

June 28, 2010

Conservation and Promotion of Biodiversity by The Cleveland Museum of Natural History

The Cleveland Museum of Natural History is a national leader in the field of conservation and biodiversity. Its Center for Conservation & Biodiversity unites the Museum's work in these areas. The Center's professional staff works with its extensive biological collections to conserve our natural heritage by connecting people to nature, protecting natural areas, preserving biodiversity, promoting environmental stewardship, advocating ecological sustainability, and adding to the knowledge about our natural world and our impact on it. A description of the Museum's conservation and biodiversity related work is outlined in this document

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- I Lake Erie Allegheny Partnership
- II Natural Areas
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I PARTNERSHIPS AND ALLIANCES IN CONSERVATION:

Lake Erie Allegheny Partnership (“LEAP”) Renee Boronka, Associate Director of Conservation and Biodiversity

LEAP is a significant multi-institutional collaborative aimed at bringing together the skills, knowledge, and resources of institutions in our area that are land holders and stewards. In addition to the Museum, some of the current members of the partnership include: The Holden Arboretum, The Nature Conservancy, Ohio Division of Wildlife, Western Reserve Land Conservancy and The Trust for Public Land. LEAP’s primary goal is to share information and leverage resources (equipment, materials, financial support, and manpower) aimed at common conservation issues on the members’ properties, such as elimination of invasive species. For more information, see Attachment I.

Dike 14 Environmental Education Collaborative – Harvey Webster, Director of Wildlife Resources, Renee Boronka, Associate Director, Center for Conservation & Biodiversity, Nancy Howell, Docent Coordinator and Science Instructor

Collaborative works to establish the Cleveland Lakefront Nature Preserve at Dike 14. Created from sediments dredged from the Cuyahoga River between 1979 and 1999, this 88 acre natural area offers unique, diverse habitat for migrating wildlife. The collaborative works to maintain Dike 14 as a nature preserve for migratory birds and a place to connect people with nature by seeking to influence the City of Cleveland’s decisions regarding the biological significance of this property. Members of the collaborative also include staff members of Audubon Ohio, Earth Day Coalition, The Nature Center at Shaker Lakes, Cleveland MetroParks, Cuyahoga Valley National Park Association, Cuyahoga County Soil and Water Conservation District, and Lake Erie Nature and Science Center.

Natural Areas Association Jim Bissell, Curator of Botany and Director of Conservation & Biodiversity and Renee Boronka, Associate Director of Conservation & Biodiversity

The Natural Areas Association is a non-profit, national organization founded in 1980 to enhance communication among various state natural areas programs. The Cleveland Museum of Natural History, along with the other 2200 members, are concerned with the identification, evaluation, management, protection and study of natural areas and other elements of natural diversity. The mission of the Natural Areas Association is to advance the preservation of natural diversity. The Association works to inform, unite, and support persons engaged in identifying, protecting, managing, and studying natural areas and biological diversity across landscapes and ecosystems.

Renee Boronka was elected to a three-year term on the board of the NAA in fall, 2009. She chairs its Future Conferences Committee.

Coroner's Office Invertebrate Zoology Department

From time to time the County Coroner's Office has called upon Joe Keiper, former curator of Invertebrate Zoology, to help determine the approximate date of death of a corpse. Joe has made arrangements with Museum personnel to try to maintain this relationship.

II TRAINING & EDUCATION

University Involvement – Jim Bissell, Curator of Botany; Tim Matson, Curator of Vertebrate Zoology, and Andy Jones, Curator of Ornithology

Curators are active on graduate committees of graduate students at Case Western Reserve, Cleveland State, John Carroll, and Kent State Universities.

Biodiversity Education at Squire Vallee Vue Farm – Jim Bissell, Curator of Botany; Tim Matson, Curator of Vertebrate Zoology, and Andy Jones, Curator of Ornithology

A joint venture with the College of Arts and Sciences Continuing Education Office at Case Western Reserve University has been taught by the Museum's curators. The class focuses on biodiversity and why conservation of biodiversity is important today and for future generations. It addresses the threats to diversity and what one can do to make a difference preserving diverse habitats today. Each class session concentrates on a different group: birds, insects, plants and amphibians/reptiles and includes time in the classroom, as well as, in the field.

Adopt-A-Student - Anne DuFresne, Associate Curator Archaeology

This program, sponsored by the Kirtlandia Society, provides an 8-week opportunity for undergraduate students to work as paid interns with a curator on a defined project. All curators participate. The project has to address a specific scientific question, and include data acquisition and analysis. Each intern gives an oral presentation on the project to the Kirtlandia Society.

Wildlife Resources Internships – Harvey Webster, Director, Wildlife Resources; Anne DuFresne, Associate Curator Archaeology

Through Adopt-A-Student and Wildlife Resources Internship programs, students learn husbandry, biology and conservation of Ohio wildlife. Over the past 31 years, dozens of interns have gone on to careers in veterinary medicine, wildlife biology or other life sciences.

The Science Resource Center –Coordinator, SRC (to be hired)

The SRC provides educational materials in the form of teaching kits, curriculum guides, dioramas, books and videos, to the region's educators. On average, approximately 500 teachers per year borrow items from the SRC. The SRC also conducts approximately 30 professional development workshops for area teachers and naturalists each year.

School Programs – School Programs Coordinator (to be hired) and Distance Learning Coordinator, Lee Gambol

The Museum offers conservation and biodiversity-related instruction at the Museum, at area schools through our outreach program Science-to-Go!, and to schools outside of the Northeast Ohio area through our Distance Learning programs. Our native wildlife programming, which utilizes the live animals from the Wildlife Resources Division, is extremely popular and emphasizes the need for habitat and species conservation. In addition, we offer programs on basic plant and animal biology, ecosystems, and environmental impact.

Outdoor Education Program -- Nathan Taxel, Outdoor Education Coordinator/
Science Instructor

The Museum offers a variety of outdoor education programs to the public including the Student Naturalists and Future Scientists programs (described below) for middle and high school students, as well as programs for families through our Nature Team program.

Student Naturalists Program – Nathan Taxel, Outdoor Education Coordinator/
Science Instructor

Students in grades 5-8 meet weekly on Saturdays during the school year and for 2 to 3 weeks in the summer. The program gets students into the field, and exposes them to all areas of natural history including stream and pond biology, geology, entomology, ornithology, botany, and archaeology.

Future Scientists Program – Nathan Taxel, Outdoor Education Coordinator/
Science Instructor

This program gives high school students valuable opportunities to learn about the natural sciences through field experiences and other activities not provided in a

traditional school curriculum. Students interact with the Museum's curatorial and education staff as well as local, regional and national scientists and researchers and graduate students from local universities. They also visit Museum owned properties and preserves, city, state and national parks, area nature centers, zoos, and wildlife rehabilitation centers.

Wild About the City Initiatives - Harvey Webster, Director of Wildlife Resources

Wildlife Resources staff provides programming that focuses Cleveland Municipal School District students on conservation of neighborhood wildlife and biodiversity in their own backyards.

Cleveland Falconcam – Tower City - Harvey Webster, Director, Wildlife Resources

The Falconcam displays images of the Peregrine Falcon nest on the 12th floor of the Terminal Tower. Its website features resources on Peregrines, a forum for users and an archive of photos. The site is used by two on-line environmental education websites, Raptors in the City and the San Diego School District, and receives up to 500,000 hits per year. <http://www.falconcam-cmnh.org/>

Naturalist Certificate Program - Bob Bartolotta, Adult Programs Coordinator, Science Instructor, Seismic Station Manager

The Museum's Naturalist Certificate Program is designed to increase the natural history knowledge and experience of professional naturalists, Museum members, science educators, volunteers, and other interested adults. Program participants gain a greater understanding of the natural world through lecture, lab, and field experiences and choose from a variety of fieldtrips, classes, symposia and lectures to create a program that meets their needs and interests.

Benefits of participating in this program include gaining a greater appreciation for and knowledge of natural history with an emphasis on Ohio natural history, developing a stronger understanding of science, and being able to experience the Museum's vast array of resources. This includes its galleries, collections, natural areas and experts. Through this program, participants have the opportunity not only to interact with local, regional and national natural history experts, but also to network with other adults with similar interests.

A total of 150 NC hours must be earned to receive the Naturalist Certificate. All participants are required to take the six-hour course called "*The Science of Natural History*" which introduces participants to the wide range of scientific research being done by Museum curators and other staff. Participants must be 18 years or older and members of the Museum.

Since 2007, 11 people have received a Naturalist Certificate. There are about 70 others currently in the program.

III PUBLIC OUTREACH

Annual Conservation Symposium Jim Bissell, Curator of Botany and Director of Conservation & Biodiversity and Renee Boronka, Associate Director of Conservation & Biodiversity

This two day symposium, has attracted hundreds of participants since its inception in 2003. It is held at the Museum on the Friday and Saturday after Labor Day. It consists of prominent guest speakers and field trips to natural areas preserves, both of which focus on regional conservation issues, see Attachment III.

Explorer Lecture Series – Bob Bartolotta, Adult Programs Coordinator, Science Instructor, Seismic Station Manager

The Explorer Series offers memorable presentations on an array of fascinating topics including conservation and biodiversity. A brochure containing the topics and scheduled times is published and mailed to members.

Curators Forum - Brian Redmond, Curator of Archeology

On Wednesday evenings during the winter and spring, selected Museum Curators invite Museum members and the public to lectures designed to showcase the current works of the Collections & Research Division of the CMNH. Lectures in 2010 included presentations by the Archaeology, Invertebrate Zoology, Invertebrate Paleontology, Vertebrate Zoology, Ornithology, and Physical Anthropology department curators. A brochure containing the topics and scheduled times is published and mailed to members.

Emerging Diseases Group –
Wildlife Resources – Harvey Webster, Director of Wildlife Resources

Avian Influenza

The Museum is part of a group that developed a set of protocols to protect ourselves and our collections from the H5N1 strain of influenza. Arrangements are in place for secure housing of our wildlife collection in the event of another outbreak. Staff has the appropriate respiratory gear to allow them to continue to handle the collection.

West Nile Virus Monitoring Group

Regional nature centers, wildlife centers, wildlife rehabilitation centers and zoos have convened to monitor the impact of West Nile Virus on captive and wild bird populations and recommend management strategies

Conservation Outreach Program – Renee Boronka, Associate Director of Conservation & Biodiversity

Private and public landowners, urban planners, nonprofit organizations and state agencies can request the assistance of the Museum's Botany Department in assessing a property's biological significance. Botany Department personnel conduct a site visit and based on their findings, present the landowner with options for the parcel, such as protecting it, granting a conservation easement or managing it to maintain rare species.

Over the last 20 years, the Museum has responded to hundreds of requests to inventory property. As a result, dozens of outstanding natural areas have been identified, proposals to construct dams have been abandoned and developments have been altered to accommodate biodiversity identified by this program.

The Conservation Outreach Program has identified biologically sensitive areas for state agencies, conservation organizations, park managers, private landowners and others involved in land management, resulting in the protection of more than 10,000 acres in Ohio and Pennsylvania. Some of the agencies that rely upon this program are The Western Reserve Land Conservancy, Trust for Public Land, The Nature Conservancy and State Park Systems.

North East Ohio Naturalists (NEON) – Renee Boronka, Associate Director of Conservation & Biodiversity

NEON is a volunteer group that assists the Botany Department with field inventories. It was organized in the late 1970's and is supported by 250 participating volunteers.

Smart Light-Safe Flight Ohio – Harvey Webster, Director of Wildlife Resources

Wildlife Resources is working with the Building Owners & Managers Associations in Cleveland and Akron to get building owners to turn off their lights during peak migration times to reduce bird collisions with downtown buildings. The initiative will work to create safe migratory corridors in urban locations and have the added "green" benefit of conserving energy. The partnership is starting in Cleveland with active participation by Tower City but with an eye towards expanding statewide.

Live Animal Programs – Harvey Webster, Director of Wildlife Resources

Every Saturday and Sunday Museum staff provides programs featuring native wild animals of Northeast Ohio and their habitats. A strong conservation message is integrated into the programming.

- Regular live animal programs in the lobby give visitors an intimate and interactive experience with the living collection.
- Programs and demonstrations in the Perkins Wildlife Center profile the natural history of species maintained in the living collection and their conservation. Visitors also view the feeding, training and environmental enrichment activities that promote the well-being of the animals.

Speakers Bureau - Jim Bissell, Curator of Botany & Director of Conservation and Biodiversity; Harvey Webster, Director of Wildlife Resources; Tim Matson, Curator of Vertebrate Zoology; Andy Jones, Curator of Ornithology; David Kriska, Biodiversity Coordinator

The curatorial and conservation staff of the Museum is in constant demand by community groups throughout the state for programs on natural history, regional conservation and biodiversity.

IV LAND CONSERVATION -- Jim Bissell, Curator of Botany & Director of Conservation and Biodiversity

The Museum has 40 natural areas—real property holdings which represent one or more natural communities or ecosystems of our region. Access is restricted to Museum curators, scientists and Museum members. For a complete description of the Natural Areas Program and its nearly 5,000 acres, see Attachment II.

V EXHIBITS and COLLECTIONS

Perkins Wildlife Center & Woods Garden Gallery – Harvey Webster, Director of Wildlife Resources

Open to the 250,000 visitors that come to the Museum each year, this outdoor gallery is a primary vehicle for regional biodiversity and conservation education. The exhibit integrates displays of live animals and plants with concepts of conservation biology. In a 2.2 acre outdoor gallery visitors can see bald eagles, owls, deer, foxes, bobcats, hawks and other creatures in enclosures designed to resemble their natural habitats. Exhibits focus on conservation success stories, including the restoration of the Bald Eagle, Peregrine Falcon and River Otter. Within the exhibits are the following enhanced natural communities: swamp

forest, shrub forest, fossil and sand ridge, rich mixed forest, emergent marsh and buckeye opening. The activities of the Natural Areas Division are profiled here.

Smith Environmental Courtyard – Harvey Webster, Director of Wildlife Resources & Jim Bissell – Curator of Botany & Director of Conservation and Biodiversity

This courtyard garden contains native Ohio plants, including an array of wildflowers, many species of ferns and a variety of native trees. Eleven species of native waterfowl dive and dabble in a waterfall-fed pond. The Environmental Courtyard provides an environment for educating visitors about wetlands and wetland wildlife and the other habitats (prairie, sand barren, old field and rich woodland habitats) that are represented here.

Herbarium – Jim Bissell, Curator of Botany

For the last 30 years, the Botany Department has been creating the present day Herbarium. Thanks to the Botany Department's collection efforts along with the acquisition of four other collections of specimens dating back to 1922, the CMNH's herbarium now contains 75,000 specimens, most of which are from Ohio and PA. This Herbarium is used on a daily basis to prioritize the protection of land for conservation. Its records are the base of heritage databases in OH and PA.

Traveling Exhibits

The Museum regularly prepares unique traveling exhibits relating to conservation and biodiversity. Recent examples include vernal pond photography and a dragonfly exhibit.

VI CLIMATE CHANGE

The Museum's GreenCityBlueLake Institute for sustainability and the Museum's Center for Conservation and Biodiversity both work on climate change, but in different ways. GreenCityBlueLake's focus is more human-centered and urban; its activities are outside the scope of this summary. The curators and other researchers in the Center for Conservation and Biodiversity document behavior, characteristics and patterns of animal and plant specimens. These studies are conducted in both the field, Museum preserves and on the Museum collections. These long-term datasets allow scientists to identify changes in the natural world that have occurred as a result of climate changes and in forecasting future changes.

VII RESEARCH, PUBLICATIONS & WEBSITES

Departmental Research –Tim Matson, Jim Bissell, Harvey Webster and Andy Jones

The Curators of the Conservation and Biodiversity Center are involved in numerous studies and surveys of the region's native plant and animal communities.

These departments have published and presented papers and technical reports which have been presented to the scientific community and general public.

Museum Publications

The Museum creates the following publications and newsletters which are designed to notify members of the numerous lectures, seminars, field trips and events pertaining to conservation and biodiversity and educate them on various subjects pertaining to the Natural Sciences.

- Tracks
- Natural Areas News
- Classes & Field Trips for Members and Friends

Websites:

- WWW.CMNH.org – The Museum's public website which provides our members with everything from research information to events and field trips.
- Invertebrate Zoology web page (<http://inverts.cmnh.org>)
- Falconcam (www.falconcam-cmnh.org/)
- LEAP Website (www.leapbio.org)
- Dike 14 Environmental Education Website (<http://www.dike14.org/>)