as well as recent cultures from Europe, many management issues include and often focus on cultural values. Departments with expertise and experience in this area include History, Art, LARP, and NRC.

*Human Interactions with Resource Conservation.* The focus of this area is to develop and understand human and natural resources relationships from a systems perspective including social, political, economic, and biophysical components. Economic, biological and physical demands imposed by urban development and associated sprawl require system-based solutions forged by interdisciplinary cooperation. The USDA Forest Service Urban and Community Forestry Center and the Woody Plant Diagnostic Lab contribute additional research, outreach and teaching in this area. Departments contributing to this area include: NRC, Landscape Architecture and Regional Planning, Entomology, Microbiology, Plant and Soil Sciences, Art, History, Civil and Environmental Engineering, Geosciences, and Resource Economics. Coordinated information that can assist urban planners to meet human needs while maintaining environmental quality can have long-term impacts on the economy and environmental health of the Great Lakes and Northern Forests Ecosystems.

*Plant and Animal Ecology and Conservation.* The focus of this area of emphasis is to understand the patterns and processes within and among human, plant and animal populations in order to achieve conservation and management objectives. The understanding of patterns and processes within and among plant and animal populations is critical to making wise management decisions. We have a long history of expertise in plant and animal biology. In addition to state-funded faculty, we also host the Massachusetts Cooperative Fish and Wildlife Research Unit with three faculty lines supported by the USGS Biological Resources Division. Faculty from the departments of NRC, Entomology, Biology, and Plant and Soil Science contribute to this area.

**Degrees offered.** The *Department of Natural Resources Conservation* offers undergraduate degrees in Wildlife and Fisheries Conservation, Natural Resource Studies, Forestry, and Building Materials and Wood Technology, and a two-year degree in Arboriculture and Park Management. The department offers graduate degrees in Wildlife and Fisheries Conservation, and Forestry and Wood Technology. Current enrollment is approximately 300 undergraduates and 120 graduate students. The Department offers both M.S. and Ph.D. programs in Wildlife and Fisheries Conservation and in Forestry and Wood Technology. Doctoral degrees are awarded for research, but Master's degrees may have either a research or professional emphasis. Thus, our two Graduate Programs provide a variety of training options for students looking toward a career in conservation and management. There currently are 85 graduate students in Wildlife and Fisheries Conservation and 30 in Forestry and Wood Technology.

The *History* Department offers an MA with concentration in Public History and specialization in Museum Studies and Historic Preservation.

*Landscape Architecture and Regional Planning* offers a Masters in Regional Planning and Masters in Landscape Architecture.

*Anthropology* offers an MA with concentration in Historical Archeology. Art Department has applied for accreditation to offer an Masters in Architecture (M. Arch) degree (an accreditation team will be visiting the campus next month). There are about 85 graduate students in the Anthropology department at this time.

**Facilities and Equipment** that could contribute to CESU research:

Holdsworth Natural Resources Center with more than 32,000 sq. ft. of teaching, research, and office space; and also classrooms and labs in Herter Hall (History), Machmer Hall (Anthro), Hills-North (LARP), and the Fine Arts Center (Architecture).

Four University Forests totaling over 2000 acres;  
Urban Forestry Woody Plant Diagnostic Laboratory;  
GIS teaching and research facilities in three buildings;  
Graduate and undergraduate microcomputer laboratory.

Wood Science testing facilities

Watershed information Exchange Center

Laboratory facilities to support research in forest ecology, silviculture, human dimensions of natural resource management, watershed management, fire management, private forest land management, fisheries science, landscape ecology, and wildlife biology.

An Archeological Laboratory in the basement of Machmer Hall

**History of Applied Research:** The Department of NRC has a long history of applied research to meet agency needs, coupled with technology transfer and continuing education for resource professionals. The department receives over \$2.5 million in grants and contracts each year to conduct research. Most of these contracts are with state and federal agencies to address current information needs by resource managers. For example, the department was home to the southern New England Gap project, currently runs over a million dollars worth of grant activity in the area of landscape ecology and watershed management using GIS technologies, and has active grants with the U.S. Forest Service, USGS, NOAA, and EPA.

LARP works closely with National Park Service and other state and federal agencies on design projects, and the Archeological Services currently has a cooperative agreement with the National Park Service.

**Evidence of Cooperative Agreements with Federal Agencies:** A number of cooperative agreements exist between the Department of NRC and Federal agencies. Centers from three Federal agencies are located on campus and interact with the Department, enhancing opportunities for graduate student education and management- related research:

The Massachusetts Cooperative Fish and Wildlife Research Unit [MaCFWRU] which is jointly sponsored by the USGS BRD, the University of Massachusetts, the Massachusetts Division of Marine Fisheries, Massachusetts Division of Fisheries and Wildlife, and the Wildlife Management Institute;

The Cooperative Marine Education and Research Program [CMER] which is a joint venture between the National Oceanographic and Atmospheric Administration's National Marine Fisheries Service and the University of Massachusetts;

The USDA Forest Service, which sponsors a laboratory of the Northeastern Forest Experiment Station which specializes in fish and wildlife habitat relationships

The Northeast Center for Urban and Community Forestry sponsored by the U.S. Forest Service

The Watershed Exchange and Technology Center sponsored by the US Forest Service

The History Department most recently had a cooperative agreement with the National Park Service in FY 1996 under the "Cultural Resources Training Initiative" for a conference/workshop on "Interpreting the Homes of Artists and Writers" held May 13, 1996.

The NRC Department benefits by interaction with adjunct faculty and other professionals employed by the National Marine Fisheries Service NE Fisheries Science Center in Woods Hole, Mass., the USGS BRD's Conte Anadromous Fish Research Center in Turner's Falls, Mass., the Regional Office of the USDI Fish and Wildlife Service in Hadley, Mass., Mass Division of Fisheries and Wildlife, and Mass Department of Environmental Management, among others.

**Services to be provided to Federal Agency partners.** The CESU coordinator for the UMass campus will work with Department Heads of collaborating departments to request from the UMass Graduate School adjunct faculty status to qualified federal scientists to facilitate collaborative research and technology transfer opportunities and graduate training. We will work with agency managers and staff to identify continuing education and technology transfer offerings that would benefit agency personnel. Research conducted on our University forests would be encouraged where research is collaborative with our departmental faculty and consistent with the mission of the forests.

Department of History can provide

- 1) research reports, including (but not limited to) Historic Furnishings Report, Historic Landscape Report, Interpretive Plans, Administrative Histories, Historic Landmark Theme Studies;
- 2) training workshops for staff and public; and
- 3) student interns at both the grad and undergraduate level. These same categories (with some differences in the specific products) would apply for Historic Archeology, LARP, and other social science/humanities departments.

**Other commitments.** We already maintain cooperative agreements with the US Forest Service and USGS BRD and will continue honor those agreements.

**Faculty and Staff and Areas of Expertise** (Faculty in italics are adjunct faculty and bolded italics are federal employees)

<b>Name</b>	<b>UMASS Department</b>	<b>Expertise</b>
<b>Jack Ahern</b>	Landsc. Arch. Reg. Plan.	Landscape ecology
Paul K. Barten	Nat. Resour. Conserv.	Forestry, hydrology, watershed management
Annaliese Bischoff	Landsc. Arch. Reg. Plan.	Landscape design, history
<b>David V. Bloniarz</b>	Nat. Resour. Conserv.	Urban forestry, landscape planning, urban design
<b>John G. Boreman</b>	Nat. Resour. Conserv.	Fishery science, biology, and management
<b>Robert T. Brooks</b>	Nat. Resour. Conserv.	Wildlife habitat assessment, pond-breeding amphibians
William Burt	Nat. Resour. Conserv.	Marine Aquaculture, coastal resource protection
Dean Cardasis	Landsc. Arch. Reg. Plan.	Contemporary landscape design
Ethan Carr	Landsc. Arch. Reg. Plan.	Cultural landscape management, preservation
Robert D. Childs	Nat. Resour. Conserv.	Urban forestry diagnostic laboratory, entomology
Peggy L. Clouston	Nat. Resour. Conserv.	Wood Mechanics & Engineered Wood Products
David T. Damery	Nat. Resour. Conserv.	Building materials and forest products marketing
Michael Davidson	Landsc. Arch. Reg. Plan.	Salt marsh mitigation
<i>Linda Deegan</i>	Nat. Resour. Conserv.	Marine ecosystem ecology
<b>Richard M. DeGraaf</b>	Nat. Resour. Conserv.	Forest wildlife habitat relationships
<b>Stephen DeStefano</b>	Nat. Resour. Conserv.	Population ecology and habitat relationships
Nicholas T. Dines	Landsc. Arch. Reg. Plan.	Landscape design and construction, computer applications for design
<i>Jan Dizard</i>	Nat. Resour. Conserv.	Human Dimensions of Wildlife
John T. Finn	Nat. Resour. Conserv.	Ecosystems modeling, geographic information systems, digital remote sensing
Paul R. Fisette	Nat. Resour. Conserv.	Wood-frame construction, energy conservation, building materials performance
<i>David Foster</i>	Nat. Resour. Conserv.	Forest Ecology
James H. Fownes	Nat. Resour. Conserv.	Forest ecology and conservation
<b>Kevin D. Friedland</b>	Nat. Resour. Conserv.	Marine Ecology
Todd K. Fuller	Nat. Resour. Conserv.	Forest mammals, population ecology, international wildlife
Daniel H. Gillman	Nat. Resour. Conserv.	Urban forestry diagnostic laboratory, plant pathology
David W. Goodwin	Nat. Resour. Conserv.	GIS, natural resources and land use mapping
David Glassberg	History	Environmental history
Curtice R. Griffin	Nat. Resour. Conserv.	Wetland wildlife ecology and management, biodiversity conservation

<b>Name</b>	<b>UMASS Department</b>	<b>Expertise</b>
Meier Gross	Landsc. Arch. Reg. Plan.	Spatial Analysis, regional economic development
<b>Alexander J. Haro</b>	Nat. Resour. Conserv.	Anadromous Fish Biology
Robin A. Harrington	Nat. Resour. Conserv.	Forest ecology and conservation
R. Bruce Hoadley	Nat. Resour. Conserv.	Wood identification and wood properties
Thomas F. Houston	Nat. Resour. Conserv.	Arboriculture and arboriculture business management
Scott D. Jackson	Nat. Resour. Conserv.	Wetlands, reptiles and amphibians, biodiversity issues
Francis Juanes	Nat. Resour. Conserv.	Fisheries ecology and behavior
Matthew J. Kelty	Nat. Resour. Conserv.	Silviculture and forest ecology
Ray Kinoshita	Art	Architectural Design
David B. Kittredge, Jr.	Nat. Resour. Conserv.	Silviculture, forest management, timber harvesting, outreach to Natural Resource Professionals
<i>Donald E. Kroodsm</i>	Nat. Resour. Conserv.	Avian vocalization
<b>Boyd E. Kynard</b>	Nat. Resour. Conserv.	Anadromous fish biology
Joseph S. Larson	Nat. Resour. Conserv.	Functional assessment of freshwater wetlands, wetland policy-local, state, national, and international
<b>Ben H. Letcher</b>	Nat. Resour. Conserv.	Fish Population Ecology
Mark S. Lindhult	Landsc. Arch. Reg. Plan.	Landscape design, site planning, computer applications
David K. Loomis	Nat. Resour. Conserv.	Human dimensions of resource management, outdoor recreation
Marilyn Lopes	Nat. Resour. Conserv.	Water Resource Protection, Household Hazardous Waste
Henry T. Lu	Landsc. Arch. Reg. Plan.	Urban design, landscape construction
William P. MacConnell	Nat. Resour. Conserv.	Resource mapping, GIS, forest management
E. Bruce MacDougall	Landsc. Arch. Reg. Plan.	Applications of computers in planning and design
John Martin	Landsc. Arch. Reg. Plan.	Water resource planning, historic preservation
<b>Martha E. Mather</b>	Nat. Resour. Conserv.	Aquatic ecology, fisheries biology
William C. McComb	Nat. Resour. Conserv.	Forest wildlife habitat management at stand and landscape scales
<b>Stephen D. McCormick</b>	Nat. Resour. Conserv.	Fish physiology and aquaculture
Kevin McGarigal	Nat. Resour. Conserv.	Landscape ecology, ecosystem management, wildlife ecology
<b>Patricia L. McGirr</b>	Landsc. Arch. Reg. Plan.	Landscape design and construction
<i>Scott M. Melvin</i>	Nat. Resour. Conserv.	Endangered species
<i>Marla Miller</i>	History	Early America, public history, women's history
<i>Emily Monosson</i>	Nat. Resour. Conserv.	Environmental Toxicologist
Mitch Mulholland	Anthropology	Archaeological Services
John Mullin	Landsc. Arch. Reg. Plan.	Economic development
Robert M. Muth	Nat. Resour. Conserv.	Human dimensions of natural resources, natural resource policy, social conflict of natural resources
Craig Nicolson	Nat. Resour. Conserv.	Simulation and managing natural resources using computer models
Jessica Neuwirth	Historic Deerfield	Historical archaeology
<b>Keith H. Nislow</b>	Nat. Resour. Conserv.	Fisheries Biologist
Kristen K. Norwood	Nat. Resour. Conserv.	GIS/Spatial Analysis
<b>Mufeed Odeh</b>	Nat. Resour. Conserv.	Environmental Hydraulics
<b>John Organ</b>	Nat. Resour. Conserv.	Carnivore Ecology; Furbearer Management; Conservation
<b>Ellen J. Pader</b>	Landsc. Arch. Reg. Plan.	City and regional planning
Max Page	History and Art	Modern U.S., urban, architectural, public history
<i>Piotr Parasiwicz</i>	Nat. Resour. Conserv.	Instream Habitat Modeling
William A. Patterson, III	Nat. Resour. Conserv.	Fire management, forest ecology, paleoecology
Donna G. Petersen	Nat. Resour. Conserv.	GIS/Spatial Analysis
Timothy O. Randhir	Nat. Resour. Conserv.	Watershed management, water quality
Michael R. Ross	Nat. Resour. Conserv.	Marine and freshwater fisheries
<b>Rodney A. Rountree</b>	Nat. Resour. Conserv.	Ichthyology and marine biology
Robert Ryan	Landsc. Arch. Reg. Plan.	Open space planning
H. Dennis P. Ryan, III	Nat. Resour. Conserv.	Arboriculture, urban forestry
Laurie Sanders	Nat. Resour. Conserv.	Watershed Outreach, Field Botany, Rare Species Inventory

<b>Name</b>	<b>UMASS Department</b>	<b>Expertise</b>
Paul Sievert	Nat. Resour. Conserv.	Wildlife Conservation
Eileen Sonnenberg	Nat. Resour. Conserv.	K12 Environmental Education
Dana M. Slaymaker	Nat. Resour. Conserv.	Remote Sensing Technologies for Landscape Scale Natural Resources Inventories
<b><i>Gretchen C. Smith</i></b>	Nat. Resour. Conserv.	Forest health, ozone biomonitoring
Stephen Smulski	Nat. Resour. Conserv.	Engineered wood composites and wood products
Oriol Pi-Sunyer	Anthropology	Cultural anthropology
R. Brooke Thomas	Anthropology	Biological anthropology/environmental anthropology
<i>Peter D. Vickery</i>	Nat. Resour. Conserv.	Avian ecology
Joseph S. R. Volpe	Landscape Arch. Reg. Plan.	Landscape design and construction
William Wilcox	Nat. Resour. Conserv.	Water Coastal Resource Protection

### **Information about The Great Lakes Commission**

**The Great Lakes Commission** (Mike Donahue, President, 400 Fourth St., Ann Arbor, MI 48103-4816, 734-665-9135, fax: 734-665-4370, mdonahue@glc.org) addresses a range of issues involving environmental protection, resource management, and economic development. Since its establishment 45 years ago, the Great Lakes Commission has been a pioneer in applying principles of sustainability to the development, use and conservation of the natural resources of the Great Lakes basin and St. Lawrence River. The Commission recognizes and promotes the complementarity of environmental protection and economic goals and has built its reputation on an integrated and objective approach to public policy issues and opportunities. All Commission activities are directed at realizing its vision of a strong and growing economy, a healthy environment, and a high quality of life for all citizens.

Three principal functions support this vision: Information sharing among the membership and the entire Great Lakes-St. Lawrence community; Policy research, development and coordination on issues of regional interest; and, Advocacy of those positions on which members agree.

The Commission addresses a range of issues involving environmental protection, resource management, transportation and economic development. A committee and task force structure is the primary vehicle for identifying and addressing issues and recommending the adoption of policy positions by the membership. Observer organizations -- including U.S. and Canadian federal, regional and tribal governments -- participate extensively in Commission activities. The Great Lakes Commission is the only state/provincial organization of its kind in the world. Founded in both state and U.S. federal law and benefiting from a unique partnership with Ontario and Québec, it is ideally suited to promote a consistent and coordinated interagency and integrated approach to issues associated with the greatest system of freshwater on the face of the earth.