

MNRC 2022 - Workshops

Feb. 2, Wed. 1-3 PM

Feb. 2, Wed. 1-3 PM; Room: Paradise B

Title	Cash for Carbon
Organizer	Hank Stelzer
E-mail	stelzerh@missouri.edu
Affiliation	University of Missouri

Description

Join us for a lively workshop looking at the ever-evolving forest carbon market landscape. Following an overview of carbon marketplaces, registries, and project developers, we will explore some of the leading project developers. Representatives will join us in person or via Zoom to explain how family forest landowners can participate in their program, the basic steps involved, and answer your questions.

Feb. 2, Wed. 1-3 PM; Room: Paradise C

Title	Critical Partnerships- Chronic Wasting Disease
Organizer	Alicia Burke
E-mail	Alicia.burke@gmail.com
Affiliation	Missouri Department of Conservation

Description

Partnerships are essential to the surveillance and management of Chronic Wasting Disease (CWD). CWD is widely thought to be one of the biggest threats to deer and elk in North American and one the most notable wildlife disease challenges we have ever faced. The disease was first detected in Missouri in 2002 and has slowly spread to different parts of the state. Though public participation from individual hunters, and industry professionals, we know that CWD is a relatively new disease in Missouri. The ways we work with hunters and their families, industry partners, and research collaborators continues to grow and evolve. These relationships are crucial in allowing MDC scientists to better understand where the disease is on the landscape so that management actions can be applied, learn about how the disease is spreading and keep the public informed, and work to advance testing technology so we can help protect this natural resource for future generations.

Feb. 2, Wed. 1-3 PM; Room: 62-64

Title	Invertebrate Conservation
Organizer	Steve Buback
E-mail	steve.buback@mdc.mo.gov
Affiliation	Missouri Department of Conservation

Description

Globally, insects are thought to be in precipitous decline but the information for Missouri is scant and provides conflicting direction. There are thought to be over 25,000 species of insects alone in Missouri and assessing them as whole is nearly impossible. Thus, this workshop will provide aim to provide

updates on rare, poorly understood groups, and indicator species. We will hear from several statewide pollinator projects, including the Missouri Bumblebee Atlas, that are beginning to establish baseline information for this diverse guild. Many invertebrates are Species of Conservation Concern and monitoring these populations may provide some insight into overall direction. The regal fritillary is currently undergoing assessment for listing under the Endangered Species Act, and we will get updates on recent work with this species. However, the vast majority of invertebrates in the State have poorly understood life history and distributional information, so we also look at some understudied groups and what these species contribute to biodiversity and ecosystem function. This workshop will provide attendees with an understanding of the breadth and depth of the challenges facing insect conservation, and information that can be applied by land managers, administrators, and other conservation professionals.

Invertebrates of Conservation Concern

Steve Buback; Missouri Department of Conservation; steve.buback@mdc.mo.gov

Abstract: There are estimated to be over 25,000 species of insects in the State of Missouri and only 119 of these are tracked as Species of Conservation Concern. 30 species are to be added to this list based upon the results of a Midwest Association of Fish and Wildlife Agencies working group in 2020. Some of the challenges and methods of working with rare insects will be presented as well on information of the species that will start to be tracked. A special emphasis will be placed on the American Burying Beetle restoration project, which has been heavily studied for the last 4 years.

Inquiline invertebrates associates with Plains Pocket Gophers

Presenter: Reese Worthington; Missouri Department of Conservation; reese.worthington@mdc.mo.gov

Abstract: Plains pocket gophers (*Geomys bursarius* var. *majusculus*) range through the northern third of Missouri. Pocket gopher burrows host a range of unique invertebrate fauna, which have never been surveyed in Missouri. *Geomys* burrows were surveyed for a one-year period on sand prairie habitat at Frost Island Conservation Area in northeast Missouri. This survey identified seven insect species not previously recorded from Missouri. Species diversity, seasonality, and ecological roles are discussed.

Regal Fritillary Rearing Protocols and Larval Microhabitat Needs

Authors: [Chris Barnhart](mailto:ChrisBarnhart@MissouriState.edu)¹, [Derek Bateman](mailto:DerekBateman@MissouriState.edu)¹, and [Steve Buback](mailto:steve.buback@mdc.mo.gov)²

Affiliation: ¹Missouri State University, ²Missouri Department of Conservation

Email: ChrisBarnhart@MissouriState.edu

Abstract: Regal Fritillary (RF) has declined across its range coincident with prairie loss and is under review for ESA listing. Our project examines the biology and habitat of early life stages in hopes of aiding population restoration. RF eggs are laid in September. Hatchlings overwinter and are believed to diapause without feeding until the larval hosts (*Viola* sp.) produce new growth in early spring. Larval overwintering requirements and survival rates are unknown. Field temperature and humidity (RH) were recorded at ground level at Comstock Prairie in January-March 2021. The study site burned unexpectedly and completely in late March. Surprisingly, the RF population was robust in June, indicating that many larvae survived the fire and found sufficient food to mature. In June, violets (*V. saggitata*) were present in 52% of 845 2-m² plots. Ten female RF were collected in August and held to obtain ova. Average fecundity was 2277 (1440-2406) fertile eggs/female. Average fertility was 98.1%. Incubation was about 17 days at 20C and 97% RH. Hatching was similar at RH_≥54% but delayed at RH_≤33%. Hatching success was reduced at RH_≤11%. Hatchling RF fed readily when offered young leaves of *V. sororia* at 20C and molted within 2 weeks. In contrast, most larvae of Great Spangled Fritillary held in the same conditions remained anorexic. Both fed and unfed RF larvae are being held in

controlled temperature and humidity to assess survival. We hope to use the overwintered larvae for experimental releases on one or more Missouri prairies in 2022.

Habitat preferences of the regal fritillary butterfly

Authors: Daniel A. Marschalek (Presenter); University of Central Missouri; marschalek@ucmo.edu
Daniel M. Wolcott; University of Central Missouri; wolcott@ucmo.edu

Abstract: The regal fritillary butterfly (*Speyeria idalia*) is a prairie endemic species, which has experienced a substantial reduction in distribution due to habitat loss. Currently, the butterfly is being assessed for protection under the Endangered Species Act by the US Fish and Wildlife Service. Understanding population sizes and habitat use will be important for future conservation efforts and management of extant populations. West-central Missouri near Sedalia, MO is believed to have relatively large and stable populations in several prairie remnants and other grasslands. Surveys in 2020 demonstrated that regal fritillary densities varied across sites and within sites, suggesting preference for specific habitats. Five grasslands were surveyed for regal fritillary butterflies in 2021 to determine areas of zero/low densities and areas of high densities. Habitat variables were collected in the same grasslands including percent cover of bare ground, litter, grasses/sedges, forbs, and woody vegetation, as well as vegetation height, and number of flowers. Sampling of these variables occurred in areas of low and high butterfly densities to determine potential habitat preferences. A refined description of regal fritillary habitat will provide a useful target for preserve managers.

Missouri Bumble Bee Atlas: A Summer of Bumble Bee Surveys

Presenter: Bill White, Missouri Department of Conservation

Abstract: The Missouri Bumble Bee Atlas is a statewide community science project aimed at tracking and conserving Missouri's native bumble bees. It began as a pilot in Missouri in 2020 and was expanded in 2021. The ATLAS has divided the state in 75 grid cells that are adopted by volunteers who survey for bumble bees at least 2 times per season within the grid. Volunteers submit photos of the bees online for verification as well as information about habitat use and floral preferences. Over 100 trained participants conducted 190+ surveys in 2021 and collected over 1650 individual bumble bees representing at least 86 species. The Southern Plains bumble bee and the Two-spotted bumble bee, an uncommon species in Missouri, have new county records thanks to the ATLAS survey. The Missouri ATLAS will continue in 2022, with plans to expand into several neighboring states, and will help design pollinator mixes that favor the declining bumble bee species found in the Midwest.

Bees of Missouri State Parks

Ken McCarty; Missouri Department of Natural Resources; ken.mccarty@dnr.mo.gov

Abstract: A multiyear distributional study of the native bee fauna of Missouri State Parks will be presented. This study provides a foundation for monitoring bee communities over time and has resulted in numerous distributional and association records.

Feb. 3, Thu. 8-10 AM

Feb. 3, Thu. 8-10 AM; Room: 62-64

Title	Educational Efforts Across Divisions and Agencies to Promote Missouri's Conservation Efforts
Organizer	Shelly Colatskie
E-mail	Shelly.Colatskie@mdc.mo.gov
Affiliation	Missouri Department of Conservation

Description

This workshop will cover real life examples of how education staff from both Missouri Department of Conservation and Missouri Department of Natural Resources work together with research and monitoring (Science and Regional Resource Management) staff in promoting Missouri's conservation efforts. Topics covered will include the Missouri Bird Plan and implementation, citizen science efforts including bioblitzes and species monitoring, and more. There will also be opportunity for the audience to participate at the end, to discuss further on how we can work together to promote Missouri's conservation efforts through multiple Branches (MDC), agencies, and NGOs.

Presenters:

Sarah Kendrick: The Missouri Bird Conservation Plan: Partnerships and Calls to Action

Jeff Cantrell: A Pulse Check on Local Bird Efforts for State and National Goals

Jordan Meyer and Shelly Colatskie: Cooperative Efforts for Bat and Cave Research and Education

Roxie Campbell: Multi-agency decision making and educational efforts on bat, invertebrate, and water monitoring in Devil's Icebox Cave

Austin Lambert: Utilizing Partnerships to Enhance Educational Programing and Conservation

Nicki Wheaton and Mike Caby: Promoting Conservation Through Interdisciplinary Relationships on a Local Level

Erik Otto: Finding the Balance

Open group discussion: How to incorporate Education, Research, and Monitoring across Branches and Entities

Feb. 3, Thu. 8-10 AM; Room: Parasol II

Title	Moving Toward Sustainable Recreation in Missouri
Organizer	Theresa Davidson, Cody Norris
E-mail	Theresa.davidson@usda.gov
Affiliation	USDA Forest Service

Description

The covid pandemic has brought more people to the outdoors. Missouri land managers have recognized current budgets are not keeping up with the use and impacts of outdoor recreation. Several organizations are looking at changing their fee structures. This workshop will examine the economic and ecological impacts of increasing outdoor recreation and how Missouri natural resource and public land managers are finding solutions.

Feb. 3, Thu. 8-9 AM and repeats at 9-10 AM; Room: Nautical Wheeler

Title	Making People Care About Your Work
Organizer	Jordi Raos
E-mail	Jordanya.Raos@mdc.mo.gov
Affiliation	Missouri Department of Conservation

Note that this workshop is 1 hour with two identical sessions – please select one/either.

Description

Communicating with the public or with people outside your field can be a daunting task. This short workshop will help you build or improve the skills you need to help make sure that your message matters to the people that need to hear it the most. We'll focus on interpretive basics to give you a set of tools that can be used whether your audience is a group of fifth graders, landowners, a professor, or other people in your field. With these skills you can make sure that you are professional, profound, and able to spread your conservation message.

Feb. 3, Thu. 10:15 AM – 12:15 PM

Feb. 3, Thu. 10:15 AM – 12:15 PM; Room: 62-64

Title	Invasive Plant Workshop: New Initiatives, Tools & Strategies for Invasive Plant Control
Organizer	Carol Davit (Chair, MoIP)
E-mail	caroldavit@gmail.com
Affiliation	Missouri Invasive Plant Council (MoIP)

Description

This workshop organized by the Missouri Invasive Plant Council (MoIP) will feature four presenters sharing information about MoIP's Cease-the-Sale Initiative; the Scenic Rivers Invasive Species Partnership; USDA Forest Service grants for invasive species education; and grazing for diverse natives and invasives control.

Workshop Organizer Contact Information including E-mail Address: Carol Davit, Chair, Missouri Invasive Plant Council and Executive Director, Missouri Prairie Foundation, P.O. Box 200, Columbia, MO 65205; caroldavit@gmail.com; 573-356-7828

1. Updates from MoIP: Cease the Sale & Educational Publications

Presenter: MoIP Representative

Abstract: Many plants that invade Missouri's working lands and natural places continue to be sold, and continue to expand their ranges across the state. In an effort to stem the tide of these invasives, the Missouri Invasive Plant Council (MoIP) has worked for the past year developing its final Cease the Sale list of invasive plants and has developed new educational materials to assist natural resource professionals, landowners, and other groups in their control of invasive plants. MoIP Council members will share the methodology and stakeholder feedback that determined MoIP's final list of invasive plants to submit for potential legislation to cease their sale and will share new educational materials that are reaching people across Missouri to increase early detection and control of many abundant and rapidly expanding invasive plants. Attendees will gain an understanding of current work toward meaningful action in protecting Missouri's natural and agricultural resources, and they will gain new tools for communicating invasive plant threats and opportunities to their colleagues, clients, and stakeholders.

2. Maximizing Grant Funds to Reach Recreationists with Invasive Species Prevention Messaging

Presenter: Tina Casagrand, Communications Manager, North American Invasive Species Management Association

Abstract: Invasive species prevention saves money in the long term, but more often than not, natural resource professionals need outside funding for integrating new outreach efforts. This presentation will describe how stakeholders in Illinois and Michigan obtained and implemented USDA Forest Service grants to reach millions through outreach and to install boot brush stations in hundreds of popular natural areas. The stations include a mounted boot brush and heavy-duty trail sign designed using professional interpretive principles. This effort was conducted by PlayCleanGo: Stop Invasive Species in Your Tracks, a brand launched in 2012 to support community-based social marketing around invasive species prevention. PlayCleanGo provides tools and messaging to engage outdoor recreationists and field workers on cleaning gear that potentially contains seeds or fragments of invasive species. PlayCleanGo is a program of the North American Invasive Species Management Association (NAISMA).

Since 1994, NAISMA has supported invasive species management professionals through training, standards, outreach, and networking.

3. Introduction to the Scenic Rivers Invasive Species Partnership: A Newly Formed CISMA in the Current River Hills Region

Presenter: Valarie Repp, SRISP Coordinator

Abstract: The Scenic Rivers Invasive Species Partnership (SRISP) was developed in 2018 to establish a Cooperative Invasive Species Management Area (CISMA) within southern Missouri. A Memorandum of Understanding was implemented by over twenty federal and state agencies, Non-Government Organizations, landowners, and others to recognize the importance of working together across boundaries to address the threats invasive species pose to Missouri's native ecosystems. This presentation will state the main goals of the SRISP and what action items the SRISP plans to incorporate in the next 2-3 years. Potential projects will also be discussed with ample time for participants to ask questions on this newly formed CISMA.

4. Diverse Natives for Grazing: Promoting Soil Health, Healthy Cattle, & Invasive Plant Control Presented by Amy Hamilton, Hamilton Native Outpost

Abstract: Agricultural policies adversely affect soil health and favor invasive species. Nowadays, 40% of farm income is from subsidies that favor crop farmers and CAFOs at the expense of regenerative agricultural practices. A diversity of native plants creates healthy soil, livestock, and meat and dairy for humans. While a monoculture of tall fescue may look great, the alkaloids it contains are toxic to cattle. High levels of tannins make *Sericea lespedeza* unpalatable. Grown in combination, cattle can eat more of both species because tannins in *Sericea* bind with the alkaloids in fescue, rendering both compounds less harmful. Diversity can render unpalatable plants more palatable and create symbiotic relationships among different plant species. The absence of grazing and fire and the lack of understanding about diverse natives for grazing to create savannas with healthy soils has allowed honeysuckle to increase, filling a void that was once filled by diverse native prairie plants. Diverse plant communities create healthy soils that decrease flooding, increase stream flow and decrease agricultural pollutants, helping endangered species endemic in our streams. Grassland farmers must make a paradigm change to understand the benefits of diversity, including taller, stemmy, native plants that are good for birds, butterflies, beef, and people.

Feb. 3, Thu. 10:15– 11:15 AM; Room: Parasol II

Title	Uneven-aged silviculture in oak-hickory-pine stands on Pioneer Forest-a 30- minute virtual video tour
Organizer	James M. Guldin
E-mail	jguldin@prodigy.net
Affiliation	L-A-D Foundation

Description

Pioneer Forest is a 140,000-acre forest located in the southeastern Missouri Ozarks. The property is managed by the professional Pioneer Forest staff under the guidance of the L-A-D Foundation, which is named in honor of the founder of Pioneer Forest, Leo A. Drey. The forest is dominated by oaks, hickories, and shortleaf pine. It has been managed since 1951 using uneven-aged single tree selection on roughly a 20-year cutting cycle, in a manner best described as conservation-based continuous cover forestry enabled by harvests of 10-15 million BF annually. Beginning in 1952, a continuous forest inventory (CFI) was established on Pioneer Forest. The CFI remeasurement has been repeated every five years since then, and the 2017 measurement marked the 14th inventory since 1952. The inventory is invaluable to the foresters who manage Pioneer Forest because it provides data on tree growth in diameter and volume by species, and growth and development of regeneration and submerchantable size classes as well. The virtual video tour will highlight the general management approach on Pioneer Forest, and the status of the CFI data and what those data mean for management. The tour will also show typical stands on Pioneer Forest before and after a cutting cycle harvest. The tour hosts will review the silvicultural tactics used to maintain the uneven-aged condition that Drey valued so highly, and that represent an alternative to even-aged management approaches on public and private lands in the Missouri Ozarks. Tour presenters will be available for discussion after the virtual tour.