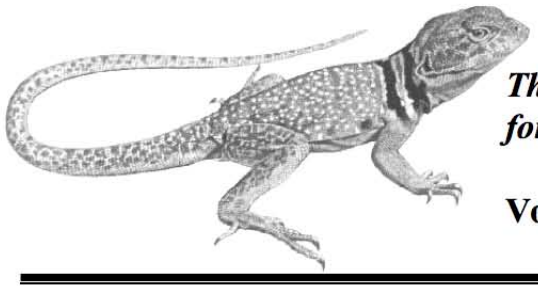

The Glade

The Newsletter of the Missouri Chapter of the Society for Conservation Biology

Volume 8, Number 2 **Fall 2005**

Contents

News and Notes

•**Annual meeting**: MOSCB will be holding its annual meeting at the Missouri Natural Resources Conference (Feb 1-3, 2006). All members are invited to attend. The time, date, and location will be posted on the MOSCB website in January.

•**MOSCB board elections**: elections for the board (President, VP, Secretary, Treasurer) will be held at the 2006 annual meeting. Nominations will be accepted from January 1-15, 2006 and a list of candidates will be posted on the MOSCB website shortly afterwards. You can nominate yourself or a peer. Nominations should be sent to the attention of MOSCB Secretary Dana Dixon (moscb@conbio.org). Members can vote at the meeting, or can vote absentee by sending an email to the attention of Sara Storrs (moscb@conbio.org) by the beginning of the annual meeting.

•**MOSCB-sponsored conservation workshop at MNRC**: MOSCB has organized a special conservation workshop of oral talks at MNRC 2006. Information about the free workshop will be posted on our website later this fall. The theme of the workshop is "bringing researchers and practioners together."

•**Poster judges needed**: MOSCB will once again be sponsoring a student poster competition at the 2006 MNRC. We need three members to serve as poster judges during the Wednesday evening poster session. Please contact Stacy James (moscb@conbio.org) to volunteer.

•**Address change?**: If you change your address, please let our secretary know so we can keep up to date on where to send the Glade. Email Dana at moscb@conbio.org.

Restoring early-successional bird habitats at Bradford Research and Extension Center in eastern Boone County.

Nadia Navarrete-Tindall,, University of Missouri-Columbia, email: navarretten@missouri.edu

As part of the Missouri Conservation Initiative funded by the Missouri Department of Conservation, we conducted a series of bird and plant surveys in eastern Boone County at the UMC Bradford Research and Extension Center (BREC) and adjacent land owned by George Hobson. This project is part of a larger initiative led by Tim Reinbott, BREC superintendent, to create a network of native plantings and to restore early-successional plant communities to benefit wildlife in an agricultural setting. BREC and adjacent private lands offer an excellent location to demonstrate the integration of conservation with traditional farming operations. In addition, BREC has a staff accustomed to working with cooperators on multidisciplinary research and the facilities to offer workshops and field days where scientists, farmers, students, and the general public can interact.

Development of private lands surrounding BREC is impacting wildlife because farms having habitat suitable for wildlife become physically disconnected from other farms. In addition, native vegetation has been replaced with introduced turf grasses that provide little or no cover or food for wildlife. The objectives for our project were to carry out vegetation and bird surveys in both research and private lands and begin managing for native plant communities to increase native plant and wildlife species diversity.

Plant Surveys

With the help of the MDC and DNR botanists, we have periodically conducted plant surveys during 2004 and 2005 within several prairie and wetland areas. A list of 150 native plants was compiled including 26 species with a Coefficient of Conservatism of five (5) or higher (Ladd 1997). Some species identified include *Andropogon gerardi*, *Antennaria neglecta and A. plantaginifolia*, *Lespedeza capitata* and *L. virginica*, *Lobelia spicata*, *Monarda fistulosa*, *Panicum virgatum, Penthorum sedoides*, *Pycnanthemum tenuifolium*, *Sabatia angularis, Silphium integrifolium*, *S. laciniatum,* and *S. terebinthinaceum* and 4 orchids (*Spiranthes cernua, S. lacera*, *S. vernalis* and *Platanthera lacera*). It was the first record in Boone County for *S. vernalis* (picture p. 3; T. Smith, pers. communication July 2004). Native Plant Society members are helping monitor these orchids to learn more about their phenology and natural regeneration (Ward 2005). A small population of the fern *Ophioglossum vulgatum* was also found in a prairie remnant under *Cephalanthus occidentalis*. This fern is an unusual find because it is typically a woodland species and it is only the second record in Boone county (G. Yatskievych, personal communication June 2005). We did the plant inventory in 2004 after mowing was stopped in target areas. In 2005, we initiated management on some areas by either burning, spraying with herbicides, or using both treatments. We will continue monitoring these areas on permanent transects to compare vegetation richness, frequency, and dominance for consecutive years as a result of management.

Asclepias incarnata and monarch caterpillar (Randy Tindall Photo)

Bird Surveys

Columbia Audubon Bird Surveys led by Brad Jacobs were done once a month after sunrise and before noon in different bird habitats for a one year period at BREC. Habitats surveyed included upland prairie,

Spiranthes vernalis
(Brad Jacobs Photo)

prairie wetlands and swales, row crops, mowed areas, lakes, ponds, and shrubby and woodland vegetation. Also, we documented any nest-related activities following the Breeding Bird Atlas methodology. Eighty-seven bird species were observed during this period of which 13 species are in Partners in Flight (PIF) Watch and Stewardship lists including Dickcissel, Grasshopper sparrow, Rough-legged hawk, Swamp sparrow, Harris' sparrow, Short-eared owl, Smith's longspur, Rusty blackbird, Lapland longspur, American tree sparrow, White-throated sparrow, Eastern towhee, and Snow bunting. Monthly surveys will be continued by Columbia Audubon during the present year. Further management is critical to provide breeding grounds for Northern Harrier, Upland Sandpiper, Loggerhead Shrike, and Henslow's Sparrow. Workshops and field days will be offered to increase the level of cooperation between conservationists, landowners, developers, landscapers, and the University community.

Invasive species management

More than 20 non-native species were identified during plant surveys. Seven of these species are listed as 'invasive species of concern' (Smith 2004) because they can aggressively encroach upon native vegetation. Priority for control was given to *Festuca arundinacea*, *Phalaris arundinacea*, and *Lespedeza cuneata*. Prescribed burns were conducted in some areas followed by glyphosate applications to control these species. *Festuca arundinacea* was reduced significantly after chemical applications and has been replaced by primary-succession forbs. *Phalaris arundinacea* and *Lespedeza cuneata* were reduced; however, more prescribed burns and/or chemical applications when native forbs are dormant will be necessary for several years until eradication or replacement by native species occurs.

We initiated a project in 2003 with the USDA Forest Service to begin managing for a native savanna in a 5-acre pasture dominated by *Festuca arundinacea*. A wet swale runs south to north in the middle of this area with upland areas on the east and west sides. After two applications of glyphosate in 2003 and 2004 without reseeding the site, several desirable wetland species such as *Lythrum alatum*, *Baptisia alba*, *Panicum virgatum*, *Pycnanthemum tenuifolium, Heteranthera reniformis, Alisma triviale*, *Saggitaria* sp., and *Platanthera lacera* were observed. Two early successional species, *Solidago altissima* and *Vernonia fasciculata*, dominated most of the area after one year. In order to reduce the growth of these species and open some areas for other more conservative species, we sprayed again with glyphosate in spring 2005 when most native species were still dormant. *Solidago altissima* and *V. fasciculata* are still flourishing but their reduced presence has made room for additional native vegetation to become established.

Wildlife friendly fencerows

Native shrubs and forbs were established along more than 600 meters of fencerows to maintain vegetative connections between BREC and adjacent private lands. These fencerows are part of conservation practices that can provide food and cover for wildlife in agricultural lands. Some species included are *Ilex decidua*, *Rhus aromatica*, *Lindera benzoin*, *Amorpha fruticosa*, *Celastrus scandens*, and *Ptelea trifoliata.*

Native Plant Field Day

Our first 'Native Plant Field' was offered on June 25, 2005 to native plant enthusiasts and University

community with tours offered by UMC-Scientists and Extensionists. Walking and wagon tours were offered in addition to booths presented by Native Plant Society-Hawthorn Chapter, Grow Native!, Wild Ones, Bear Creek Prairie Village, Master Gardeners, Missouri Ecotype Program, and Audubon Society. In preparation for the field day, native plant gardens were established near the offices at BREC. Several tours have been offered during the year to different target groups to demonstrate native plantings

Demonstration and research areas are open to the public during the day at BREC. For research and volunteer opportunities or for a list of plants or birds please contact Nadia Navarrete-Tindall (email above) or Tim Reinbott (ReinbottT@missouri.edu).

This project was funded by a Missouri Conservation Initiative (MOBCI) grant, a Small Wildlife Grant (SWG), and MU.

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Internships: one link between the science and the practice of conservation

Tracy Rittenhouse, MOSCB Treasurer, Grad Student Rep. for MU Conservation Biology Program, Email: tg9aa@mizzou.edu

Are you a practicing conservation biologist? Do you have an upcoming project or event that could benefit from a helping hand? Do you have a project idea that has been brewing in your head but you cannot seem to find the time and energy to carry it out? I have the solution…

Graduate students at the University of Missouri-Columbia are currently looking for internship opportunities with state agencies or non-profit conservation groups. Internships for students are one way to build a link between the science and the practice of conservation. Sponsoring a student near the end of the graduate degree allows conservation professionals to receive through the intern the most current research and concepts being developed by scientists. In addition, conservation professionals can often benefit from the enthusiasm and optimism contained within burgeoning conservation biologists. In exchange, the graduate intern receives an opportunity to apply knowledge gained from academic discussions to real world situations, while remaining safely under the watch of the sponsor. The MU Conservation Biology Program would like to establish a link between the graduate students and you.

Only a few basic requirements must be met by graduate students wishing to make an internship with you count toward their certificate degree requirements.

1) The intern must acquire a minimum of 160 hours of experience. This time requirement can be completed in one continuous month of fulltime work or by working a few hours per week for several months.

2) The intern must acquire skills that are not acquired by completing other degree requirements. For example, a student in biology may be looking for an internship that exposes them to skills needed for outreach and education, public policy, or personnel management. A student in anthropology may be looking for an internship that exposes them to skills needed for development of conservation plans, management of finances for an NGO, or surveying of rare and endangered species.

3) Interns are strongly encouraged, but not always required, to produce a final product. For example, an intern could prepare a management plan, an economic or policy statement, a manuscript of survey results, or an educational presentation.

How could a graduate intern benefit you and your conservation organization? The possibilities are only limited by the imagination of you and your new intern. If you are interested in sponsoring a graduate intern or have questions regarding the program, please don't hesitate to contact me at tg9aa@mizzou.edu, or Dr. Jim Carrel director of the MU Conservation Biology Program at CarrelJ@missouri.edu, or check out the program website at http://www.conservbio.missouri.edu.

I am confident that we can link you with a graduate intern that wishes to practice conservation biology while helping you complete one of the many projects on your to do list. Conserving biodiversity is a complex task. We must therefore link our minds, efforts, and resources together towards the same goal.

Keeping Track of Missouri's Species and Natural Communities of Conservation Concern

Dorothy Butler, Missouri Department of Conservation Heritage Coordinator, email: Dorothy.Butler@mdc.mo.gov

The Missouri Natural Heritage Program tracks species and natural communities of conservation concern (elements) and their location (element occurrence, or EO). The Program was created in 1981 as a collaboration of The Nature Conservancy (TNC), the Missouri Department of Natural Resources (DNR), and the Missouri Department of Conservation (MDC). The DNR housed the database until 1983 when it was moved to its current home at MDC. The database evolved from running SPIRES on the University of Missouri - Columbia's mainframe to a networked personal computer using first dBase, then the Biological Conservation Database, and finally Biotics (built on ArcView and Oracle).

The Nature Conservancy envisioned a global database where species could be tracked across their entire range; they developed the standards, methods, and software that Heritage Programs use to make data-sharing across political boundaries possible. In 1994, the Heritage Programs created their own membership organization known as the Association for Biodiversity Information. TNC transferred their scientific and technical support to this organization which then changed its name to NatureServe. Today there are 74 Heritage Programs operating in all 50 U.S. states, Canada, Latin America and the Caribbean. These Programs manage the most complete and detailed information on rare and endangered species and threatened ecosystems. This data is relied upon for land management, species status assessments, environmental review, and planning by government agencies, corporations, and the conservation community.

Figure 1: Volunteers conducting Mead's milkweed (*Asclepias meadii*) survey on a native prairie, 1997 (Photo Jim Rathert).

Most base-line information included in the Missouri Natural Heritage database was collected during systematic, county-wide surveys conducted by MDC and partners in the 1980's and 1990's (Figure 1). More recent data is submitted by MDC staff, university researchers, other resource professionals, and private conservation organizations, or is gleaned from museum and herbaria collections and scientific journals. The database currently contains over 17,000 EOs, with nearly 1,000 EOs entered each year. Which elements should be tracked is continually re-evaluated by species experts, who consider whether species' populations appear to be in decline or whether there are identified threats. All species that are federally listed threatened or endangered or state listed endangered (Rule 3 CSR 10-4.111 of the Wildlife Code of Missouri) are tracked. If distribution and status are simply not well known, the Heritage biologist may want to track a species in order to solicit more information. We currently track 1,115 species and natural communities in the Heritage database (Table 1). A current listing can be found in the annually published Missouri Species and Natural Communities of Conservation Concern Checklist (available on-line or by contacting the Jefferson City MDC office).

MDC shares Heritage data in varying formats and level of detail with federal, state, and local governments, private natural resource planning organizations, and other groups or individuals through signed memorandums of understanding (MOU). The Missouri Natural Heritage Program has developed MOUs restricting data use with all of the federal and state agencies that evaluate environmental impacts within the state. MDC also maintains two websites that are available to the public: a searchable county database (http://www.mdc.mo.gov/cgi-bin/heritage and http://mdcgis.mdc.state.mo.us/heritage respectively). The county site returns a list of species and natural communities by county, along with their associated rank and status. The environmental review website was designed for developers in the project-scoping phase. The developer enters their name and business information, the type of project, and the location of the work; the website will then search the Heritage data behind-the-scenes to return a printable letter indicating whether a "hit" occurred. The letter directs the user to contact MDC if there is a state species or natural community of conservation concern, or the U.S. Fish and Wildlife Service (USFWS) if there is a federally-listed species on the site. Heritage data may also be obtained by sending a specific project description and location to MDC's Policy Coordination Section. Last year, Policy Coordination handled over 1,100 environmental reviews. If a project is identified as a potential threat to an EO, Policy Coordination consults with species experts, the Heritage Biologists, and the MDC Natural History Biologist for the region, to develop alternative solutions or mitigate impacts. For example, in 1996, the Missouri Department of Transportation (MODOT) completed a relocation study for a highway in southwest Missouri. The preferred route went through a known site for the federally threatened/ state endangered Geocarpon (*Geocarpon minimum*). To mitigate this loss, MODOT worked with the MDC Heritage Biologist to relocate the Geocarpon occurring within the path of the proposed highway expansion to another glade in the vicinity that would not be impacted by construction activities. Yearly monitoring indicates the relocation effort was successful, with hundreds of Geocarpon plants thriving in their new location. The MODOT was able to make necessary improvements to a highway while conserving a federally listed species.

Heritage data is also used to inform federal listing. The USFWS receives quarterly Heritage updates from MDC and regularly consults the data during the listing process. When USFWS listed Missouri bladderpod (*Lesquerella filiformis*) as endangered in 1987, there were just 11 known sites for this species. By tracking Missouri bladderpod in the Heritage database, we were able to document an additional 50 sites over the next 11 years, convincing the USFWS to downlist the bladderpod to threatened. Plant experts using the Missouri Species and Natural Communities of Conservation Concern Checklist know

Table 1: Number of elements and element occurrences in the Missouri Natural Heritage database by major group, September 2005.

Major Group	Number of Elements	Number of Element Occurrences
Nonvascular Plants	164	362
Vascular Plants	471	6,840
Mollusks	49	880
Crustaceans	38	227
Insects	90	567
Other Invertebrates	14	7
Fish	68	2,478
Amphibians	16	655
Reptiles	18	252
Birds	50	1,921
Mammals	25	745
Aquatic Natural Communities	26	200
Terrestrial Natural Communities	86	2,033
Total	1,115	17,167

which plants we are tracking in the Heritage database and contribute their survey information in order to help protect these species. The Hine's emerald dragonfly (*Somatochlora hineana*), another species tracked in the Heritage database, was not known to occur in Missouri until it was discovered in a fen in Reynolds County in 1999. The database was then searched for high-quality fen EOs where the Hine's emerald may be found. Over the next five years, 15 more dragonfly locations were discovered in eight additional counties, extending its known range southwesterly. These Missouri sites may help offset known threats to the species in other parts of its range and may impact its federal status (currently endangered).

It is easy to contribute data to the Missouri Natural Heritage Program, just download a copy of the Species of Concern Checklist at www.mdc.mo.gov/documents/nathis/endangered/checklist.pdf to determine which species we are tracking, and fill in one of the field data sheets included in the back of the booklet. There are separate forms for plants, animals, and natural communities. Contact information on where to send your data is included at the bottom of each form. The Natural Heritage database is the best source for information concerning Missouri's species and natural communities of conservation concern. It is the database that MODOT consults when planning a new road, the Natural Resources Conservation Service uses when signing up landowners for the Conservation Reserve Program, DNR uses in water quality issues and state parks management, USFWS uses when screening development projects for Endangered Species Act conflicts, and many others use for many other purposes. Help us protect Missouri's species and natural communities of conservation concern by submitting your information to the Natural Heritage database!

The Glade
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When one tugs at a single thing in nature,
he finds it attached to the rest of the world. --*John Muir*

Membership Information

The goal of MOSCB is to promote communication among conservation biologists throughout the state of Missouri. Membership in MOSCB is free. Please visit our MOSCB web page for more detailed information (http://www.snr.missouri.edu/moscb).

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