

PLAZA 3 ROOM

TUESDAY

ROOM: Plaza 3

TIME: Tuesday 8:00 AM

TITLE: An overview of The Nature Conservancy's Emiquon Project: restoration of functional floodplain along the Illinois River

AUTHOR(S):

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ABSTRACT: The Nature Conservancy's Emiquon Project is a floodplain restoration project along the Illinois River in Fulton County, Illinois. Our goal is to restore high quality, functional river floodplain with its associated natural processes and habitats to contribute to the ecological health and integrity of the Illinois River ecosystem and to conserve native plants and animals it supports. This phenomenally productive area sustained Native Americans for over 12,000 years and a century ago may have been one of the most productive fishing and hunting areas, both recreational and commercial, in the Midwest. Most of it was leveed and drained for agriculture about 1919. The Conservancy acquired 7,800 acres in 2000, and with adjacent lands of the US Fish and Wildlife Service and Illinois Department of Natural Resources, it composes a 14,000-acre, landscape-scale complex from one bluff top down across the floodplain and river to the other bluff top, providing opportunities to restore diverse habitats and connectivity for animals that need to migrate laterally across the floodplain to carry out life requisites. To assist with planning, the Conservancy formed the Emiquon Science Advisory Council (ESAC), forty scientists and managers representing a broad range of expertise and agencies (e.g., state, federal, and academia). At ESAC's recommendation, the Conservancy engaged scientists to develop spatially and temporally explicit computer simulation models to evaluate various restoration and management scenarios. Key Ecological Attributes (KEAs) were identified to guide restoration and provide feedback for adaptive management. Restoration began in April 2007 and responses of plants, animals, and people have been impressive.

KEYWORDS: river, restoration, floodplain

ROOM: Plaza 3

TIME: Tuesday 8:00 AM

TITLE: Key Ecological attributes and adaptive management at Emiquon

AUTHOR(S):

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ABSTRACT: The Nature Conservancy and its partners have developed a framework for evaluating the success of our conservation work. The framework, which was published by Parrish et al. (2003, *Bioscience* 53,851-860), includes four core components, (1) identification of a limited number of focal conservation targets, (2) identification of key ecological attributes for these targets, (3) identification of an acceptable range of variation for each attribute as measured by properly selected indicators, and (4) the rating of target status based on whether the targets key attributes are within acceptable ranges of variation. The approach provides a foundation for setting conservation objectives, assessing threats to targets, identifying monitoring and research needs, and evaluating conservation progress. Beginning in 2004, The Conservancy in Illinois initiated an effort to apply this framework to our Emiquon Preserve located along the Illinois River in Fulton County, Illinois. We used the conservation targets identified in our Illinois River Site Conservation Plan as the initial set of potential targets for the Emiquon Preserve. Key ecological attributes and indicators were developed during a meeting of The Nature Conservancys Emiquon Science Advisory Council in April 2004. These key ecological attributes and indicators have served as the basis for restoration and management planning at Emiquon and also have provided the framework for evaluating the progress of the ecological restoration at this site. A monitoring program focused on collecting data on these key attributes has been initiated and these monitoring data are being used to drive an adaptive management process.

KEYWORDS: adaptive management, monitoring

ROOM: Plaza 3

TIME: Tuesday 8:40 AM

TITLE: Restoration of The Nature Conservancy's Emiquon Preserve

AUTHOR(S):

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ABSTRACT: With the acquisition of over 7,700 acres along the Illinois River, the Illinois Chapter of The Nature Conservancy embarked on its Emiquon Project, a restoration opportunity that has become the linchpin in its efforts to conserve the Illinois River ecosystem. The recovery and maintenance of native plants, animals, and natural communities of the Illinois River ecosystem require restoration of the ecological processes that once structured these large floodplain river habitats and the native plant and animal communities they supported. Restoration and management of lands at the Conservancy's Emiquon Project and other strategically located places along the Illinois River are key to returning the river's natural resources toward their former richness and productivity. The primary objective for the restoration and management of the lands within the boundaries of the Conservancy's Emiquon Project is to restore natural ecological processes and habitats that promote and sustain the native species and aquatic and terrestrial communities once found in this region of the Illinois River.

At Emiquon, TNC used a science-based approach and principles of adaptive management to guide restoration and operation to make the best use of new information and to maximize the project's effectiveness in achieving our goals. As the overall restoration effort progresses, TNC is using monitoring data to assess the status of indicator species, communities, and conditions to evaluate progress and to take corrective action in time to reverse any undesirable trends. New restoration and management techniques were developed, implemented, and continue to be evaluated, refined, and documented.

KEYWORDS: Emiquon, restoration, Illinois River

ROOM: Plaza 3

TIME: Tuesday 9:00 AM

TITLE: Microbial ecology in river floodplain lakes: Newly restored Thompson Lake and established Lake Chautauqua

AUTHOR(S):

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ABSTRACT: Aquatic microbial communities can show dynamic changes in the environment. The objective of this study was to relate water quality conditions to potential microbial biotic indicators that change in step with lake conditions in newly restored Thompson Lake (TL)(area 809 ha, Emiquon Preserve) and established Lake Chautauqua (LC)(area 1416 ha, USFWS). TL was converted from row crop agriculture in 2007 and is isolated from the Illinois River while LC connects to the river during flood stage. Lake water was sampled weekly (March–Nov. 2008) and physical (e.g., light, temperature), chemical (TN, TP, pH) and biotic (bacteria, protozoa, and zooplankton) data were collected. In TL, bottom water decrease in dissolved oxygen (late June) produced the first extensive cyanobacterial bloom, likely due to sediment phosphorus release. The protist community was dominated by ciliate orders Oligotrichida and O. Scuticociliatida in both lakes through mid-September with greater overall diversity in LC. Rotifers and zooplankton were about 5X more abundant in TL than LC while copepod abundance peaked in spring in LC vs. early summer in TL. DNA “fingerprinting” of the bacterial community (ARISA method) yielded over 200 bacterial taxa from both lakes and higher diversity in LC. Twenty seven and 59 species were unique to TL and LC respectively. Microbial community change was sequential and directional with time. Rapid community changes and identification of unique species opens the door for better understanding of restoration and ecosystem function.

KEYWORDS: microbial, floodplain, indicators

ROOM: Plaza 3

TIME: Tuesday 9:20 AM

TITLE: Water quality and zooplankton as related to key ecological attributes at Emiquon

AUTHOR(S):

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ABSTRACT: Prior to restoration of the Emiquon Preserve, The Nature Conservancy and its partners summarized Key Ecological Attributes (KEAs) that identify what elements are important to manage for selected conservation targets. Specified indicators related to targets are measured in order to assess conservation progress and to monitor changes in the status of the KEAs. Dissolved oxygen and water temperature are some of the indicators used to determine fish habitat conditions during spawning and winter seasons. Availability of small zooplankton for young of year fishes is another important indicator we have measured in order to monitor environmental conditions for fish. Water quality data collected prior to restoration and continually since the commencement of restoration show improved dissolved oxygen during the spawning period and temperatures within suggested ranges for fish overwintering survival. Preliminary zooplankton data from 2008 show high abundances of *Daphnia pulex*, cyclopoid copepods, and the small bodied cladocerans *Chydorus* and *Bosmina* in mid May. Densities of these zooplankton taxa decreased in June as calanoid copepod abundances increased. These early data indicate that water quality and food availability conditions are generally within acceptable ranges of those suggested for successful fish reproduction and winter survival. Our presentation will provide an update of these water quality measurements and the invertebrate food base available to young of year fishes.

KEYWORDS: zooplankton, waterquality, fish

ROOM: Plaza 3

TIME: Tuesday 9:40 AM

TITLE: Emiquon: What is its potential?

AUTHOR(S):

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ABSTRACT: The Illinois Department of Natural Resources and The Nature Conservancy jointly developed a fish management plan for the Emiquon restoration. A critical management decision for the restoration was the initial control of exotic fish using the fish toxicant rotenone. The success of submerged, rooted aquatic plants are the key factor and foundation to support the entire habitat development in Illinois River backwaters. 50 years of restoration projects by IDNR fisheries biologists have provided several lessons for restorations: 1. Exotic fish species must be controlled as early in the restoration as possible. The complete removal of common carp and grass carp is the ultimate wish, but very difficult to achieve. These are the most habitat altering animals in the aquatic environment in Illinois. The drainage ditches at Emiquon supported a dense population of both species. 2. Reintroduction of exotic fish species must be controlled and an unlimited connection or source will result in the rapid degradation of the aquatic habitat. Direct connection to the Illinois River would allow the immediate introduction and proliferation of common carp and the asian carps. 3. Native fish communities dominated by Centrarchidae need to be established immediately after rehabilitation, and a high density population must be maintained. The Emiquon fish stocking has tried to establish a diverse fish community that reestablishes species that once thrived in the former backwater lakes with the submerged aquatic plants and high water clarity. The Emiquon restoration is an example of the tremendous potential for isolated backwater habitat if the carp species can be controlled.

KEYWORDS: Emiquon, restoration, aquatic

ROOM: Plaza 3

TIME: Tuesday 10:20 AM

TITLE: Recreation of the historic fish community at Emiquon Fulton County IL

AUTHOR(S):

Mike Retzer -- Illinois Natural History Survey, 1816 South Oak St, Champaign, IL 61820.

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ABSTRACT: Emiquon (historically known as Thompson and Flagg Lakes) in Fulton County, Illinois, is an ambitious project to recreate the historic fish community at the site. The project is now coming to the end of its third year. While commonly stocked game fish species such as largemouth bass and bluegill have been stocked, 25 species of non-game fish species (e.g., bowfin, lake chubsuckers) or less commonly stocked species (e.g., pumpkinseed, warmouth) were locally obtained from wild populations or raised in rearing ponds and introduced into the lakes. A nearby lake site has also been established for rare Illinois fish species, such as redspotted sunfish and starhead topminnows. Success of the stockings is currently being evaluated but preliminary data as of August of 2009 suggests that the common sport species are successfully recruiting, and seven non-game species show signs of recruitment. Thompson and Flagg Lakes are still considered to be in the early stages of succession and are showing signs (biotic and non-biotic) of instability. Predicting which species will establish permanent populations is difficult and likely several years will pass before a stable fish community is established.

KEYWORDS: fishes, stocking, recruitment

ROOM: Plaza 3

TIME: Tuesday 10:40 AM

TITLE: Fish and aquatic vegetation monitoring of The Nature Conservancy's Emiquon Preserve

AUTHOR(S):

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ABSTRACT: Thompson and Flag lakes were historically known as two of the most productive backwater lakes of the Illinois River. In the early 1920s, Thompson and Flag lakes were leveed from the Illinois River, drained, and farmed. Eighty years later the land was purchased by The Nature Conservancy with the intention to restore the lakes to their natural state. Rotenone was applied to remaining agricultural ditches in the Spring of 2007 in an attempt to rid the existing waters of invasive and nuisance fish species. The remnant farm ditches and the newly reformed Thompson Lake were then stocked with desirable fishes by the Illinois Department of Natural Resources in accordance with historical accounts of native fishes once present in the lakes. The Illinois Natural History Survey, Illinois River Biological Station has conducted fish and aquatic vegetation monitoring on Thompson Lake since its restoration in order to address Key Ecological Attributes (KEA) developed for various plant and animal communities used to monitor restoration success. We used a stratified-random sampling approach outlined by the Long Term Resource Monitoring Program fish and aquatic vegetation sampling protocols to quantitatively address these KEAs. Additionally, centrarchid diets were obtained using gastric lavage to determine the emerging food web, and largemouth bass (*Micropterus salmoides*) were Floy-tagged to determine growth rates, movement, and population size. The information gained from fish and aquatic vegetation monitoring and supplemental research will help manage this system and provide management recommendations for future floodplain restoration efforts.

KEYWORDS: floodplain, restoration,

ROOM: Plaza 3

TIME: Tuesday 11:00 AM

TITLE: Waterfowl are drawn to diverse wetland habitats at The Emiquon Preserve

AUTHOR(S):

Randy Smith -- Illinois Natural History Survey, Forbes Biological Station, PO Box 590, Havana, IL 62644. Phone: (309) 543-3950 Email: rvsmith@illinois.edu

ABSTRACT: The Emiquon Preserve is an ongoing floodplain restoration in the Illinois River Valley (IRV) owned by The Nature Conservancy. Agricultural production at the site ended in 2006 and wetland habitats returned to the property. We mapped wetland vegetation at Emiquon Preserve in 2007 and 2008 and found a diverse assemblage of aquatic plants, several of which are rare or absent in the IRV (e.g., submersed aquatic vegetation). Habitat heterogeneity was also greater at Emiquon Preserve than at other IRV wetlands. Evidence suggests that waterbirds may be attracted to diverse wetlands, so we used data from aerial inventories to compare waterbird use (computed as use-days: VDs, for the entire LaGrange Pool) at Emiquon during fall to use of other, more homogeneous wetlands in the same reach of the IRV (LaGrange Pool). We examined use by 3 waterbird groups: dabbling ducks, diving ducks, and American coots (*Fulica americana*). Dabbling duck use at Emiquon represented 26.5% and 45.6% of total VDs in the LaGrange Pool for 2007 and 2008, respectively. Overall diving duck use of the IRV during fall was low, however, Emiquon accounted for 1.4% (2007) and 46.3% (2008) of this use. American coot VDs at Emiquon were exceptional, accounting for 51.7% of LaGrange Pool VDs in 2007 and 94.3% in 2008. Interestingly, production of moist-soil plant seeds at Emiquon, which are important waterfowl foods in the IRV, declined from 2007 (992.4 kg/ha) to 2008 (495.4 kg/ha), while VDs and diversity of waterfowl increased. Our findings suggest that the spatial arrangement and diversity of specific wetland habitats are important considerations when planning wetland restorations or enhancements in the IRV.

KEYWORDS: waterfowl, Emiquon, restoration

ROOM: Plaza 3

TIME: Tuesday 11:20 AM

TITLE: The Emiquon Preserve as a multi-use natural resource

AUTHOR(S):

Jason Beverlin -- The Nature Conservancy, 11304 North Prairie Road, , Lewistown, IL 61542.

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ABSTRACT: While The Nature Conservancy has an expressed mission to conserve biological diversity, at Emiquon we are implementing strategies to both provide for and even encourage compatible use of the preserve by visitors. Among the goals of our visitor use strategies are to 1) encourage a better understanding of the many benefits healthy floodplains and rivers provide for society, 2) demonstrate natural-resource-related recreation such as hunting, fishing, and wildlife viewing can be an effective part of economic development and contribute to quality of life, and 3) build support and constituency for this and other such projects. With partners, we are employing an adaptive management strategy for promoting and managing visitor use to accrue the many benefits public enjoyment of the preserve provides while minimizing negative impacts on habitats and critters. We initiated a limited public waterfowl hunting program in 2005. To date, participation has increased annually with a total of 519 hunter-days provided in 2008-09 season. A public boating and fishing program began in April 2008, and since then, over 3200 individuals have registered for a free permit to boat and/or fish at the site. Currently we are constructing two observatories that including roadways, parking, canoe and boat launch, trails and boardwalks and observation platforms, all with interpretive materials. This infrastructure should be completed in 2010 and will facilitate multiple uses including education and wildlife viewing. Conceptual designs for two additional observatories and 16 miles of trails have been completed. However, their implementation is dependant, in part, on additional funding.

KEYWORDS: Emiquon, multituse,

ROOM: Plaza 3

TIME: Tuesday 11:40 AM

TITLE: The Thompson Lake - Emiquon Story

AUTHOR(S):

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ABSTRACT: Thompson Lake, nestled immediately north of the confluence of the Spoon and Illinois rivers in Fulton County, Illinois, was the largest and most recognized bottomland lake in the Illinois River valley and was a biological paradise. The populations of avifauna and fishes that frequented and inhabited Thompson and adjoining Flag Lake attracted Native Americans, and later explorers, settlers, and tourists, to its shores. Some claimed that Thompson Lake was the Inland Fishing Capital of the World and, as a result, Havana, Illinois became known as the Fishing Capital of the Illinois River. Further, multitudes of wildfowl attracted waterfowl hunters and tourists to the area. Due to the formation of drainage and levee districts, Thompson Lake suffered the same fate as many other bottomland lakes along the Illinois River and other large Midwestern floodplains. The Thompson Lake story is unique, however, because of its centuries of fertility and productivity followed by decades of controversy surrounding its public versus private ownership and whether it was navigable or could legally be drained plus its importance to the local and regional economies for sustenance, income, and recreation. This story is presented to coalesce the wealth of available information and illustrate the intriguing past, present, and future of the lake.

KEYWORDS: Thompson, Emiquon, restoration

ROOM: Plaza 3

TIME: Tuesday 1:00 PM

TITLE: Saving a species, one river at a time: the return of *Boltonia decurrens* to Emiquon.

AUTHOR(S):

Paige A. Mettler-Cherry -- Lindenwood University, Department of Biology, 209 S. Kingshighway, St. Charles, MO 63301. Phone: (636)949-4710 Email: PMettler-Cherry@lindenwood.edu

ABSTRACT: *Boltonia decurrens* (Torrey and Gray), Wood (Asteraceae) is a fugitive floodplain species that colonizes disturbed sites along the Illinois River and its confluence with the Mississippi River. Without periodic disturbance, populations disappear within 3-5 years of establishment. The historic range of the species was a 400 km reach of the Illinois River that ranged from LaSalle, IL to the confluence. The species occurs as a large metapopulation; however, the altered flood regime of the Illinois River and loss of floodplain habitat have substantially reduced the size and number of populations within the metapopulation. The complex life cycle of *B. decurrens* is intimately linked with the historic flood regime of late winter-early spring flood pulses, followed by a summer drawdown period. Extensive research on the demography of the species has resulted in a clear understanding of the link between the species success and the hydrologic regime of the river. Short of restoration of the entire river and its floodplain, it will be necessary to establish and maintain populations of *B. decurrens* to serve as source populations for seed dispersal when conditions are favorable. Management of these populations should focus on the annual stages of the life cycle to maximize seed production. Our project focuses on the reintroduction of the species to Emiquon with the goal of providing an adaptable template to be used by other natural areas managers. This project is planned for 3 years and will quantify the effects of disturbance frequency on population dynamics.

KEYWORDS: *Boltonia*, restoration, Emiquon

ROOM: Plaza 3

TIME: Tuesday 1:20 PM

TITLE: Developing a culturing technique for native Illinois River CWCP mussels

AUTHOR(S):

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ABSTRACT: The Nature Conservancy, USFWS, and IDNR will use cage culturing techniques developed for Higgins Eye recovery on the UMR, in a restored, isolated Illinois River backwater to determine the best possible methods for culturing species of greatest conservation concern listed in the Illinois Comprehensive Wildlife Conservation Plan.

Ellipsaria lineolata, a species of freshwater mussel determined to be all but extirpated from the Illinois River, will be the research subject. The ultimate goal is to determine if the techniques studied can be used to provide sufficient numbers of mussels to reestablish viable populations in reaches of the Illinois River.

The objectives of the proposed research are to: 1) identify the suitability of restored Illinois River backwaters as propagation and rearing areas for native mussels; 2) develop, evaluate and refine techniques to propagate native mussels in the restored backwater; 3) determine the necessity of supplementing dissolved oxygen and food in the rearing process; and 4) ultimately, at the end of the rearing process, place propagated mussels in the Illinois River with subsequent monitoring of recolonized populations to be conducted by staff of The Nature Conservancy and Illinois Department of Natural Resources.

KEYWORDS: mussels, propagation, Illinois River

ROOM: Plaza 3

TIME: Tuesday 1:40 PM

TITLE: Genoa National Fish Hatchery: A decade of mussel propagation

AUTHOR(S):

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ABSTRACT: Over the past decade, Genoa NFH has been the center of the largest endangered mussel recovery program in the nation. Located along the Upper Mississippi River and in the heart of the historic range of the endangered *Lampsilis higginsii*. Genoa NFH with its warm and cool water fish production programs, was an ideal location for a mussel propagation program. In 1999 the devastating impacts of the invasive *Dreissena polymorpha* were seen in the loss of mussel beds in the Upper Mississippi River. With partners from the Army Corp of Engineers the four surrounding state Department of Natural Resources and many others the hatchery built facilities on station to house a mussel program known today as the Clam Palace. In the last 10 years, the mussel program has focused on using and adapting techniques similar to the ones developed by researchers in Fairport, IA in the 1920s. Techniques such as culture cages filled with inoculated fish and free releasing inoculated fish into smaller streams have produced over 40000 three year old *L. higginsii* that have been reintroduced into Minnesota Wisconsin Iowa and Illinois. In addition to *L. higginsii* six additional species have been cultured and released back to the wild at the request of the state DNRs. Currently the hatchery is testing new cage locations and techniques in the form of an onsite trailer where raw river water is being used to capture the nutrients of the river while giving hatchery personnel more control over rearing conditions.

KEYWORDS: mussels

ROOM: Plaza 3

TIME: Tuesday 2:00 PM

TITLE: Distribution and management of the federally endangered Topeka shiner in Kansas streams

AUTHOR(S):

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ABSTRACT: The Topeka shiner (*Notropis topeka*) was historically abundant in small streams throughout Kansas and the Great Plains. However, largely as a result of anthropogenic changes to the Topeka shiners environment, its historical range has been reduced to about 20% of its original size and Kansas populations are now primarily restricted to the central part of the state. As a result of these declines, the Topeka shiner was listed as endangered under the Endangered Species Act in 1998 and gained protection in Kansas in 1999. To help prevent continued declines in Topeka shiner populations, the Kansas Department of Wildlife and Parks (KDWP) began monitoring Topeka shiner populations and habitat characteristics in 1995. Subsequent surveys were conducted at the same locations in 2003 and 2008 to monitor changes in Topeka shiner habitat and population structure. We used data collected by the KDWP to determine the effects of abiotic and biotic factors on Topeka Shiner populations. Recent sampling indicated that Topeka shiners are present at only 12 of the 30 sites where they historically have been found. Additionally, Topeka shiners are 2.5 times less likely to be found at sites with upstream impoundments than in more pristine locations. The results of this study will help KDWP officials identify critical habitats for Topeka shiner populations and may help protect these populations from future declines.

KEYWORDS: shiner, management, endangered

ROOM: Plaza 3

TIME: Tuesday 2:20 PM

TITLE: Redspotted Sunfish reintroduction efforts in Illinois

AUTHOR(S):

Trent Thomas -- Illinois Department of Natural Resources, 301 South Date Street, Gibson City, IL 60936. Phone: (217)784-4730 Email: trent.thomas@illinois.gov

ABSTRACT: An effort to locate extant populations of Redspotted Sunfish in Illinois began in May of 2004. Several locations of known historical collection sites and other promising sites with favorable habitat were visited and surveyed by the authors and colleagues. A State Wildlife Grant obtained from the U.S. Fish and Wildlife Service in August of 2005 allowed the authors to expand on this initial survey effort and conduct genetic analyses on collected tissue samples.

Results from the first grant were utilized to develop a management strategy for captive propagation and reintroduction, and a second grant has funded the authors to move forward with these efforts and conduct further genetic monitoring. Redspotted Sunfish were successfully propagated in rearing ponds in 2008 and over 4000 were stocked into rehabilitated backwater habitat along the Illinois River at Emiquon Nature Preserve and a refuge pond in central Illinois.

This presentation will summarize the Redspotted Sunfish efforts to date, outline a strategy for future management efforts, and discuss preliminary results from the genetic analyses and what they tell us about the management of Redspotted Sunfish and other rare fish species.

KEYWORDS: sunfish, miniatus, reintroduction

ROOM: Plaza 3

TIME: Tuesday 2:40 PM

TITLE: The Neosho madtom: a species limited by multiple factors

AUTHOR(S):

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ABSTRACT: The Neosho madtom (*Noturus placidus*) is a small ictalurid first formally recognized as a species in 1969 and federally-listed as threatened in 1990. Currently, Neosho madtoms are found in mainstems of the Neosho, Cottonwood, and Spring rivers in Kansas, Missouri, and Oklahoma. These three rivers have all been altered by reservoirs, heavy metals runoff, and gravel mining. While each factor has the potential to affect Neosho madtom populations, the challenge is to quantify their interactions and contributions to species decline. This challenge is being addressed through collaborative studies involving a partnership among federal agencies, private landowners, and universities. Within the Spring River, Neosho madtom populations are limited by poor habitat quality in the upper section (i.e., above Center Creek) and by heavy metals contamination in the lower. In the Neosho River system, the decrease in Neosho madtom densities below John Redmond Reservoir seems to be related to decreased turbidity and coarsened substrate. Other benthic fishes found with the Neosho madtom, such as the channel catfish (*Ictalurus punctatus*), showed a similar change in density. Neosho madtom population declines also have been linked to low-head dams which result in a decrease in flow upstream and coarsening of substrate downstream. Furthermore, environmental cues such as photoperiod, temperature, and water velocity have been found to alter Neosho madtom reproductive behavior, thereby indicating the potential for reservoir release patterns to disrupt reproduction. This research has shown that Neosho madtom populations are limited by different factors in different parts of the species geographic range.

KEYWORDS: madtom, dams, habitat

ROOM: Plaza 3

TIME: Tuesday 3:00 PM

TITLE: Use of three different acoustic gears to assess paddlefish abundance and distribution in the lower Osage River

AUTHOR(S):

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ABSTRACT: The North American paddlefish (*Polyodon spathula*) is listed as threatened, endangered, or of special concern in 10 of the 22 states within its current range. Although multiple states still allow sport and commercial harvest, paddlefish are susceptible to overharvest due to their unique life history. Acoustic surveys may provide a useful management tool for assessing paddlefish abundance and distribution. Our objective was to combine and evaluate the use of three different acoustic gears, a 430 kHz digital single beam echosounder (Biosonics, Inc., Seattle, Washington), 900 kHz side scan sonar (Marine Sonic Technology, Ltd., White Marsh, Virginia), and Dual-Frequency Identification Sonar (DIDSON) (Soundmetrics, Corp., Lake Forest Park, WA), to assess paddlefish abundance and distribution in the lower Osage River, MO. Fixed transects below Bagnell Dam were traversed using various combinations of the acoustic gear in May of 2009. Acoustic targets were detected and enumerated with the single beam echosounder and side scan sonar, whereas targets were verified with high resolution imagery from the DIDSON and gill-captures. Due to their large size and unique morphology, paddlefish targets were easily distinguishable from other species using the DIDSON. Combined acoustic surveys provided a complimentary suite of tools to estimate paddlefish abundance, identify areas of aggregation and assess distribution in the lower Osage River. Such surveys may provide managers with an efficient, cost-effective means of assessing other rare aquatic species in complex or difficult environments.

KEYWORDS: paddlefish, acoustic, assessment

ROOM: Plaza 3

TIME: Tuesday 3:40 PM

TITLE: The Missouri Department of Conservation alligator gar restoration efforts

AUTHOR(S):

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ABSTRACT:

KEYWORDS: alligator gar, restoration, mingo

ROOM: Plaza 3

TIME: Tuesday 4:00 PM

TITLE: Standardized sampling as a critical element of rare species management: a case study of the gilt darter in the upper St Croix Drainage

AUTHOR(S):

Martin Jennings -- Wisconsin Department of Natural Resources, 810 West Maple Street, Spooner, WI 54801. Phone: (715)635-4160 Email: martin.jennings@wisconsin.gov

ABSTRACT: Distribution of rare biota is often known from sampling designed to address different objectives. Incidental records of species occurrences are useful for estimating distribution but effective management planning can require more detailed data that provide insight regarding limiting factors. The gilt darter (*Percina evides*) historically occurred above the present site of the Trego Dam on the Namekagon River in northwestern Wisconsin. Routine fish surveys suggested that the species may have become extirpated above the dam by the 1990s. Without detailed information regarding its distribution and relative abundance in the system a management strategy of reintroducing gilt darters during 1997 was compatible with hypotheses advanced to explain their decline. We evaluated the current distribution and relative abundance of gilt darters with standardized sampling focused on specific habitat. Gilt darters were common in the St. Croix River near the confluence with the Namekagon and in lower reaches of the Namekagon however abundance was lower upstream in the St. Croix and in the Totogatic and the Namekagon below Trego Dam. Gilt darters were not detected above the dam. Upstream reaches generally contained low numbers of gilt darters and movement from downstream areas appears necessary to maintain their presence upstream. Thus the Namekagon above the Trego Dam was likely a population sink incapable of supporting a self-sustaining population and a reintroduction strategy was unlikely to succeed. Standardized sampling strategies specifically targeting rare aquatic species are essential for making informed management decisions.

KEYWORDS: sampling, Percina, dam

ROOM: Plaza 3

TIME: Tuesday 4:20 PM

TITLE: Status and management of blanding's turtle in Lake County Illinois

AUTHOR(S):

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ABSTRACT: Urbanization in the Chicago Wilderness region has resulted in a substantial loss of natural wetland communities. Many land management and conservation agencies within the region have included wetland restoration, creation, and protection among their priorities. However, semi-aquatic species requiring large expanses of interspersed wetland and upland habitat, such as the Blanding's Turtle, continue to experience habitat degradation and fragmentation leading to increased isolation and possible extirpation of populations. In 2004, we initiated a survey of Lake County Forest Preserve District (LCFPD) properties for the state threatened Blanding's Turtle, *Emydoidea blandingii*. This survey documented Blanding's Turtles from only one site, Spring Bluff Nature Preserve. Since 2004, we have been conducting a detailed demographic (population size, population structure, growth rates, survivability, recruitment, and reproductive success) and spatial ecology (seasonal activity, movement patterns, home ranges) study of this population. Results of this study will aid in formulating a management plan for the species in Lake County.

KEYWORDS: turtle, management, headstarting

ROOM: Plaza 3

TIME: Tuesday 4:40 PM

TITLE: Monitoring species with a patchy distribution: the Ozark Hellbender

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ABSTRACT: Species with unpredictable distributions and imperfect detection probabilities present unique challenges for management. I will discuss these issues using the example of developing a monitoring protocol for the Ozark Hellbender, *Cryptobranchus alleganiensis bishopi*.

KEYWORDS: occupancy, salamander,