

PRESENTATION ABSTRACTS

Southeastern Wisconsin Conservation Summit (Nov. 3-4, 2017)

Forest Beach Migratory Preserve, Belgium, WI

FRIDAY (NOVEMBER 3)

Introduction & Keynote: The Importance of Knowing Your Neighbors

Bryan Lenz (Director, Bird City Wisconsin; Chief Scientist, Western Great Lakes Bird and Bat Observatory)

The prevailing trend in research over the past several decades has been toward increased specialization while the conservation movement has moved from primarily public lands to include substantial private lands. I will discuss the impact that these trends have had on research and conservation and consider how programs and technologies developed in the last decade might help to bring like-minded citizens and professionals together in new synergistic partnerships.

If You Build It, They Will Come

Kate Redmond (Board Member, WGLBBO; Friends of the Cedarburg Bog)

The reclamation of a former golf course with the purpose of creating a B&B for resident and migratory birds has resulted in a diversification of habitats and a bird list of more than 254 species seen at the Forest Beach Migratory Preserve. Not surprisingly, other wildlife species have benefited, too. The Preserve has become a mecca for dragonflies, and some uncommon species have been sighted there. Discussion of the natural history of dragonflies, of what features of the bird-oriented landscape restoration are valuable to dragonflies, and of what more could be done to encourage Odonates without straying too far from the stated mission of the Forest Beach Migratory Preserve.

Hiding in Plain Sight: Revealing Breeding Bird Landscape Utilization with GIS and Implications for Management

Matt Smith (Riveredge Nature Center)

Riveredge Nature Center's avian populations have been monitored over the last 30 years through breeding bird surveys, banding, and naturalist observances. Until now, these data had not been formally compiled or utilized to construct restoration management objectives. The point observations across 177 acres from the 2017 breeding bird survey have been geo-referenced and analyzed in relation to vegetation data. This presentation will review priority species found during the 2017 survey period, species occupancy across various cover types, discuss site limitations and future opportunity for management.

From Cabbages to Cordgrass: Pike River Restoration in an Urban Context - Restoring Structure and Function in an Urban Setting

Alice Thompson (Thompson & Associates Wetland Services)

The Pike River restoration is a multi-year phased restoration of a degraded river in Mount Pleasant, Wisconsin. The project aims to establish a newly constructed river and floodplain to a wetland and prairie corridor by establishing native vegetation, and reconnecting wildlife and fisheries to the river and urban green space. Using an adaptive, phased approach, the Pike river restoration has evolved as each reach was restored and monitored. Techniques of using coir logs, constructed fabric wrapped banks, fish structures, and native plantings have been integrated with the construction of an expanded floodplain bench and new channel meanders. The successes and challenges of this restoration include managing water quality and restoring river biota, creating fish habitat in a newly graded river and establishing native vegetation in an urban setting. Adaptive management includes evaluating the current goods and services offered by the newly constructed river corridor while managing the river and floodplain for ongoing disturbances. Prairie cord grass (*Spartina pectinata*) and sandbar willow (*Salix exigua*) are increasing evident as ecological tools that both provide cover to the river and block succession of non-native species. However, the invasive species being monitored and managed include *Phalaris arundinacea* (reed canary grass), *Glyceria maxima* (reed manna grass) *Dipsacus laciniatus* (cut-leaved teasel), and *Phragmites australis* (giant reed grass). Our ability to control these species, including the recent expansion of *Glyceria maxima* into restored areas of the river, challenges the long-term stability of native vegetation.

Milwaukee Metropolitan Sewerage District's Greenseams Program: A Watershed Approach to Reducing Flooding Impacts

Stephen McCarthy (Metropolitan Milwaukee Sewerage District)

In 2000 the Milwaukee Metropolitan Sewerage District (MMSD) adopted a nature based solution to address flood reduction in the greater Milwaukee area. With 17 years under its belt that included forging numerous local, state, and national partnerships, we can stand back and review the challenges and accomplishments of this nationally recognized program.

Mapping Remnant Oak Ecosystems in Southeast Wisconsin

Chris Mulvaney (The Morton Arboretum/Chicago Wilderness Oak Ecosystem Recovery Initiative), Dan Carter (Southeastern Wisconsin Regional Planning Commission), Lydia Scott (The Morton Arboretum/Chicago Region Trees Initiative)

In this presentation, we will present an overview of the oak mapping project and discuss the various ways partners are working together to develop a collaborative, regional framework to preserve and recover our remaining oak ecosystems.

Oak ecosystems are tremendously important to the biodiversity of Southeastern Wisconsin, yet they are under intense, combined pressures from a number of threats, including habitat fragmentation, development, direct cutting, invasive species, changing climate, and lack of management. In addition, oak populations are suffering from severe reproductive failure. Very old trees characterize many of the region's oak stands with an understory almost completely lacking in new recruits, giving way to more shade-tolerant species such as sugar maple. To counter these challenges, several organizations and agencies are working together, using a collective impact framework, to protect and restore oak ecosystems across the

Chicago Wilderness Region - a landscape spanning Southeastern Wisconsin, Northeastern Illinois, Northwestern Indiana and Southwestern Michigan.

In 2016, these partners initiated a spatial analysis of oak ecosystems in Southeastern Wisconsin over the last 150 years. This study, based on a similar analysis for Northeastern Illinois completed in 2014 is documenting the extent of oak dominated communities during three points in time: 1) pre-Euroamerican settlement, 2) 1930s, and 3) 2015. The information gleaned from this project will be used to advance a number of goals identified in the Oak Ecosystems Recovery Plan for the Chicago Wilderness Region. In addition to helping tell the story of Southeastern Wisconsin's oak ecosystems, this analysis will provide a solid baseline of information that can help to guide the preservation, restoration, and expansion of these important natural communities.

Implementing an Effective Citizen-based Monitoring Program to Inform Wildlife and Habitat Management in the Milwaukee County Park System

Julia Robson (Assistant Natural Areas Coordinator, Milwaukee County Department of Parks, Recreation & Culture)

The Milwaukee County Park's Natural Areas Program is a creative use of partnerships that engages Wisconsin's largest community through the science and beauty of restoration ecology. The Milwaukee County Park System has 9,200 acres of natural areas. These resources include upland and bottomland forest, fens, oak savanna, remnant wet-mesic prairie, shrub-carrs, open marsh, lagoons, pollinator gardens, and surrogate grasslands. These are natural resources that have been historically molded by the influences of a great lake, Wisconsin's ecological tension zone, and over 150 years of settlement. In 2015, the Parks Department formalized its first ever citizen-based wildlife monitoring program in order to assist the Department's natural areas managers in better understanding the occurrence, distribution, and overall status of wildlife populations in Milwaukee County. This Citizen-based Wildlife Monitoring Program assists our natural areas managers in allocating habitat management resources and planning future restoration projects. Data collected by Natural Areas staff and Citizen Scientists is crucial in helping to make sure that common species remain common, and that rare, threatened, and endangered species are protected and properly managed for within the Park System.

Contaminant Exposure in Tree Swallows Nesting in Southeastern Wisconsin

Christine Custer, T. W. Custer, and P.M. Dummer (USGS, Upper Midwest Environmental Sciences Center)

The Great Lakes Restoration Initiative (GLRI) was initiated by the US Environmental Protection Agency (EPA) and Environment Canada (EC) in 2010. It provided funds primarily for restoration and clean-up projects across the Great Lakes, but assessments of the current status and biological effects of both legacy and contaminants of emerging concern were also a significant component of GLRI. Tree swallows (*Tachycineta bicolor*), an aquatic passerine, are being used as a sentinel species because they nest in highly industrial and urban landscapes that are common in the Great Lakes but where few other waterbirds consistently nest. Their food habits, aquatic insects, provide an avenue for exposure from sediment contaminants to move up through aquatic and into terrestrial food chains. Data from locations in southeastern Wisconsin, primarily Milwaukee Estuary Area of concern (AOC) will be presented and put in context with other AOCs. For polychlorinated biphenyls (PCBs), the mean exposure in tree swallow eggs in the AOC ranked 7th out of 27 AOCs. The 5 sites within the estuary, ranked 5th, 13th, 17th, 30th and 33rd at the 59 sites with mean PCBs in eggs ranging between 0.65 and 2.57 µg/g. Dioxin and furan exposure was in the lower 50th percentile for

all sites and mercury was at background concentrations. Polycyclic aromatic hydrocarbons, however, were the highest of all 69 sites at Lakeshore Park and ranked 3rd in the Three Bridges area of the Menomonee River.

Invasive Species and the Ecological Junk Food Diet

Susan Lewis (Department of Life Sciences Carroll University)

Decomposition of organic matter that falls from riparian trees into shaded headwater streams during a short autumn leaf fall period provides much of the energy these streams receive throughout the year. As such, alterations of riparian communities, including those resulting from invasive species, should have a significant impact on these energy inputs and potentially alter microbes and macroinvertebrates that process leaf litter. I compared patterns of consumption and effects of an exclusive diet of leaves of an abundant native species (green ash *Fraxinus pennsylvanica*) and nonnative species (common buckthorn *Rhamnus cathartica*) by the northern spring amphipod *Gammarus pseudolimnaeus*. Amphipods consumed a very small proportion of the unconditioned leaves of common buckthorn and green ash and demonstrated no significant preference for the unconditioned leaves of either species. Amphipods preferred stream conditioned leaves of common buckthorn and ate leaf disks of buckthorn more completely than they ate those of ash. Peak consumption of buckthorn leaves occur during a narrower range of conditioning times compared to that of ash. Notably, a 24-day diet of conditioned buckthorn leaves resulted in significantly higher mortality and significantly lower body mass compared to a diet of ash leaves. Lipid (but not glycogen) concentrations in amphipod bodies were significantly lower for experimental amphipods fed either diet compared to field-collected amphipods, but the two experimental diets did not differ significantly in either lipid or glycogen concentrations. Riparian ecosystems throughout eastern and central North America are experiencing a significant expansion of common buckthorn. Concurrently, the spread of the non-native emerald ash borer insect (*Agrilus planipennis*) is causing a decline in green ash and other native ash species. Our results suggest that such changes in riparian plant communities are likely to alter substantially the macroinvertebrate fauna and energy dynamics of regional headwater streams, potentially leading to broader ecosystem impacts.

Distribution, Abundance, and Wetland Habitats of Breeding Black Terns (*Chlidonias niger*) in Southeastern Wisconsin, 2014-2017

Sumner Matteson (Conservation Biologist, WDNR, Daryl Christensen (Ornithologist), and David Shealer (Loras College)

As part of a statewide effort to determine the population status and distribution of the state-endangered Black Tern, we present preliminary data from 4 years of Black Tern population surveys in the following southeastern Wisconsin counties: Ozaukee, Washington, Dodge, Jefferson, Waukesha, Milwaukee, Walworth, Racine, and Kenosha. We discuss known changes in occurrences from past studies and present wetland habitat associations of breeding Black Terns. In general, we found that colonies and subcolonies were widely scattered, were moderate in size (with few exceptions) numbering 10-20 pairs, and were located in remote bays and marshes associated with inland lakes, or in isolated wetlands accessible best (or only) by kayak.

How the Monarch Butterfly Helped to Protect a Part of the County Grounds

Barb Agnew (President, Friends of the Monarch Trail)

Presentation describes a 10-year effort to protect and restore an annual migration roost site for monarch butterflies.

The Monarch Trail had humble beginnings, an effort to save a grouping of trees that were historically used by migration monarch butterflies. MMSD proposed to remove the stand of trees for their County Grounds Basin Project. After advocating for its protection, the stand was preserved—twice, after subsequently convincing the Milwaukee Co Board to protect the roost sites as part of a land sale agreement with the UWM Real Estate Foundation.

Monarch populations have decreased in recent years by about 90%, and the County Grounds have been a symbol of chipping away at habitats nationwide—in many cases without knowing the cost to the wildlife and incredible phenomenon that occur. The preserved 11 acres + an addition of the 8-acre DOT land is being restored to help revive the migration on this site.

The Milwaukee County Grounds have endured major reduction in acreage, fragmentation, topographical changes leading to invasive species overload, and a continued, persistent push for more development. While politics may not be what any naturalist wants to get into, that has been the key to preserving the County Grounds—piece by piece and jurisdiction by jurisdiction. A 10-minute power point includes maps, images, and walks through the 10 year effort to save the County Grounds and the monarch butterfly migration habitat.

Architecture for the Birds

Filip Tejchman (Assistant Professor, UW-Milwaukee School of Architecture)

Every year there are approximately 600 million bird deaths in North America that are caused by collisions with buildings. Many of the species involved are migratory birds whose survival is already threatened due to habitat loss and climate change. These unnecessary deaths exert a significant toll on state and national economies linked to tourism and agriculture as well as contributing to the degradation of our environment.

There are decades of research available supporting the conclusion that collisions with buildings is the second leading anthropogenic cause of death of wild birds in North America. However, designers and architects that currently want to prevent bird strikes on building facades and windows depend on a body of knowledge that is almost exclusively anecdotal. This is a significant problem because the material and labor costs of a building project can be greatly affected by including materials or devices that could reduce the likelihood of bird strikes.

How would a client or architect decide where to apply a potentially expensive device for preventing collisions? If it was applied to the entire building skin, the costs could be exorbitant and prohibitive. If it was applied based on the current anecdotal recommendations, it “might” reduce some bird fatalities some of the time, but the degree of effectiveness is currently unknowable because there are very few studies that focus on evaluating the effectiveness of retrofits intended to reduce bird mortality. This inability to precisely predict the potential lethality of a building design and to generate targeted retrofitting solutions, often means that campuses and large buildings choose to ignore the problem.

Biodiversity and Conservation of Mussels in the Milwaukee River Basin

Jason M. Dare (Dare Ecosystem Management LLC) and Gary S. Casper (UWM Field Station)

We describe the mussel communities of the lower Milwaukee, Menomonee, and Kinnickinnic rivers, through a review of current knowledge and original surveys, and make recommendations on status and conservation of mussels in the Milwaukee Estuary Area of Concern (AOC). We performed mussel surveys, collected and reviewed third party data, and reviewed the literature. We assessed species local conservation status and assigned status rankings. 445 records were obtained from 1875 to 2016, representing 25 species. Ten species were assigned a rank of Species of Local Conservation Interest (SLCI), three of which are also State Threatened, one State Endangered, and one State Special Concern. Two SLCI (Slippershell, Ellipse) were found only as relics (dead shells), and another (Spike) as relics at 14 of 15 sites surveyed. No mussels at all were found on surveys of the lower Kinnickinnic River, Honey Creek, Lincoln Creek, and Little Menomonee River, or in the Menomonee River below 35th Street. However, looking at all available data, 3 species were collected in the Kinnickinnic River historically, and Asian Clam was discovered on the Lower Menomonee River in 2012. We discuss differences among conservation ranking systems for regional conservation implications, critical habitat needs for these species, research and monitoring issues, and make recovery recommendations for impaired species.

Avian Biodiversity and Conservation in the Milwaukee River Basin

Julia L. Robson (Milwaukee County Department of Parks, Recreation & Culture), Ryan Glasford (Milwaukee County Department of Parks, Recreation & Culture), and Gary Casper (UWM Field Station)

Might this federally designated Great Lakes toxic “hot-spot” have the potential to be an oasis for avian life amidst urban sprawl? Birds are a charismatic and important component of the Milwaukee Estuary Area of Concern (AOC) ecosystems, occupying aquatic, semi-aquatic, and terrestrial habitats, both in-stream and within the riparian zone. We describe the breeding and migratory bird communities of the lower Milwaukee, Menomonee, and Kinnickinnic rivers, through a review of current knowledge and original surveys, and make recommendations on status and conservation of breeding and migratory birds in the Milwaukee Estuary AOC. We collected and evaluated third party and historical data, and performed a variety of survey types to document species presence and distribution throughout the study area, including point count, transect, acoustic, and call-back surveys. We then assessed species local conservation status and assigned status rankings. We further used species guilds associated with four major habitat types to discuss potential habitat projects in these habitat types: forest, grassland, shrub-land, and wetland. We discuss differences among conservation ranking systems for regional conservation implications, critical habitat needs for these species, research and monitoring issues, and make recovery recommendations for impaired species.

Biodiversity and Conservation of Odonates in the Milwaukee River Basin

Ryne D. Rutherford (Biophilia LLC), and Gary S. Casper (UWM Field Station)

We completed a baseline assessment of odonate communities of the lower Milwaukee, Menomonee, and Kinnickinnic rivers, and discuss status and conservation of dragonflies and damselflies in the Milwaukee Estuary Area of Concern. We performed original surveys, collected and reviewed third party data, and reviewed the literature. We assessed species local conservation status and assigned tentative status rankings. We discuss differences among conservation ranking systems for regional conservation implications, critical habitat needs, research and monitoring issues, and make conservation

recommendations. We found that some species considered rare were actually common in the system, and documented several new species hitherto unknown. The odonate fauna appears to be undergoing rapid change with southern species moving into the area with ongoing climate change, but it is difficult to interpret change without prior comprehensive survey data available from the pre-climate change era.

Biodiversity and Conservation of Primary Burrowing Crayfish in the Milwaukee River Basin

Gary S. Casper (UWM Field Station), Julia L. Robson (Milwaukee County Department of Parks, Recreation & Culture), Kristina M. Kroening (Green Roots, LLC), Beth Mittermaier (Earth Ltd.), and Thomas J. Anton (The Ecological Consulting Group, LLC)

Primary burrowing crayfish are semi-terrestrial keystone species which construct deep burrows utilized by many other species of wildlife to escape drought and temperature extremes. This ecological service may become more important with ongoing climate change. They are associated with floodplains and ephemeral wetlands, avoiding permanent waters. In the Milwaukee River Basin three species fit this ecological profile: Digger Crayfish, Prairie Crayfish, and Devil Crayfish. We report on the initial discovery of Digger Crayfish in Wisconsin, and discuss the crayfish communities of the lower Milwaukee, Menomonee, and Kinnickinnic river watersheds. We reviewed current knowledge, conducted original surveys, and make recommendations on status and conservation in the Milwaukee Estuary Area of Concern. We assessed species local conservation status and assigned status rankings. Differences among conservation rankings are discussed for regional conservation implications. We found that Prairie Crayfish were more common and widespread than previously thought, while Digger and Devil crayfish were rare in the system. We discuss critical habitat needs, research and monitoring issues, and make conservation recommendations.

Biodiversity and Conservation of Mammals in the Milwaukee River Basin

Gary S. Casper (UWM Field Station), Julia L. Robson (Milwaukee County Department of Parks, Recreation & Culture), Matthew L. Niemiller (Illinois Natural History Survey, Prairie Research Institute, University of Illinois Urbana-Champaign), Kristina M. Kroening (Green Roots, LLC), and Beth Mittermaier (Earth Ltd.)

We describe the mammal communities of the lower Milwaukee, Menomonee, and Kinnickinnic rivers, through a review of current knowledge and original surveys, and make recommendations on status and conservation in the Milwaukee Estuary Area of Concern (AOC), with special attention to bats. We assessed species local conservation status and assigned status rankings. We discuss differences among conservation ranking systems for regional conservation implications, critical habitat needs, research and monitoring issues, and make conservation recommendations. We obtained evidence for two new bat species (Evening and Tricolored), and discuss bat maternity season status and the role of acoustic surveys in bat conservation. We discuss the ecological role and status of canids, grazers, and other mammal species in the AOC, with comments on rare species such as Southern Flying Squirrel and Star-nosed Mole.

Biodiversity and Conservation of Amphibians and Reptiles in the Milwaukee River Basin

Kristina M. Kroening (Green Roots, LLC), Gary S. Casper (UWM Field Station), Julia L. Robson (Milwaukee County Department of Parks, Recreation & Culture), and Beth Mittermaier (Earth Ltd.)

We describe the amphibian and reptile communities of the lower Milwaukee, Menomonee, and Kinnickinnic rivers, through a review of current knowledge and original surveys, and make recommendations on status and conservation in the Milwaukee Estuary Area of Concern. We assessed species local conservation status and assigned status rankings. We found that frogs in the family Hylidae, and all salamanders, were especially impaired, and are excellent indicator species for the success of habitat restoration and enhancement projects. Snakes were the second most impaired group, but more variable as indicator species. We documented three new turtle species in the system, and discuss the ecological resilience of this group. We discuss differences among conservation ranking systems for regional conservation implications, critical habitat needs, research and monitoring issues, the role of acoustic surveys, and make conservation recommendations.

Biodiversity and Conservation Standards and Practice in Southeastern Wisconsin

Gary S. Casper (UWM Field Station), and William Mueller (Western Great Lakes Bird and Bat Observatory)

Biodiversity data collection is experiencing rapid growth owing largely to new technologies and Citizen Science efforts. This has changed the role of scientists in data collection and management, and in study design, as well as the nature of the data collected. We build upon our experience in field data collection and analysis, recommendations from Milwaukee River Basin studies, and our experience with national and regional programs by various agencies and NGOs, to examine the status of biodiversity studies in southeastern Wisconsin. We identify a need for better study designs, and for improved coordination and standardization of methods. We identify knowledge gaps, and introduce some emerging research needs, including the ecological (and human health) impacts of noise and light pollution, and the potential role of acoustic and light surveys. We examine species conservation status ranking systems from a perspective of spatial scale, and identify a need for local conservation status rankings and more easily discoverable biodiversity data to improve local conservation initiatives. We propose that keeping common species common, and a two-pronged paradigm of "first do no harm", should be considered in conservation planning.

Treasures of Oz: First You Fall in Love; A Model for Community Engagement

Marjie Tomter (Coordinator, Treasures of Oz)

Treasures of Oz is a model for community education, awareness and engagement that has been successful in Ozaukee County for the past eight years. A Rural Development Initiative Award winner in 2015, it has served as a model program for others and has spawned a significant professional organization as well.

Based upon the premise that people support what they love, it works to introduce and connect county residents and others with the wealth of their local natural areas and resources. This is done in ways that develop genuine community interest through friendly interactive experiences. Visitors learn a lot about the importance of their local resources, how they are affected by them and how they affect the resources as

well. They get to know staff from federal, state and local organizations working and researching in Ozaukee County. They find multiple outdoor recreational opportunities and are encouraged to get involved in the organizations that support, protect and expand these beautiful and loved places.

Treasures brings together multiple organizations, scientists and other experts for a full day adventure of eco-touring and interactive experiences. Beyond that one day, Treasures of Oz serves the county with a very complete website on Ozaukee County recreation and resources. The work-focused counterpart of Treasures of Oz, the Ozaukee Treasures Network, creates a strong networking community that hosts multiple conferences as it endeavors to establish Ozaukee County as both a regional and national model for the environment, preservation, economic viability, sustainable development and conservation.

Stories about Adaptive Land Management: Successes, Struggles, and Surprises

Jason Nickels (Mequon Nature Preserve)

Problems with unexpected invasives, soil issues, animals that showed up that we didn't plan on, and animals we wish would come back (and how we have actively brought animal species back).

Mequon Nature Preserve is a 438-acre land restoration project that began in 2005. MNP's master plan directs staff to bring the land back to the historical SE WI, mesic hardwood forests and wetlands. However, the route to that goal is a moving target. Jason Nickels, Director of Education and Research, will share some of MNP's successes, struggles, surprises, and our future plans. There will be time set aside for everyone to share some of their best land restoration stories as well!

Watershed Planning & Implementation - Without Borders

Randy Stowe (Watershed Manager Nippersink Watershed Association)

Watershed-based projects ideally combine riparian corridor land protection, enhancement, and management. With a number of high quality stream systems still intact, northeastern Illinois is fortunate to have an abundance of agencies, not-for-profits, and private individuals working together to achieve these goals.

The Nippersink Creek Watershed encompasses 152 square miles in McHenry County, Illinois, as well as an additional 50 square miles of adjoining portions of Wisconsin. Nippersink Creek is the largest tributary to the Fox River in Illinois, and features Wonder Lake, an 830 acre on-line impoundment lake, located in the center of the watershed. In addition to the McHenry County Conservation District, the watershed also contains a network of environmental advocacy groups, as well as private landowners, doing extensive restoration and enhancement activities on their properties. More recently, the USF&WS Hackmatack National Wildlife Refuge was established, which lies entirely within the Watershed.

The Watershed has also benefitted from on-going watershed planning efforts since 1995. This resulted in an initial "big picture" watershed plan in 1996, and a subsequent "9-Element" Watershed-Based plan produced in 2008, which meets the current IEPA/USEPA watershed planning guidelines.

To date, over \$2 million in IEPA Section 319 grant funding has been obtained for watershed plan implementation projects. In the most recent grant cycle, the Nippersink Watershed Association, a 501(c)3 group tasked with implementing the Watershed Plan, was able to convince IEPA to fund the expansion of watershed planning efforts into the Wisconsin portion of the watershed, allowing us to work with a variety of Wisconsin project partners.

This presentation will provide a brief overview of the different approaches being pursued through strong partnerships, that all have the common goal of increasing public outreach and education on the need to protect, preserve, and enhance our valuable water resources.

The American Bird Conservancy's Great Lakes Region Programs

Shawn Graff (American Bird Conservancy)

A brief discussion of ABC's work in the Great Lakes Region including initiatives and partnership activities in southern Wisconsin and northern Illinois.

SATURDAY (NOVEMBER 4)

Comprehensive Ecological Improvement Efforts in Ozaukee County Parks and Natural Areas

Tina Kroening (Ozaukee County Planning and Parks)

Through private, local, state and federally secured funding, the Ozaukee County Planning and Parks Department (Department) is implementing an integrative approach to invasive species management and ecological improvement within the Ozaukee County Park System and Department-lead large-scale habitat restoration projects throughout Ozaukee County. Ecological improvement activities include controlling and managing invasive vegetation, management of ash trees for emerald ash borer (EAB), planting native trees and shrubs to replace tree canopy lost to EAB infestation and to increase species diversity, installation of avian and wildlife habitat structures (e.g. bird boxes, woody debris) and restoring ecosystems through native prairie seeding and wetland restoration projects. An important component of these projects is monitoring avian, wildlife and vegetative assemblages before and after restoration project implementation. The Department is using this information as baseline data to guide future restoration projects, evaluate project site species diversity, effectiveness of vegetation maintenance and use of habitat before and after restoration.

The Department and its partners are implementing several of the aforementioned ecological improvement projects within Tendick Nature Park including a 15 acre native prairie/savannah seeding, wetland scrape, native tree planting, invasive species management and installation and monitoring of bluebird and kestrel nest boxes. This presentation will provide a brief overview on the Department's efforts, success and challenges to improve the native local ecology within Ozaukee County using Tendick Nature Park as a case study.

The Potential of Undergraduate Research Projects in Insect Taxonomy as a Resource for Conservation Efforts in Wisconsin

Kerry Katovich (Department of Biology, University of Wisconsin-Whitewater)

Taxon-focused insect surveys train students in numerous areas, including a natural history component that is becoming rare in our biological curriculums. In these types of projects, there exists the potential to

provide unique information that contributes to ongoing conservation efforts. Several examples of such projects and their potential contributions toward documenting Wisconsin's biodiversity are discussed.

Metabolic Detoxification of the Metabolite Emodin Produced by the Common Buckthorn (*Rhamnus cathartica*) by the Green Frog (*Lithobates clamitans*) (Ranidae)

Linh Nguyen and Roberto Brenes (Biology Department, Carroll University)

The metabolite emodin, present in the invasive common buckthorn (*Rhamnus cathartica*), has been related to morbidity and mortality of amphibian larvae. Although negative effects of the metabolite in young tadpoles have been previously documented, the effect of the metabolite in older tadpoles with fully liver and kidney function has never been tested and it's unknown if the compound could be metabolized by amphibians as seen in higher vertebrate groups such as mammals. To demonstrate the relationship between organ function and survival, we exposed Green frog (*Lithobates clamitans*) and bullfrog (*L. catesbeiana*) tadpoles of different age classes to synthetic emodin at a concentration of 0.5 ppm, to determine if older tadpoles with higher levels of liver function can neutralize the metabolite. We exposed tadpoles to emodin for 21 days, during the experiment, tadpoles were monitored daily for signs of morbidity or mortality. After the trial all animals were necropsied and the liver and kidney removed for histopathology. We expect that older tadpoles with fully liver and kidney function will survive the exposure to emodin with minimal or no permanent damage, while less developed stage tadpoles will not. Preliminary results showed that morbidity and mortality in older tadpoles was lower than in early development stage tadpoles. Signs of metabolic detoxification, like hepatocellular swelling and other hepatic injuries on the liver or kidney are still been assessed thorough histopathology analysis. This experiment will help us understand the relationship between organ function and survivorship to secondary metabolites present in invasive species like the common buckthorn and will help us explain decline of amphibian communities in areas with high densities of this plant.

Survival of Headstarted and Non-headstarted Hatchling Blanding's Turtles (*Emydoidea blandingii*) in Southern Wisconsin

Joshua M. Kapfer (Department of Biological Sciences, University of Wisconsin–Whitewater), Andrew Ibach, Joseph Mozuch, Nicholas Rudolph, Lisa Mitchem, Karl Rutzen, Katie Hausmann, Samantha Foster (Turtles for Tomorrow), and Robert Hay

The Blanding's turtle (*Emydoidea blandingii*) is a rare species in Wisconsin. State populations have likely declined due to habitat destruction and high nest or juvenile predation. Headstarting (rearing of eggs/juveniles in captivity to reduce predation rates) is a conservation tool frequently employed for turtles. This technique protects against egg predation and increases turtle size, presumably making them more difficult for predators to consume. However, limited research has assessed the behavior and survival of headstarted Blanding's turtles post-release. Our goal was to address knowledge gaps by conducting long-term radio telemetry study of headstarted Blanding's Turtles. We collected Blanding's turtle eggs in 2012, and eggs/juveniles were captive reared for ca 10 months to increase hatchling size. In summer 2013, we affixed 19 with radio transmitters and released them on-site. We located turtles once per week with radio telemetry during the active seasons from 2013 to present. Although survival probabilities for headstarted turtles increased over time after their release, 10 of the 19 turtles died (52.6% mortality) and 8 were lost due to equipment failure or inaccessibility. Sources of mortality ranged from predation to apparent winterkill. For comparison, we tracked behavior and survival of hatchling turtles that were not headstarted

post-hatch. In 2015 and 2016, 7–10 eggs were collected from females at the same location and hatched in captivity. These were immediately released and tracked with radio telemetry for 4–8 weeks during the period of 14 August – 23 September. With the exception of one turtle, all tracked hatchlings in both years survived at least the first 4 weeks despite undertaking long-movements from the release point and experiencing mild drought conditions. After 4 weeks, some turtles lost their transmitters, but remaining individuals were still alive at 8 weeks post–release. These results provide insight into the application of headstarting vs nest protection measures to help offset Blanding’s Turtle mortality in young age classes.

The Milwaukee BioBlitz

Ellen Censky (Senior Vice President and Academic Dean, Milwaukee Public Museum)

The BioBlitz is designed to increase the public’s awareness of the variety of life in their neighborhood and the services these various species provide to improve the quality of life. Part contest, part festival, part educational event, part scientific endeavor, the BioBlitz brings together scientists in a race against time to see how many species they can count at a park in a 24-hour biological survey. The public is invited to observe the scientists’ activities, to interact with them, and to participate in other activities. While the BioBlitz serves to educate the public about biodiversity, it often results in findings that have conservation implications. Areas chosen for BioBlitz surveys are often urban sites that have never been surveyed or that were surveyed many years ago. By bringing together experts in many taxonomic disciplines for 24 hours, we can rapidly gather information which can give the conservation/management community an idea as to what should be further explored and managed. Learn about some past BioBlitzes and the findings that have helped to provide management decisions.

Conservation Concerns for Wisconsin Scarabaeoidea

Nadine Kriska (Department of Biology, University of Wisconsin-Whitewater)

The Scarabaeoidea (scarab beetles and their relatives) represent a substantial part of Wisconsin’s biodiversity, and are in many cases, heavily impacted by human activity. While it is difficult to state that an insect species has been lost or substantially reduced, as opposed to just being rarely encountered, we can look at several examples of scarabs that seem to have virtually disappeared from the state, and some that we appear to be losing and pose real challenges to conservation efforts. The value of this diverse group in conservation efforts is discussed.

Ozaukee County Comprehensive Aquatic Connectivity Improvements: Mineral Springs Creek

Matt Aho (Ozaukee County Planning and Parks)

This presentation will provide a brief overview on the Department’s Fish Passage Program and discuss the recent efforts to remove or remediate identified fish passage impediments on Mineral Springs Creek, a direct tributary to Lake Michigan in the City of Port Washington. Efforts include a large dam removal and restoration project, culvert replacement and remediation projects and multiple logjam and debris removals.

The Ozaukee County Planning and Parks Department (Department) has implemented a comprehensive effort to restore aquatic habitat connectivity and improve the ecological function of existing riparian habitats throughout the County portion of the Milwaukee River Watershed and Lake Michigan Basin.

Enhancing the ecological productivity of aquatic and terrestrial riparian habitat directly supports sustainability and/or population recovery for remnant desirable, native, and/or imperiled species. Since 2009, the Department's Fish Passage Program and partners have identified and removed/remediated over 280 impediments to aquatic organism passage, reconnecting over 147 stream miles and thousands of wetland and floodplain acres. The projects include dam removals and culvert replacement or remediation. The Program has also implemented large-scale in-stream and riparian habitat enhancement and restoration projects prioritized by a GIS-based fish and wildlife decision-support tool. These projects include stream re-meandering, floodplain and wetland reconnection, invasive vegetation management and native plantings along streams recently made accessible through linear connectivity projects. An important component of these projects is monitoring of water quality and local fish and wildlife assemblages before and after restoration project implementation. The Department is using this information as baseline data to guide future restoration, quantify water quality benefits and evaluate species diversity and use before and after restoration. The Department involves the public through a well-developed volunteer program to strengthen the capacity of data collection while providing job training and education and outreach opportunities.

Restoration and Creation of Wetlands at Mequon Nature Preserve

Jason Nickles (Mequon Nature Preserve)

Since 2005, Mequon Nature Preserve has transformed 250 acres of its 438 acres into native, SE WI habitats. Of special interest is the restoration and creation of 30 acres of wetlands. Jason Nickles (MNP Director of Education and Research) and Peter Ziegler (WI Waterfowl Association) will present the planning, process, difficulties and successes of wetland work at MNP.

The Western Great Lakes Bird and Bat Observatory

William P. Mueller (Director, Western Great Lakes Bird and Bat Observatory)

WGLBBO started in 2010, and was founded by Dr. Noel Cutright. Although there are bird observatories located around the world, there had been none previously in WI, and none with a focus on Lake Michigan's shoreline – and none in our region with a partial focus on bats. The Western Great Lakes Bird and Bat Observatory is a research, education, and conservation advocacy organization focusing on both birds and bats. The mission of the Observatory is to advance knowledge of bird and bat populations and their conservation in Wisconsin and throughout the Western Great Lakes region through coordinated research, monitoring, and education using the best science. Its initial geographical focus will be on Wisconsin, but eventually will extend to other states in the region.

Managing Invasive Species and Seeing the Light at the End of the Tunnel

Emilie Hunn (Lead Field Technician, Milwaukee County Parks Natural Areas Program)

Invasive species are the second largest threat to biodiversity after direct habitat loss, and with over 50,000 non-native species in the U.S., the need for effective monitoring of these species is crucial. Urban natural areas can be particularly vulnerable to invasive species, and the Milwaukee County Dept. of Parks, Recreation and Culture (DPRC) needed to develop a more effective monitoring program to better protect its 9,300 acres of ecologically diverse habitats which are havens for urban wildlife populations and exceptional native plant communities. An innovative monitoring program helped detect new invasive

species populations, determine population size and distribution, and measure the success of best management practices undertaken by staff, partner organizations, and volunteers.

With funding from the EPA's Great Lakes Restoration Initiative, Milwaukee County DPRC has implemented an invasive species monitoring program that includes real time data acquisition using tablets, Trimble receivers, and the Collector App for ArcGIS. Once the invasives were mapped, treatment was applied and recorded real time. Focusing on the control of early detection rapid response invasive species, this program allowed staff to target invasives using a point or polygon mapping system, and collect detailed information such as phenology and population sizes. Treated sites were re-visited and post treatment data was added to existing points and polygons which included percent cover and efficacy. Data collected in the field was imported into the County's ArcGIS platform for data management, further evaluation, to make adjustments to treatment methods, and to generate management maps. Monitoring of these populations allowed the staff to easily and accurately assess and reassess changes in populations and effectiveness of control. Building on the invasives program, staff is using a similar program to begin inventorying and monitoring rare native plant populations within the DPRC's natural areas.

Watershed Based Stream Restoration in Southeastern Wisconsin

Thomas Slawski (Chief Biologist, Southeastern WI Regional Planning Commission)

Ecological restoration is an important tool for preventing environmental degradation and as a means of restoring degraded chemical, physical, and/or biological components within a watershed necessary to achieve the fishable and swimmable goals. The Commission's watershed based planning approach to restoration is to help communities build or incorporate adaptation strategies and techniques that simultaneously improve stream function in the short-term and adaptation strategies to enhance ecological resistance and resilience for protection over the long-term (i.e. future or planned land use). The most effective projects are the ones that have been designed to restore multiple dimensions of stream system connectivity (longitudinal, lateral, vertical, and temporal), and such projects often achieve multiple objectives such as improved channel stability, fisheries habitat, water quality, pollutant load reduction, flood relief, recreation, property values, among others. This talk will highlight/describe a few restoration project examples from the southeast regional area.

Community Conservation – How Land Trusts Serve the Needs of Our Community

Tom Stolp (Executive Director, Ozaukee Washington Land Trust)

From open spaces for recreation to cleaner waters, land trusts provide many opportunities and benefits to the community in which it serves. OWLT has worked to identify and improve the way(s) it serves – join Tom Stolp (Executive Director) to see how the southeast Wisconsin community and Ozaukee Washington Land Trust build a symbiotic relationship.

Adaptive Management of Urban Green Spaces (A Case Study)

Tim Vargo (The Urban Ecology Center), with J. Callaghan, K. Forbeck, M. Molter, J. Orlando, C. Reinartz, J. Springsteen, T. Vargo, and J. Veglahn

Two of the Urban Ecology Center's core departments are Land Stewardship and Community Science. They are separate departments but are closely tied and working towards a unique style of adaptive management in an urban setting. Both departments navigate an interesting suite of challenges, including relationships with land owners and other partners and public green spaces with a large human presence (which includes dogs, bikes, vandalism, crime, or the perception of crime). As the two departments carry out their work of

land stewardship and wildlife monitoring the goal is that the work informs each other through adaptive management, using data to influence planning on a regular basis.

Urban Odonate Monitoring through Community Science

Jennifer Callaghan (The Urban Ecology Center)

The Urban Ecology Center's Research and Community Science department strives to provide collaborative spaces in which professional and community scientists carry out research and monitoring. With over 25 projects in the balance, the department is often challenged to meet the research interests of the organization, partners, and community members, while continuing to expand in scope. Our case study will discuss the evolution of one of our younger citizen science projects—odonate surveys. This niche project began on a whim and grew into one of our most unique and unexpectedly beloved projects. We will discuss the obstacles and challenges we've faced, the surprises we've met, and the goals we've identified to nurture this project into the future.

Bird Banding as a Gateway for Mentoring Urban Youth

Escuela Verde students and staff

The US Forest Service, Urban Ecology Center and Escuela Verde have teamed up to create a mentorship program for high school students and adult community scientists. Bird banding is a tool through which students are introduced to field research concepts and procedures. We are in the second year of a 2-year pilot in which students learn from professional and community scientists and carry out original research.

Natural Areas Management

Adam Romanak (Parks and Natural Areas Manager, Hunger Task Force)

Hunger Task Force believes that every person has the right to adequate food obtained with dignity. We work to prevent hunger and malnutrition by providing food to people in need today and by promoting social policies to achieve a hunger free community tomorrow.

Hunger Task Force manages a 200 acre farm in Franklin, WI. The sole purpose of the farm is to grow fresh produce for our network of food pantries and homeless shelters. All produce is free and local! The land is owned by Milwaukee County and is designated as park land. Hunger Task Force holds a 30 year lease. The property holds a lot of rich history. A total of 100 acres on the farm is a mix of natural areas (wetlands, prairie, oak savanna), which are located along the Root River Corridor. The oak savanna is very rare and unique! Land restoration efforts began in 2012 with the employment of a full time Natural Areas Manager. To date 79 out the 100 acres have been restored.

Land restoration efforts include: forestry mowing, prescribed burning, prescribed grazing, mowing, pulling, chemical applications, wetland monitoring, and kestrel monitoring. Prescribed grazing is a draw at the farm. 16 goats have been prescribed grazing since 2013, with very impressive results. Another draw at the farm is the fish hatchery, which raises roughly 40,000 fish (sunfish, perch, & trout) that are stocked into 18 Milwaukee county park ponds.

Hunger Task Force is all donor driven and volunteer driven. Funding for land restoration efforts has come from individual donors and conservation organizations (public & private).

The Wisconsin Citizen-based Monitoring Network: A Resource for Studying and Protecting Wildlife in Southeastern Wisconsin

Eva Lewandowski (Bureau of Natural Heritage Conservation, Wisconsin Department of Natural Resources)

The Wisconsin Citizen-based Monitoring Network is a collaboration of citizen science volunteers, professional scientists, educators, land managers, and others working together to improve volunteer monitoring of natural resources in the state. In Southeastern Wisconsin, volunteers with the Wisconsin Department of Natural Resources, local watershed organizations, nature centers, schools, and other community groups are all contributing to citizen-based monitoring efforts. Volunteers engage in valuable activities like monitoring water quality with elementary school students in Racine County, searching for rare plants in Waukesha County, monitoring bat populations in Milwaukee County, and much more. Citizen-based monitoring projects provide important data and insights that are used to inform management of species and ecosystems. To support these efforts, the Wisconsin Citizen-based Monitoring Network offers funding, equipment lending programs, technical advice, communication resources, and more. This talk will discuss the wide array of citizen-based monitoring projects that are active in Southeastern Wisconsin and how they benefit wildlife science, management, and conservation. Learn how you can participate as a volunteer, scientist, or project manager.

TNC-Milwaukee County Parks Partnership

Tess Stahler (Field Technician - Milwaukee County Department of Parks, Recreation & Culture)

This summer Milwaukee County Parks, The Nature Conservancy, and La Causa Charter School formed a new partnership to cultivate young conservationists. Three interns from La Causa in Milwaukee and three interns from Mukwonago area high schools were selected to be the charter members of this learning adventure.

Interns were engaged in conservation training for 9-weeks, dedicating 1,100 hours of effort in Milwaukee County's Grant Park and 750 hours in TNC's SE WI preserves. The Milwaukee County project focused on restoring a regionally rare Lake Michigan ravine system. Interns worked with Parks staff using tablets and Arc Collector to map invasive species, and remove 2 acres of invasive plants. Cut material was used to cover ecologically detrimental "social trails" and guide park users to sustainable segments of the Forked Aster Hiking Trail. This was no small endeavor because there are 40 "social trails" in the ravine system and the crew diligently worked to close 25% of those trails. These "social trails" are detrimental to the ecology of the ravines because they spread invasive species, resulting in trampling of rare native plants, and have caused significant slope erosion.

In addition to the restoration work in Grant Park, the interns were able to participate in several educational events. Interns spent a day surveying songbird nest boxes, took a field trip to the Urban Ecology Center to learn about herptiles, and participated in a mini-bio blitz where they learned about the wildlife found in Grant Park's diverse habitats.

The students not only gained practical experience and an understanding of the processes involved in an ecosystem management project, but they were also able to work alongside and befriend people from a culturally different area of the region. Ultimately they gained an appreciation and a love for nature that will stay with them for a lifetime.

The Nature Conservancy's Mukwonago River Watershed Project: A Third of a Century of Discovery and Restoration

Jerry Ziegler (Mukwonago Land Steward.)

In the mid-1980s The Nature Conservancy in Wisconsin began working in the watershed of the Mukwonago River, the most species diverse stream in southern Wisconsin. TNC now protects about 2,000 acres of land in the area and is focused on restoring woodlands, wetlands and prairies. In recent years, TNC has worked increasingly to build partnerships with government and private groups and landowners to take a holistic view of the 55-square-mile river system to solve and head off problems. Discovery? From a rare macro-algae found in only a handful of Midwest sites to colorful Wisconsin orchids and from sightings of a Mississippi kite to badgers (the four-legged kind!), TNC's Mukwonago River preserves continue to surprise and delight.

Three Decades of Purple Martin (*Progne subis subis*) Basics in Wisconsin

Dick Nikolai (Wisconsin Purple Martin Association; PUMA bander)

Purple martins have been declining at an alarming trend rate of 6.84% over the past 50 years (1966-2015) in Wisconsin. Within the last decade (2005-15) the trend indicates a 7.67% decline per year based on 78 routes according to the Breeding Bird Survey. While being common on every farm in the post-World War II years throughout Wisconsin until the early 1970's, they are now found primarily in East-Central Wisconsin, West-Central Wisconsin and South-Central Wisconsin as noted by Bird Atlas 1 & 2. Purple Martin scouts or after second year birds (ASY's) arrive into Wisconsin around April 4 and spend nearly a month setting up territories at their previous successful breeding sites. Second year (SY) Purple Martins arrive a month later than ASY's around the first full week in May being attracted by the mating calls of ASY males. Nest building commences around this time with first egg-laying occurring around the middle of May. First young are hatched near Memorial Day with first fledging occurring around Father's Day and extending into August. Results of banding adults 1985-2017 have shown that they average 4.86 eggs/nest, hatch 3.97 young/nest and fledge 3.15 young/nest. Adults comprise approximately 50% of recaptures each year with a ratio of approximately 60% of ASY's to 40% of SY's. Dispersal of surviving fledglings occurs the following year within 25 miles radius and can go out as far as 50 miles. Of aberrant purple martins, they can travel up to 400 miles from their natal areas while using the Great Lakes as important areas for their travel. Little is known of roosts in Wisconsin that are key for rest, health and preparation prior to fall migration. Discussion will concentrate on what is currently being done with banding to unravel purple martin declines.

The Ultimate Winter Bird Survey: Summary of the First Ever Christmas Bird Count Marathon.

K.J. McKay (BioEco Research and Monitoring Center), and C.D. Monson.

The Christmas Bird Count (CBC) Program sponsored by the National Audubon Society is the longest continuous wildlife survey on Earth. This program covers a massive geographical area with counts now being conducted throughout the Western Hemisphere. During this presentation, we will briefly discuss the history of the CBC, specific attributes of the program, and the origin of the CBC Marathon. A detailed account will be given of each of the 23 CBC involved in the 2003-2004 CBC Marathon (the first full marathon ever completed), including examples of some of the noteworthy species identified by my field parties. This marathon included the following CBC: 1) Davenport (Iowa-Illinois), 2) Lost Nation (Iowa), 3) Jamaica (Iowa), 4) Green Island (Illinois-Iowa), 5) Clinton-Savanna (Iowa-Illinois), 6) Western Mercer County

(Illinois-Iowa), 7) Cedar Rapids (Iowa), 8) Red Rock Lake (Iowa), 9) Keokuk (Iowa), 10) Princeton-Camanche (Iowa-Illinois), 11) Van Petten (Illinois), 12) Chicago Lakefront (Illinois), 13) Montello (Wisconsin), 14) Lake Chautauqua National Wildlife Refuge (Illinois), 15) Illini State Park (Illinois), 16) Horseshoe Lake (Illinois), 17) Union County (Illinois), 18) Mermet Lake (Illinois-Kentucky), 19) Jackson County (Illinois), 20) Adams County (Wisconsin), 21) North Linn County (Iowa), 22) Muscatine (Iowa-Illinois), and 23) Andalusia-Buffalo (Illinois-Iowa). During this 23-count marathon, I drove 7,100 miles and spent 267 hours counting birds. My field parties recorded a cumulative total of 132 species and tallied more than 241,000 individuals. Six species (Rock Pigeon, Downy Woodpecker, American Crow, European Starling, American Tree Sparrow, and House Sparrow) were recorded by my field parties on all 23 CBC. We conclude this presentation with a summary of the CBC resume for Kelly McKay.

The Root-Pike Basin and Nine Key Element Plan Implementation

Dave Giordano (Executive Director, Root-Pike Watershed Initiative Network)

The Root-Pike basin is one of the most impaired and degraded in the state of Wisconsin. The basin includes the Root River, Pike River, Oak Creek, Pike Creek and Wind Point watersheds. Many of the segments and beaches are 303d listed for phosphorus, sediment, E.coli, chloride and other pollutants. Root-Pike Watershed Initiative Network (WIN) is 501c3 group that was formed by the Department of Natural Resources to bring about the restoration and protection of these neglected watersheds. With the potential arrival of significant development, the challenges may become even greater. Still, the spirit of our organization is in “initiative” and “networking”, and it is through this spirit that we seek to find common ground – or “WIN-WINS”. This means working with farmers, developers and municipalities – not against them. With the assistance from local, state and federal stakeholders, that approach is working. For more than two decades, our cooperative efforts have brought awareness and action to these Lake Michigan tributaries ... where it was unlikely to happen otherwise. Today, this public-private partnership is making positive change in the Root-Pike basin through the implementation of three Nine Key Element Watershed Restoration Plans. This presentation will give participants an overview of the issues, solutions and plan implementation to date in each of the Root-Pike basin watersheds. Participants will not only come away with a better understanding of the Root-Pike basin, but also a deeper understanding of how projects are moving from awareness to action through the EPA’s Nine Key Element Plan framework. Dave Giordano, Executive Director of Root-Pike Watershed Initiative Network, will explain how we are going beyond flood and pollution reduction to creating places where people want to be.

Hackmatack National Wildlife Refuge – A 5-Year Update!

Steven Byers (Chair, Friends of Hackmatack National Wildlife Refuge)

Hackmatack National Wildlife Refuge, spanning McHenry County, Illinois and Walworth County, Wisconsin was established in 2012 following more than 10 years of advocating for a refuge by the Friends of Hackmatack. This presentation will provide a brief overview of how the Friends “built the case” for Hackmatack National Wildlife Refuge and garnered the support of the public. Hackmatack National Wildlife Refuge is this Nation’s 561st National Wildlife Refuge and calls for protection of over 11,000 acres. The refuge footprint consists of core habitats large enough to provide secure nesting habitat for area-dependent birds and wildlife corridors along Nippersink Creek and builds upon approximately 10,000 acres of land owned by the McHenry County Conservation District, Illinois Department of Natural Resources, and the Wisconsin Department of Natural Resources. The goals of the refuge are to: 1.) protect and enhance wetlands and grasslands for Neotropical migrants, 2.) create additional opportunities for hunting, fishing, wildlife observation and photography, and environmental education and interpretation, and 3.) promote

science, education, and research of our region's natural resources. The Friends of Hackmatack National Wildlife Refuge, now incorporated as a 501c3 not-for-profit organization, has been recognized by the Service as the refuge partner and, along with 10 other organizations, have pledged to work together under the umbrella of the Hackmatack Conservation Partnership Land Protection Plan (2014-2017) to provide a collaborative, consensus-based, land protection plan. To date, over 900 acres within or near the footprint of Hackmatack National Wildlife Refuge have been protected through either fee-title acquisition or conservation easements. The Friends partner with the Service to promote conservation-related issues that include monarch conservation and advocacy, a Youth Conservation Corp, and sponsor events (International Migratory Bird Day, bird walks, the Big Sit, kayaking the Nippersink, Inspiring Connections, Monarch Mania Fair, etc.) designed to increase appreciation and awareness of Hackmatack National Wildlife Refuge.

Volunteer Mussel Monitoring in the Milwaukee River Basin

Zac Driscoll (Water Quality Specialist – Milwaukee Riverkeeper)

Freshwater mussels are fascinating aquatic creatures that can tell us detailed information about the long-term health of waterways and aquatic ecosystems. Unfortunately, of the 51 mussel species that occur in this state, 28 mussels are listed as threatened, endangered, special concern or species of greatest conservation need, and species with informational needs. Furthermore, despite their importance, relatively little work has been done to monitor freshwater mussel populations in Wisconsin.

To help learn more about mussel distribution, in 2017 Milwaukee Riverkeeper launched a native mussel monitoring program. The goal of this monitoring program is to help identify species composition of native mussel communities at stream sites throughout the Milwaukee River Basin. With the help of the Wisconsin Department of Natural Resources, Milwaukee Riverkeeper trained volunteers on procedures used to collect native mussels. Following this training, volunteers completed mussel surveys at streams sites throughout the Milwaukee River Basin. In this talk Milwaukee Riverkeeper will discuss our monitoring program, as well as data collected by our volunteers in 2017.

Avoid Random Acts of Land Stewardship – Prioritizing Efforts in a Growing Land Base and Dynamic Region

Ryan Wallin (Stewardship Director, Ozaukee Washington Land Trust)

OWLT has almost doubled its fee-simple land protected over the last 4 years! In addition, ground conditions are always changing and the climate is showing signs of continued change. The additional land base and local dynamics provide an opportunity to prioritize stewardship efforts across our sites so we are sure to protect the highest quality habitat from invasion while being most efficient with our land stewardship. Join Ryan Wallin (Stewardship Director) to see how OWLT maintains a systematic approach to stewardship while juggling a limited staff with a large land base and dynamic habitat conditions