



Minnesota Plant Press

The Minnesota Native Plant Society
Newsletter

Volume 15, Number 2

Winter 1996

Upcoming Monthly Meetings

Minnesota Valley National Wildlife Refuge
Visitor Center, 3815 East 80th Street
Bloomington, MN 55425-1600 612-335-2323

6:00 PM—Board Meeting, Room B
6:30-7 PM—Socializing, Room A
7-8 PM—Regular Meeting, Auditorium
8-9 PM—Refreshments, Room A
9 PM—Doors close sharply at 9 PM

- January 4**—Kathy Boleen, *Exotic and problem plants in Minnesota state parks and natural areas*; POM: Soren Sorenson—*Ludwigia polycarpa* (false loosestrife)
February 1—John Tester, *Ten Thousand Years and Fifty Miles*; POM: Hanna Dunneviz—*Lesquerella ludoviciana* (bladder pod)
March 7—Susan Galatowitsch, *Wetland Restoration: Sedges have edges but edges don't have sedges*; Annual Meeting.
April 4—David Augustine, *Effect of Deer Browse in the Big Woods*;
POM: Bill Capman, *Silphium*
May 2—Plant Sale and Slide Show
POM=Plant of the Month
Deadline for Spring Issue is March 15, 1996.

•To pool rides to the **Minnesota Valley National Wildlife Refuge**, please call—well in advance—Grace Gray who will coordinate pooling

•For **Winter Weather Emergency**, contact Diane Hilscher, to find out if the Center is open or not

Restoration of the Prairie

by Shirley Shirley

As we think of the value of the prairie, it is enough reason for many of us to save the native plants for historic and esthetic reasons. However, when we are confronted with the question of why is the prairie of value, there are many more reasons. The Native Americans and pioneers used many native plants for food and medicine, and we need to preserve the plants for added research. One available in capsule form is *Echinacea purpurea*, purple coneflower, used to aid the immune system. Regarding the environmental issue, prairie plants lessen the need for chemicals, watering and mowing. They provide for cleaner air and water and they build soil. Wildlife and insects are dependent on prairies for cover, food, and mating habitats. Along the roadsides and on farm terraces and waterways, there are many benefits. In these areas, native grasses are more beneficial than many of the alien species present.

Importance. Research has been done to show the benefits of growing switch grass, Indian grass, and big bluestem for cattle grazing. Stephan Barnhart has his findings in pamphlet Pm-569, updated October 1994, available from Iowa State University, Extension, Ames, Iowa 50010. Laura Jackson from the University of Northern Iowa is studying the use of Illinois bundle-flower, a legume, for its use in rotational grazing. David Zahrt has

(continued on page 4, column 1, Restoration...)

Remember that the Minnesota Valley National Wildlife Refuge is only available to us on **Thursday** evenings, so all meetings in the 1995-1996 year will be held on the **first Thursday of the month**.

Editorial

Extinction by hybridization?

Human activities can result in extinction of native plant species; however, plants can also become extinct by hybridization reports Loren H. Rieseberg of Indiana University. If a population of plants grows near to plants of the same genus of rare plants, and frequent cross pollination occurs between species, some species may become extinct. At least 19% of rare plant species in California are capable of hybridization. If the hybrids are less fit than the parent plants, the rare plant may become extinct. On the other hand, if the hybrids are more fit than the parent rare species, the rare plants could disappear by genetic assimilation.

Can such a situation be prevented? Transplanting rare species means change of habitat and possibly loss by inability to adapt to the new location. Disease may be present in the new location that could destroy the population. Competition with other plants or with weeds can be hazardous to survival of the transplanted species. With increasing disturbance of the habitat, the chance that closely related species may become contiguous with rare species may also increase.

Although this is the process of evolution and is effective in survival of the genus or species, certain genes may be lost or are not apparent.

This adds another dimension to diversity and survivability in nature. Does establishing or restoring native habitats increase accessibility of the rare plants to hybridization with closely related species? Is this a cause for concern? It emphasizes again the need to know species, their variability, and their ecology. Some species seem to hybridize more readily than others, and this is more likely at the centers of origin of a species. Here diversity is the greatest and the gene pool probably the greatest also to make possible production of new variants that are better able to survive changes in the environment.

Some discussion of these views, as well as some examples, are described in *BioScience* (45:744-745, 1995).

Board Briefs

- Don Knutson volunteered to aid the security person for the National Wildlife Refuge Visitor Center during the MNPS meetings.

- Appreciation was expressed to Becky Shirber for her efforts in promoting the orientation manual and the GAP Committee.

- Treasurer Ruth Phipps reported \$900 in new memberships in October.

- Fact sheets about native plants are being considered for distribution by the MNPS.

- Attendance was 117 for October 5, 76 for the November 2, and 73 for December 3 meetings.

- Only about one-third of the 354 members attend meetings. Increase in 50 members a year may not be noticeable because of a comparable drop in membership.

- A Speakers Bureau is under consideration. Other groups are being studied for ideas.

- Setting up a budget received high priority. Should dues be increased?

- The Operations Manual is being prepared. Some items have not yet been submitted.

- If attendance exceeds capacity of the Visitors Center, a new location will be needed. Any suggestions for another site?

- Appreciation was expressed to John and Jackie Buffalow for taking care of refreshments each meeting.

- Don Knutson agreed to be the Symposium Coordinator for 1996.

- The Board agreed to solicit activity by the membership to monitor two gardens at the Refuge Center. Char will write an article for the MPP.

The Minnesota Native Plant Society

Minnesota Plant Press
Thor Kommedahl, editor

Membership dues are \$10 per year for regular members and includes subscription to the newsletter; dues for students and seniors are \$8, for family \$12, for institutions \$20, and donors \$25. Checks can be made out to: Minnesota Native Plant Society, and sent to: Minnesota Native Plant Society, 220 Biological Sciences Center, 1445 Gortner Avenue, St. Paul, MN 55108.

Four issues are published each year.

MNPS Board of Directors

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MNPS to Adopt Refuge Educational Gardens: Opportunity for Hands-On Involvement

Char A. Bezanson

The Minnesota Valley National Wildlife Refuge has invited the Native Plant Society to participate with them in a native plant education project involving the adoption of several native plant gardens on the Refuge grounds. The Refuge is putting together a comprehensive land use plan for their grounds, which will include design plans, seasonal work and maintenance plans, species lists, and goals for each of twenty-one Landscape Units on the Visitor Center grounds. Since the Refuge is a National Wildlife Refuge and is visited by many people each year, the educational potential for each of these areas is high.

Some of these Landscape Units will be adopted by organizations with particular interest or expertise in native plants, native plant gardening, or landscaping for wildlife. The Native Plant Society has been asked to adopt the Classroom Garden, a shady woodland garden directly outside of the classroom where we have our after-meeting social gathering, and the Prairie Plant ID Garden, which is immediately to the left of the Main Visitor Center Entrance. Both of these areas have high visibility, and high potential for visitor education about Minnesota native plants from two different plant communities.

The Board of Directors sees the opportunity to work with these areas as an honor and an opportunity for our members to contribute to the Society's mission of education, both to the general public and within the Society. Work with these gardens will begin in spring, when we will evaluate the present condition of each area and determine which species are currently growing there. Some of this work has already been completed by Refuge personnel.

A planning group for each garden will then meet with Mike Marxen, a U.S. Fish and Wildlife Service landscape architect, and

Judie Miller of the Refuge staff. This group will determine what work needs to be done, and what species of native plant should be added to each area. The Refuge will provide tools and other resources, and the Society will locate and donate or purchase plant material. Eventually, maintenance plans will be written for each garden. Gardens will be monitored by Society members and maintained by Refuge volunteer groups overseen by Refuge staff, and by Society members as desired.

For experienced native plant gardeners, work on these gardens represents an opportunity to share their expertise in a hands-on, workshop setting. For members who have little personal experience but are anxious to learn about native plants and their culture, it represents an opportunity to trade energy and enthusiasm for a personal learning experience. For all who become involved, it can be an opportunity to spend quality time with like-minded native plant fans!

We will be looking for volunteers for these projects in four categories: Experts, Organizers, Laborers, and Learners. While these categories will undoubtedly overlap, we're hoping to have a number of volunteers in each role. You are an "expert" if you have either personal experience or training with native plants and native plant gardening. Don't underestimate your abilities here—you won't be alone, and you'll have access to all of the expertise of the Society! You are an "organizer" if you are willing to make phone calls, schedule meetings, and generally keep tabs on progress. You are a "laborer" if you are willing to get your hands dirty. And everyone who becomes involved will be a "learner".

I already have had several people volunteer to be learners and laborers. If you are interested in working on either of these projects, feel free to contact me or any board
(continued column 3, *Adopt Garden*)

MNPS Display Board Use

All members are welcome to show our display board at events, museums, and schools, if an attendant is present or it is safely displayed. This 3 by 5 foot, 2-sided board holds information on the Society, native plants, and stewardship. Call Don Knutson

Any field trip leaders ?

If anyone is interested in leading a field trip for spring or summer, please contact Nancy Albrecht

Letters

"In the *Plant Lore* column [MPP] discussion of white sage, it was mentioned that Native American tribes used this plant. Putting the discussion in the past tense implies that they no longer use the plant today for ceremonial and other purposes. This, of course, is not true. The ceremonies are still conducted; sage is still used."—Pat Ryan, Cottage Grove.

(ed: we appreciate the comment)

(*Adopt Garden*, from column 2)

member in person, by E-mail or by phone. We also will be sending a sheet around at the next meeting. We hope to include related background topics in the Spring Symposium, so pass along any suggestions you have to a board member or to Don Knutson, Symposium Coordinator. Here's looking toward spring!



Restoration of the Prairie

(from page 1, Restoration...)

received a grant for sustainable agriculture to remove trees and to study grazing on his farm property in the Loess Hills of Iowa. The prairie does have economic value!

Education. We must personalize the prairie by taking people to prairie remnants and reconstructions to acquaint them with the diversity and tenacity of plants. Many do not know the difference between alien and native plants, and we must first bring about this understanding. In Iowa there are 265 forbs and 72 grasses. Through the media, including internet, we have the ability to reach many people. The Minnesota/DOT brochure "Prairie Wildflowers Native to Minnesota's Natural Regions" contains an excellent list of native varieties for dry, mesic, and wetland areas in six regions of Minnesota. Sources for native seed must also be addressed.

Planning. In planning your reconstruction, an analysis of your site for soil, moisture, and sun is important so that the proper seed selection can be made. A diversity of at least 35 species in a planting will help form plant communities and fill all the available spaces to eliminate weed growth. Native seed sources are increasing with the added interest and need. We are seeing more efforts of farming native seed with farm machinery for this purpose. To further help others to understand the growth of prairie plants in relation to establishment, the Mn/DOT has done an excellent job with the brochure "Native Grasses: Why all the Fuss?" It explains how the deep roots of the native warm-season, bunch-forming grasses can eliminate the rhizomes and stolons of cool-season grasses. This is important to understand because our number one problem in establishment of prairie plants is weeds. Preparation of the soil to eliminate weeds and mowing plants to 3-inch heights in the first year—when weeds normally become 12 inches tall in the first year—and once in the second year

in early June. This is essential to obtain the maximum growth of a reconstruction. However, studies have been done with minimal management over a period of 5 years by overseeding to compete with weeds. There are as many good techniques for reconstructing tall grass prairies as there are people doing them.

Management. When the prairie becomes established, burning is the technique of choice for management. Controversy has arisen on how often to burn, and today some are advocating less frequent burning to protect the animals, birds, and insects that depend on the prairie. It is important to understand breeding habits and to rotate or burn early to avoid disrupting these habits. The larger we can make our reconstructions the more endemic life that can be supported. The Walnut Creek National Wildlife Refuge in Prairie City, Iowa, is reconstructing 13 square miles of native prairie to support, for example, buffalo, prairie chickens, and the regal fritillary butterfly, who are dependent on prairie.

Landscaping. Not everyone is interested in attending prairie walks, so we must bring the prairie to areas of high visibility for them. Landscaping on public and private land in town has many benefits. I am involved with three such projects in my hometown of Eldora, Iowa, with a population of 3,000. On my 10 by 60 foot roadside prairie in front of our home in town, I had 67 species bloom this year. This project was started from seed, mostly indoors, and seedlings were planted in an arranged landscape. A grant of \$2,500 from US West and additional funds of \$1,000 raised by 60 students in the sixth grade, made possible a project on controlled landscape with 31 forbs and 4 grasses in our city park. The 200 forbs were purchased from Prairie Moon Nursery in Winona, Minnesota, and nearly every plant bloomed in the first year. Many species would have required 5 to 6 years to bloom from seed. Our third project is a 5-acre prairie to be planted in spring with a grant from Iowa/DOT on Eldora's western gateway to the city, on property owned by the

state at the location of the Iowa State Training School for Boys.

Trees For Ever, Master Gardeners, and the Iowa Prairie Network are involved in a \$15,000 project for a large, reconstructed landscape along the highway using native trees, shrubs, and prairie plants.

The Future. In Iowa, it is our vision to increase prairie from the present 0.1 to 1-2% by the year 2000. If the 600,000 acres of roadsides alone were planted to native seed, we would have quite a connection for our isolated prairie remnants. Looking at these greater efforts must include increased use of farm machinery in seed production. With public and private groups working together, such visions can become a reality.

This is a summary of a presentation made by Iowan Shirley Shirley at the October 5, 1995 meeting of the Minnesota Native Plant Society. Ms. Shirley is author of the book Restoring the Tallgrass Prairie: An Illustrated Manual for Iowa and the Upper Midwest.

Northern Monkshood

(continued from page 5, column 2)

bedrock substrates on which it occurs. Because *Aconitum noveboracense* possesses many characteristics that make its population resilient, the species is likely to escape extinction in the foreseeable future if resources are made available simply to preserve as many populations as possible. Much progress has been made to date through the combined work of The Nature Conservancy, and state, county and federal agencies, most notably through the establishment of the Driftless Area National Wildlife Refuge system.

This is a summary of a presentation made at the Minnesota Native Plant Society meeting of December 7, 1995, by Margaret Kuchenreuther, assistant professor, University of Minnesota, Morris, Minnesota.

A Painted Herbarium— The Life and Art of Emily Hitchcock Terry

by Beatrice Scheer Smith

Emily Hitchcock Terry (1838-1921) was the scientifically and aesthetically gifted daughter of a highly intellectual and artistic Massachusetts family. An early graduate of Mount Holyoke College, she began her formal study of art at The Cooper Union in New York City in 1865, where her training in drawing and watercolor painting was influenced by the Pre-Raphaelite movement. In 1872, Terry and her husband, a Congregational minister who was ill with tuberculosis, and their infant son came to Minnesota seeking recovery for Reverend Terry and his return to good health. Emily Terry was trained in botany as well as art, and while in Minnesota she collected and painted the flora. In 1881 Reverend Terry died and Emily returned to New England where she pursued her avid interest in botany for another 40 years, studying principally the ferns of Vermont.

When she left Minnesota, Terry took with her her portfolio of watercolor paintings of the flora of Minnesota and other areas that she had visited with her husband as they sought a cure for his illness. Rather than creating a conventional herbarium of pressed specimens, she created a "painted herbarium". The collection contained 142 paintings, 46 of them of the Minnesota flora done from life. These images are fine examples of the art of botanical illustration and are the earliest known illustrations of the flora of the state.

Terry's passion for botany—"As long as I live I shall work in botany, if I have any eyes to see"—was communicated to others through her artistic talent. Her contribution to Minnesota's botanical history is unique. Her story, however, stands alongside those of countless women throughout history whose contributions have yet to be recognized. Terry presented her "painted herbarium" to Smith College, Northampton, Massachusetts, in 1913, where it is housed in the rare book collection. Examples of her specimen sheets of Vermont ferns are preserved in the herbarium of the Smith College Department of Botany, as well as in the Gray Herbarium at Harvard University.

This was a summary of a presentation made by Beatrice Smith at the November 2, 1995 meeting of the Minnesota Native Plant Society. She is the author of the book entitled "A Painted Herbarium—The Life and Art of Emily Hitchcock Terry (1838-1921)" published by the University of Minnesota Press in 1992.

Watch for news of the Spring Symposium!

Algific talus slopes and a Pleistocene relict: northern monkshood

by Margaret Kuchenreuther

Northern monkshood (*Aconitum noveboracense* Gray) is a Pleistocene relict that is dependent for its existence in the Midwest on the unique microclimate provided by algific talus slopes and moderate cliffs. These are rare geologic features that are found on several bedrock formations scattered throughout the recently unglaciated area known as the Driftless Area. All are characterized by low substrate temperatures and high relative humidity.

This long-lived perennial has a complex life history. Plants have the potential to reproduce by seeds, as well as asexually through the production of aerial and subterranean bulbils and adventitious root buds. A 3-year study of eight populations, occurring on four bedrock substrates in Iowa, was made from 1987 to 1989. It revealed that the expression of each of these reproductive modes correlates with the type of substrate upon which the population grows. Plant stature and population structure are also influenced by substrate type. Warm algific slopes support dense populations of large plants that have high fruit and seedling production. These plants seldom produce bulbils and have only moderate numbers of stems per clump. In stark contrast are populations on the coldest algific slopes, which support much smaller plants that produce many fewer fruits and seedlings. However, plants in these populations often bear large numbers of bulbils and have large numbers of stems per clump. Cliff populations are the least dense and are morphologically intermediate to plants in the other populations. They have moderate-sized plants that often are multiple stemmed, but rarely produce bulbils. They produce intermediate numbers of fruits but few seedlings, probably because the seeds are shed largely into unfavorable habitats over the cliff. Whether these differences are a plastic response to variable environmental conditions, or whether they are under genetic control is a question that awaits further study.

By chance, the study period coincided with one of the most extreme drought periods in Iowa history, thus providing an opportunity to observe how these populations respond to environmental stress. Surprisingly, several of the populations (especially those on the coldest sites) were able to maintain near stable growth rates during this exceptionally stressful period, even those populations with negative growth rate. Indeed, visits to the sites since 1989 reveal that these surviving plants are the means by which the populations can recoup their losses.

Demographic and genetic evidence suggest that a preserve system could capture a maximum amount of diversity of life history and genetic variation found in the species by scattering preserves throughout the species' range, and including examples of all of the
(continued on page 4, column 3, Northern Monkshood)

•A brush pile is a place of life, death, and regeneration...it provides for wildlife and rejuvenation of the forest; and it can be a source of entertainment and learning.—Virginia Department of Forestry, 1995.

•The University of Michigan Herbarium has been completely renovated. For information or to visit, contact Richard K. Rabeler, rabeler@umich.edu

•According to the Minnesota County Biological Survey, less than 1% of the Big Woods (maple-basswood forest) remains in Hennepin County in 1995. The Big Woods covered nearly half of Hennepin County 150 years ago.—State of Minnesota, Department of Natural Resources, 1995.

•The rough-seeded fameflower (*Talinum rugospermum*), a rare species, was found in Minnesota for the first time in 1832 near Taylor's Falls by Douglas Houghton. It was found this summer by Nancy Falkum at the Kellogg-Weaver Dunes.—*The Nature Conservancy Minnesota Chapter*, Fall 1995.

•“There is no ‘natural’ state in nature; it is a relative concept. The only thing natural is change, sometimes somewhat predictable, often-times random, or at least unpredictable.”—Robert T. Lackey, in *River Almanac*, August 1995.

•In peatlands and other relatively sterile settings across the world, there are 450 vascular plant species that compensate for the nitrogen-poor environment by “eating” small invertebrates reports Bonnie Heidel in *Kelsey* (vol. 8, no. 4, 1995).

•The common ragweed *Ambrosia artemisiifolia* and giant ragweed *A. trifida* are among the few native North American plants that became dominant weeds when the Europeans came to settle this country according to Edward Cushing of the University of Minnesota. (*The Pollen Monitor* 2[3]: 1-3, 1995).

•The goblin fern (*Botrychium mor-mo*) is a tiny, 2-inch grass-like fern that has become the most celebrated rare plant of the Chippewa National Forest in Minnesota. The Chippewa Forest has 74% of the known goblin fern locations in the world, and northern Minnesota is home to more than 90% of the world's known population according to Jim Gallagher and John Casson, Wildlife Biologists, Chippewa National Forest (National Forests in Minnesota, Annual Report '94)

•Running buffalo clover (*Trifolium stoloniferum*) was thought extinct until 1983 when it was rediscovered in West Virginia. It has since been found in Ohio, Indiana, Kentucky and Missouri. (*Nature Conservancy* 4[1]:27, 1996)

•The higher the root order, the more nitrogen it contains reports Kurt Pregitzer of Michigan Technological University at Houghton. He studied roots of yellow violet, maple-leaved waterleaf, sugar maple and white ash. (*BioScience* 45:749-750, 1995)

•Mycorrhizal fungi enhance growth of Sitka spruce and Japanese larch seedlings if soils also contain insoluble organic and inorganic phosphorus report C. McElhinney and D.T. Mitchell of the University College of Dublin, Ireland. (*Mycorrhiza* 5: 409-415, 1995)

•Minnesota had about 18.5 million acres of wetlands in 1950 and this has been reduced to 7.5 million acres by the 1980s according to T.A. Wenzel and D.H. Behm of the Minnesota Board of Water & Soil Resources, St. Paul. The wetland restoration component of the Reinvest In Minnesota (RIM) Reserve Program acquires conservation easements to restore drained wetlands and enable conversion to their natural state. (*Journal Minnesota Academy of Science* 59[4]: 41-42, 1995)

What are asters?

Asters are in the genus *Aster*, a composite, recognized by their star-shaped flowers with yellow centers but ray flowers that are never yellow. Aster is the Greek word for star.

How many asters are there?

There are hundreds of species, which are difficult to identify, made more difficult by their tendency to hybridize. A well-known native aster is the New England aster (*A. novae-angliae*), found in southern and western Minnesota.

Why do asters bloom in the fall?

One can also ask, why don't other plants bloom in the fall? Days are short and temperatures are low—disadvantages for plants to bloom. On the other hand, with most other plants waning there is less competition for water, nutrients and pollinators. In fall, asters and goldenrods are the main sources of pollen and nectar for insects.

Does leaf shape relate to habitat?

Asters in shade or in woods have the largest leaves; whereas those in open, sunny areas have the smallest leaves. Asters growing in rich, lush areas have moderate-sized leaves.

What are the fruits of asters?

The fruit of an aster is an achene—a dry, one-seeded fruit that does not split open at maturity. Attached to each achene is a tuft of hairs that aid in dispersal.

Can asters be harmful?

Asters as secondary absorbers of selenium from soil can be harmful to grazing cattle. Some humans are allergic to flowers and contract contact dermatitis.

How are asters useful?

Asters are attractive as flowers in fall and make lovely additions to dry arrangements in winter.

WWW Sites of Interest to Botanists and Ecologists

Botanists

Arnold Arboretum

gopher://huh.harvard.edu/11/collections_info/aa

Biodiversity and Biological Collections

<http://muse.bio.cornell.edu/taxonomy/botany.html>

A Biologist's Guide to Internet Resources by Una R. Smith 1993

gopher://sunsite.unc.edu/1m/./pub/academic/biology/ecology+evolution/bioguide/bioguide.item

BIOSCI/bionet Electronic Newsgroup for Biology

<http://www.bio.net/>

Detailed Family Descriptions

http://florawww.eeb.uconn.edu/FAM_DESC/_fdlist.htm

Flora of North America

<http://atgl.wustl.edu/FNA/>

Gray Card Index

gopher://huh.harvard.edu:70/11/project_information/authority/botany/gray_cards

International Organization for Plant Information

<http://life.anu.edu.au/biodiversity/iopi/iopi.html>

Lythraceae, The Loosestrifes

<http://simn.kent.edu/Biology/SGraham.html>

National Biological Service (NBS)

<http://www.its.nbs.gov/nbs/>

Smithsonian Natural History, Department of Botany

<http://nmnhwww.si.edu/departments/botany.html>

University of Wisconsin, Botany Gopher

gopher://gopher.adp.wisc.edu:3000/7?botany

These two lists were selected from the list prepared by Anthony R. Brach and published in the *Flora of North America Newsletter*, volume 9, number 2, April-June 1995. A more complete list appears in that issue. Anthony Brach is at the Missouri Botanical Garden and the Harvard University Herbaria. His E-mail is brach@oeb.harvard.edu

Ecologists

Biodiversity and Biological Collections

<http://muse.bio.cornell.edu/>

Biodiversity, Ecology, and the Environment

<http://golgi.harvard.edu/biopages/biodiversity.html>

Biodiversity & Ecosystems Network (BENE)

<http://straylight.tamu.edu/bene/bene.html>

Boyce Thompson Institute for Plant Research

<http://birch.cit.cornell.edu/>

Congressional Record

<http://thomas.loc.gov/>

Conservation Ecology

<http://journal.biology.carleton.ca/Journal/Overview.html>

Current Weather Maps/Movies

<http://rs560.cl.msu.edu/weather/>

Ecology and Organismal Biology Resources, Harvard University

<http://www.digitas.org:80/harvard/>

Environmental Education Network

<http://envirolink.org/enviroed/>

Environmental Sites on Internet

<http://www.lib.kth.se/lg.html>

Environmental Studies Programs Home Page

http://www.brown.edu/Departments/Environmental_Studies/

Field Museum of Natural History

<http://www.bvis.uic.edu/museum/>

National Wetlands Inventory US Fish & Wildlife Service Ecology Section

<http://www.nwi.fws.gov/Ecology.html>

UCI's Electronic Journal of Ecology & Evolutionary Biology

<http://www-ee.bio.uci.edu/eebio/node2.html>

US Geological Survey-Data Available Online:

<http://www.usgs.gov/data/index.html>

US Long-Term Ecological Research Network (LTER)

<http://lternet.edu/>

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