Hello, and welcome to the 45th Natural Areas Conference.

I'm pleased you could join us for this event, which is something of a homecoming for the Natural Areas Association. Bringing the conference to Bloomington was an intentional choice — the NAA was founded in this region 45 years ago to be a forum for people working in state and private natural areas programs.

Over the years, NAA has weathered changes and challenges, but we have managed to persevere and grow. We hear echoes of our history in this year's conference theme, "Building Resilience."

Resilience is a familiar topic for natural areas professionals. We expend a lot of effort trying to study, measure and enhance it in natural systems. It's harder to appreciate the resilience that exists in ourselves. It's there in the times when we continue to do our jobs in spite of obstacles that seem to appear out of nowhere — red tape, budget cuts, policy changes. And it's there as we grapple with confounding situations, like how to manage national parks that are being simultaneously loved to death by the public and claimed for natural resources extraction by executive order.

It's true our resilience is facing unprecedented challenges. But I've learned from my years in this organization that saying, "We've never experienced this before" inevitably leads to someone remarking, "Well, actually, back in ..." Over the span of this organization's existence, we have faced long odds and lean years, and we have persevered.

If we can tap our inner resilience, stay strong, and be a voice for the conservation community, we will find a way to persist through these times. If we continue to support good science and use it as the foundation for protecting and maintaining natural areas, we can protect the core of our work.

I'm inspired when I think of our closing plenary speakers. Former director of the National Park Service Jonathan Jarvis and Dr. Gary E. Machlis co-wrote The Future of Conservation in America: A Chart for Rough Water. The book is prescriptive — at once hopeful and a call to action. It's about looking toward the future, putting things in context, and offering ideas for how we can be better collaborators and advocates on behalf of natural areas and ourselves.

The NAA is positioned well to lead our profession into the future. I'm inspired by the energy and forward thinking I see being put forth by our staff and board. We've finalized changes that were in process last year. We're offering more programming, continuing to advocate for our members and their work, and generating new ideas for making membership as valuable as possible.

I'd like to thank the conference planning committee for their hard work on coordinating this event. Thanks also to our sponsors for their support. And finally, thank you for joining us back where it all began!

Sincerely,

Lisa L. Smith
Executive Director, Natural Areas Association
Welcome to Bloomington and the state of Indiana!

The planning team is proud to welcome you to this year’s Natural Areas Conference. The program we’ve put together for these next three days explores the theme of “building resilience” from many angles. We hope that you come away from these presentations, field workshops, and events full of new ideas and the inspiration to put them into practice in the natural areas you steward.

This area of Indiana boasts many natural features that make it ideal for this event. The city is located in the heart of one of the largest eastern deciduous hardwood forest regions in the Midwest. There are three state parks within a 45-minute drive of the Indiana University campus. Just 10 miles south lies Lake Monroe, which at more than 10,000 acres is the largest inland lake in the state. Several of our field workshops make use of natural areas that are within about 15 minutes of the IU campus, some of which feature the sinkholes, caves and springs that comprise the region’s signature karst landforms.

We start the conference proceedings with what is sure to be a memorable opening plenary. Our keynote speaker is award-winning nature writer and Indiana University professor emeritus of English Scott Russell Sanders. Also presenting as plenary speakers are Indiana University biology professor Heather Reynolds and Indiana Department of Natural Resources plant ecologist Mike Homoya.

This year, we’re offering identification workshops in addition to field workshops as part of our conference programming. There will also be plenty of opportunities for networking during the poster session and reception. NAA awards dinner and luncheon, and of course informally after hours.

We are offering a strong program for the next generation of conservation professionals with a Keys to Conservation Careers Session for students and U.S. Forest Service-sponsored job outreach event. We hope that you take full advantage of these opportunities to make new contacts, explore new habitats, and expand your conservation knowledge.

That said, the full conference experience should definitely include some time outside the Indiana Memorial Union. Bloomington boasts a restaurant scene that allows you to be as adventurous as you’d like. Go and find an amazing place to eat on 4th Street, with its selection of Tibetan, Turkish, and Thai cuisine, to name a few. Microbreweries and distilleries abound as well.

In addition to feeding your body, you can feed your soul at Bloomington’s cultural institutions. Take in the intriguing exhibits at the Mathers Museum, Indiana University’s museum of world cultures. Those musically inclined might want to attend a concert hosted by the top-ranked Jacobs School of Music at IU.

Bloomington is an active, friendly city, and the university campus is known for its beauty. We encourage you to explore all that it has to offer. We hope that you find your visit here, and the time you spend at the conference, valuable and enriching.

Sincerely,

The Conference Planning Team
### Schedule at a Glance / Venue Map

#### Monday, Oct. 22
- **9 am – 4:30 pm** Walnut / Main Level
  - Pre-conference Workshop: Adapting to Climate Change: Updating Our Approach to Land Protection and Site Management Decisions

#### Tuesday, Oct. 23
- **7 – 8 am** Frangipani / Main Level
  - Exhibitor setup

- **7 – 8 am** Solarium / First Floor
  - Poster setup

- **8 am – 5 pm** Frangipani / Main Level
  - Exhibits

- **8 am – 5 pm** East Lounge / Main Level
  - Registration

- **8 – 9:30 am** Maple / Main Level
  - State Natural Areas Program (SNAP) Roundtable

- **9:30 am – noon** Whittenberger Auditorium / First Floor
  - Opening Plenary

- **12:15 – 1:45 pm** Solarium / First Floor
  - Student-Mentor Networking Lunch

- **1:45 – 3:15 pm** Dogwood, Oak, Maple, Persimmon / Main Level
  - Oral Sessions

- **1:45 – 3:15 pm** Sassafras / Main Level
  - Sedges ID Workshop

- **3:15 pm** Frangipani / Main Level
  - Break

- **3:45 – 5:15 pm** Dogwood, Oak, Maple, Walnut, Persimmon / Main Level
  - Oral Sessions

- **3:45 – 5:15 pm** Sassafras / Main Level
  - Fern ID Workshop

- **5:15 pm** Hoosier / Main Level
  - Natural Areas Journal Editors Meeting

- **6 – 8 pm** Solarium / First Floor
  - Poster Session and Reception

#### Wednesday, Oct. 24
- **8 am – 5 pm** Frangipani / Main Level
  - Exhibits

- **8 am – noon** East Lounge / Main Level
  - Registration

- **8:30 – 10 am** Dogwood, Oak, Maple, Walnut, Persimmon / Main Level
  - Oral Sessions and Symposia

- **10 am** Frangipani / Main Level
  - Break

- **10:30 am – noon** Dogwood, Oak, Maple, Walnut, Persimmon / Main Level
  - Oral Sessions

- **11 am – 12 noon** East Lounge / Main Level
  - Off-site Field Workshops

- **12:15 – 1:45 pm** Dogwood, Oak, Maple, Persimmon / Main Level
  - Oral Sessions

- **2 – 3:30 pm** Walnut / Main Level
  - Grasses ID Workshop

- **3:15 pm** Frangipani / Main Level
  - Break

- **3:45 – 5:15 pm** Dogwood, Oak, Maple, Walnut, Persimmon / Main Level
  - Oral Sessions

- **5:15 pm** Hoosier / Main Level
  - Natural Areas Journal Editors Meeting

- **6 – 8 pm** Alumni Hall / First Floor
  - Awards Dinner

- **8:30 am – 10 am** Dogwood, Oak, Maple, Walnut, Persimmon / Main Level
  - Oral Sessions

- **2 – 3:30 pm** Alumni Hall / First Floor
  - Awards Dinner

### Thursday, Oct. 25
- **8 am – 5 pm** Frangipani / Main Level
  - Exhibits

- **8 am – noon** East Lounge / Main Level
  - Registration

- **8:30 – 10 am** Dogwood, Oak, Maple, Walnut, Persimmon, Sassafras / Main Level
  - Oral Sessions and Symposia

- **10 am** Frangipani / Main Level
  - Break

- **10:30 am – noon** Dogwood, Oak, Maple, Walnut, Persimmon, Sassafras / Main Level
  - Oral Sessions

- **12:15 – 1:45 pm** Alumni Hall / First Floor
  - Awards Dinner

- **2 – 3:30 pm** Alumni Hall / First Floor
  - Awards Dinner

- **3 pm** Frangipani / Main Level
  - Break

- **3:30 – 5 pm** Alumni Hall / First Floor
  - Closing Plenary

- **5 – 6 pm** Alumni Hall / First Floor
  - Closing Reception and Book Signing
that will come after us. In honor of our meeting place in protected them, and out of concern for the generations legacies, out of gratitude toward our ancestors who private property. We need to defend these great natural clear-cutting and overgrazing, or for conversion into establishment of free public libraries and public schools. The same democratic impulse led to the once-commonly shared lands had been enclosed for other protected natural areas as democratic alternatives. Earlier generations of Americans established parks and America's Wealth by Scott Russell Sanders

Opening Plenary

The Opening Plenary offers attendees the opportunity to gather and hear from a diverse set of voices on the importance of resilience, the theme of our conference. After a welcome from Conference Chair James Farmer and NAA Executive Director Lisa Smith, NAA Board President Cliff Chapman offers a few words on the significance of solid science to our profession. Our keynote speaker, Scott Russell Sanders, calls attention to the need for a renewed national commitment to the democratic values that led to the creation of our national parks and other publicly accessible lands. Dr. Heather Reynolds describes the key role that urban green spaces are playing in helping to protect all natural areas. The plenary ends with Michael Homoya, Indiana’s state botanist, speaking about the persistent biological diversity of Indiana’s natural areas despite centuries of intensive human-driven change.

9:30 am Welcome: James Farmer, Conference Chair

9:35 am Opening Remarks: Lisa Smith, Executive Director, Natural Areas Association

9:45 am Cliff Chapman, Board President, Natural Areas Association, Preserving Nature in an Era of Disinformation

KEYNOTE ADDRESS

10:05 am Public Lands, Democracy, and America’s Wealth by Scott Russell Sanders

Earlier generations of Americans established parks and other protected natural areas as democratic alternatives to the private estates of Europe, where nearly all of the once-commonly shared lands had been enclosed for use by the rich. The same democratic impulse led to the establishment of free public libraries and public schools. We are now faced with relentless efforts to enclose and exploit our public lands — for mining, drilling, clear-cutting and overgrazing, or for conversion into private property. We need to defend these great natural legacies, out of gratitude toward our ancestors who protected them, and out of concern for the generations that will come after us. In honor of our meeting place in Bloomington, this illustrated talk will draw many of its examples from Indiana, the Great Lakes Region, and the Midwest.

PLENARY ADDRESSES

10:45 am Green Cities: Wild Nature by Dr. Heather Reynolds

Thoreau wrote that “In wildness is the salvation of the world.” Today, we might say that “In cities is the salvation of wildness.” The practice of urban green infrastructure is a growing phenomenon that just might make cities a key part of protecting our cherished natural areas. After a brief review of its emergence as a concept and practice, the opportunities and challenges of managing urban green spaces as life-supporting infrastructure are explored, including their potential for biodiversity conservation in and outside of cities.

11:25 am Indiana’s Natural Regions: Wilder Than You Think! by Michael Homoya

While Indiana has one of the most altered landscapes in the country, it remains a place of remarkable natural diversity. Prior to European settlement, much of it was physically “level.” Yet a large, rugged driftless area exists in the south. Twelve natural regions are currently identified, each with a distinct assemblage of natural communities and biota, ranging from high dunes bordering Lake Michigan to towering limestone cliffs along the Ohio River. Add to these an ecological mash-up of bald cypress swamps, Virginia pine knobs, kettle lakes, limestone caverns, sandstone rock shelters, fens, tamarack bogs, grasslands, and one of the most extensively forested landscapes in the middle Midwest, and the result is a state that’s “wildther than you think!”

11:55 am Closing Words: Lisa Smith

ABOUT THE SPEAKERS

Michael Homoya
Indiana State Botanist/Plant Ecologist, Department of Natural Resources

Michael Homoya has been Botanist and Plant Ecologist for the Indiana DNR Division of Nature Preserves and Natural Heritage Data Center since 1982. His primary responsibilities are natural areas assessment, discovery and monitoring of rare species and state significant natural communities, and updating Indiana’s official list of endangered vascular plants. He is former president of the Indiana Academy of Science and recipient of its 2015 Distinguished Scholar Award. Homoya is the current president of the Indiana Native Plant and Wildflower Society and is an adjunct faculty member of Indiana University-Purdue University Indianapolis. Books he has written include Orchids of Indiana (1993) and Wildflowers and Ferns of Indiana Forests: A Field Guide (2012).

Dr. Heather Reynolds
Associate Professor of Biology, Indiana University

Heather Reynolds is an Associate Professor of Biology at Indiana University. She researches plant-environment interactions and their applications to restoration, promotion of green cities, and sustainable agriculture. She chairs the Indiana Invasive Species Council and works with Monroe County Identify & Reduce Invasive Species and the Bloomington Urban Woodlands Project.

Scott Russell Sanders
Author; Distinguished Professor Emeritus of English, Indiana University

Scott Russell Sanders is the author of more than 20 books of fiction and nonfiction, including Hunting for Hope and A Conservationist Manifesto. His most recent books are Earth Works: Selected Essays (2012); Divine Animal: A Novel (2014); and a collection of his eco-science fiction stories entitled Dancing in Dreamtime (2016). A new edition of his documentary narrative, Stone Country, co-authored with photographer Jeffrey Wolin, was published in 2017. Among his honors are the Lannan Literary Award, the John Burroughs Essay Award, the Mark Twain Award, the Cecil Woods Award for Nonfiction, the Eugene and Marilyn Glick Indiana Authors Award, and fellowships from the Guggenheim Foundation and the National Endowment for the Arts. In 2012 he was elected to the American Academy of Arts and Sciences. He is a Distinguished Professor Emeritus of English at Indiana University.
Oral Sessions 1:45 – 5:15 pm

Room Dogwood Room Maple Room Oak Room Persimmon Room Walnut Room Sassafras Room
Topic Innovative Species Communicating the Importance of Our Work Managing Data and Technology to Inform Natural Area Management Urban and Wildland Interface Restoration Ecology Native Plant Materials in Natural Areas Management Invading Species
Moderator Sarah Evans Evans John Moczal Megan Olline Becky Barak Clair Ryan
1:45 pm Sarah Evans: Plant community responses after the invasion of Emerald Ash Borer (A. nigrum) in Northeast Ohio
Kirsten Swenson: Does technology have a place in nature education?
Roxton St/searchers: A data-based future: Best practices and lessons learned from 20 years of fire plant road monitoring in San Diego County
2:45 pm Deborah Stone: The Spatial invasive Infestation Priority Analysis (SIIPA) Tool
Duck Spalding: Engaging citizens through technology in the field: An overview of Naturalist in Communities data banks
Megan Olline: A data-based future: Best practices and lessons learned from 20 years of fire plant road monitoring in San Diego County
3:45 pm Megan Dornbusch: The Odonota of the Pigeon River root at Blossom Hollow Nature Preserve in central Michigan
2:45 pm Sarah Eysenbach: Oral Sessions 1:45 – 5:15 pm Management groups and beyond
John Wenzel: Web-based digital tools and distance learning allow promotion of research and outreach for the population center
3:15 pm BREAK

Room Maple Room Dogwood Room Persimmon Room Walnut Room
Topic Fire Ecology Monitoring Species Populations and Trend Analysis Parenting Ecology
Moderator Marc Milne Marc Milne Rick Trenholm Marc Milne
1:45 pm John Moczal: Fire Ecology
Rick Trenholm: Monitoring Species Populations and Trend Analysis
3:45 pm Megan Olline: Parenting Ecology
3:15 pm BREAK

Room Persimmon Room Oak Room Dogwood Room
Topic Restoration Ecology Native Plant Materials in Natural Areas Management Innovative Species
Moderator John Moczal Clair Ryan Clair Ryan
4:15 pm Steven Dersch: Restoration Ecology
4:45 pm Maryachie Wilson: Population ecology of cancer root at Moosehorn Natural Area in Maine, Wisconsin
5:15 pm Taylor Young: Native Plant Materials in Natural Areas Management
4:15 pm Betsy Miller: Innovative Species
5:15 pm

Student-Mentor Networking: Passing the Drip Torch
12:15 – 1:45 pm Solarium
Students and young professionals are urged to take advantage of this opportunity to make connections with professionals in their future fields. Chat with those in a diverse range of conservation careers and meet potential employers. Lunch will be provided for those who have preregistered.
Poster Session & Reception  6 – 8 pm  Solarium

Join us for the first networking event of the Natural Areas Conference. Everyone’s invited to talk with our poster presenters, socialize with new and old friends, and enjoy complimentary hors d’oeuvres and a beverage from the cash bar.

- A walk in the park? Developing evidence-based outdoor programming for the public’s psychological health  Kristina Anderson
- Simulated herbivory affects plant-soil feedback dynamics among native and invasive woodland plants  Savannah Bennett
- Biological integrity of mixed-grass prairie topsoils subjected to long-term stockpiling  Pamela Block
- Genetic diversity of the federally endangered Avon Park Harebells in ex situ and natural populations  Diana Bolton
- Effects of predation pressure on O. virginianus behavior in Wayne County, Indiana  Anna R. Carlson
- Benthic macroinvertebrate development and community composition in mitigated wetlands in southwest Pennsylvania  Matt Carter
- Using a baseline bee survey to inform future management guidelines along an urban greenway in Denver, Colorado  Liam Cullinane
- Prairie microgeography: The study of the Tangled Prairie  Mary Damm
- Invasive plant response to windstorm forest canopy damage  Melissa Daniels
- Determining the role of biotic interactions on the restoration success of the federally endangered Astragalus bilbilatus  Noah Dell
- Mixed-grass vegetation response to grazing management strategies in Kentucky bluegrass-invaded pastures  Megan Dornbusch
- Effects of seed source on drought performance and implications for native prairie restoration  Katherine Fu
- Pre-emergence control of Japanese stiltgrass (Microstegium vimineum) in a state park using indaziflam  Victor Maddox
- The Hardwood Ecosystem Experiment: Findings from the first 10 years  Charlotte Owings
- Identifying and assessing vernal pools to inform conservation planning and management in light of climate change  Desiree Robertson
- Investigating land-use history impacts on oak-hickory forests in the Shawnee Hills of Southern Illinois  Charles Ruffner
- Municipal mallards: Movement ecology and harvest of urban ducks  Bradley Wehus-Tow

Connect and learn

Tuesday, Oct. 23  BLOOMINGTON, INDIANA
2018 NATURAL AREAS CONFERENCE  Tuesday, Oct. 23
**Oral Sessions & Symposia**

| Time          | Room              | Topic                                      | Moderator                                      | Speakers                                                                 |
|---------------|-------------------|--------------------------------------------|------------------------------------------------|
| 10:00 am      | Dogwood Room      | Urban and Wildland Interface Fire Ecology  | John Bacone                                    | Michael Homoya, Naureen Rana, Gil Nelson, Cliff Chapman |
| Break         |                   |                                            |                                                |                                                                      |
| 11:00 am      | Maple Room        | Grasslandia: Can biological specimen records, ecological data, landscape models, historical information, and art be used to build an interactive “time machine” that can be a new, innovative tool for conservation? | Andrea Melnychuk                                 | Allen Allen, Kristine Anderson |
| 12:30 pm      | Walnut Room       | Collaborative Approaches to Conservation  | Dennis Nyberg                                  | Marc Milne, Matthew Albrecht, Andrea Melnychuk, Patrice Delamere, Matt Freer |
| Break         |                   |                                            |                                                |                                                                      |
| 1:30 pm       | Dogwood Room      | Oral Sessions & Symposia                  | Derek Nimetz                                    | Leo Acosta, Andrea Weissgerber, Matthew Albrecht, Sara Tangren, Lauren Umek |
| 1:30 pm       | Maple Room        | Symposia on Urban Restoration Through Collaboration | Naureen Rana | Michael Homoya, Naureen Rana, Gil Nelson, Cliff Chapman |
| 1:30 pm       | Walnut Room       | Symposia Using Digital Specimen Data in Conservation Research and Practice | Gill Nelson | Maria Wiesenburg, Matthew Albrecht, Andrea Melnychuk, Matt Freer |
| Break         |                   |                                            |                                                |                                                                      |
| 2:00 pm       | Dogwood Room      | Grasslandia: Can biological specimen records, ecological data, landscape models, historical information, and art be used to build an interactive “time machine” that can be a new, innovative tool for conservation? | Andrea Melnychuk                                 | Allen Allen, Kristine Anderson |
| 2:00 pm       | Walnut Room       | Collaborative Approaches to Conservation  | Dennis Nyberg                                  | Marc Milne, Matthew Albrecht, Andrea Melnychuk, Patrice Delamere, Matt Freer |
| Break         |                   |                                            |                                                |                                                                      |
| 3:00 pm       | Dogwood Room      | Oral Sessions & Symposia                  | Derek Nimetz                                    | Leo Acosta, Andrea Weissgerber, Matthew Albrecht, Sara Tangren, Lauren Umek |
| 3:00 pm       | Walnut Room       | Symposia on Urban Restoration Through Collaboration | Naureen Rana | Michael Homoya, Naureen Rana, Gil Nelson, Cliff Chapman |
| Break         |                   |                                            |                                                |                                                                      |
| 4:00 pm       | Dogwood Room      | Grasslandia: Can biological specimen records, ecological data, landscape models, historical information, and art be used to build an interactive “time machine” that can be a new, innovative tool for conservation? | Andrea Melnychuk                                 | Allen Allen, Kristine Anderson |
| 4:00 pm       | Walnut Room       | Collaborative Approaches to Conservation  | Dennis Nyberg                                  | Marc Milne, Matthew Albrecht, Andrea Melnychuk, Patrice Delamere, Matt Freer |

**Invasive Forest Insect Identification Workshop**

| Time          | Room              | Topic                                      | Moderator                                      | Speakers                                                                 |
|---------------|-------------------|--------------------------------------------|------------------------------------------------|
| 2:00 pm       | Walnut Room       | Invasive Forest Insect Identification Workshop | Elizabeth Barnes                              | Matt Freer, Molly Philpott, Holly Gustafson-Grimes, Mary Ellen Lawrence, Andrea Weissgerber |

**Conference Field Workshops**

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<tr>
<th>Time</th>
<th>Location</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1:00 pm</td>
<td>East Lounge</td>
<td>Indiana Karst Landforms and Their Communities: Sinkholes, Caves and Springs</td>
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<tr>
<td>1:30 pm</td>
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<td>Exploring Unique Karst Features of the Lost River System on the Hoosier National Forest</td>
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<td>East Lounge</td>
<td>Scout Ridge Nature Preserve</td>
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<tr>
<td>2:30 pm</td>
<td>East Lounge</td>
<td>Collaborative Conservation in Practice: The Hills of Gold</td>
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<td>Long-term and Landscape-level Effects of Forest Management: The Hardwood Ecosystem Experiment</td>
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<td>Beanblossom Bottoms Boardwalk: Successes and Challenges of a Wetland Preserve and Public Access Site</td>
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<tr>
<td>4:30 pm</td>
<td>East Lounge</td>
<td>Working Woodlands for Birds, Bats and Resilience</td>
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**Oral Sessions & Symposia**

| Room              | Topic                                      | Moderator                                      | Speakers                                                                 |
|-------------------|--------------------------------------------|------------------------------------------------|
| Dogwood Room      | Collaborative Approaches to Conservation  | John Bacone                                    | Michael Homoya, Naureen Rana, Gil Nelson, Cliff Chapman |
| Maple Room        | Oral Sessions & Symposia                  | Derek Nimetz                                    | Leo Acosta, Andrea Weissgerber, Matthew Albrecht, Sara Tangren, Lauren Umek |
| Walnut Room       | Symposia on Urban Restoration Through Collaboration | Naureen Rana | Michael Homoya, Naureen Rana, Gil Nelson, Cliff Chapman |
| Break             |                                            |                                                |                                                                      |
| 1:30 pm           | East Lounge                             | Indiana Karst Landforms and Their Communities: Sinkholes, Caves and Springs  |
| 2:00 pm           | East Lounge                             | Exploring Unique Karst Features of the Lost River System on the Hoosier National Forest  |
| 3:00 pm           | East Lounge                             | Scout Ridge Nature Preserve  |
| 3:30 pm           | East Lounge                             | Collaborative Conservation in Practice: The Hills of Gold  |
| 4:00 pm           | East Lounge                             | Long-term and Landscape-level Effects of Forest Management: The Hardwood Ecosystem Experiment  |
| 4:30 pm           | East Lounge                             | Beanblossom Bottoms Boardwalk: Successes and Challenges of a Wetland Preserve and Public Access Site  |
| 5:00 pm           | East Lounge                             | Working Woodlands for Birds, Bats and Resilience  |

**Grasses Identification Workshop**

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<td>Grasslandia: Can biological specimen records, ecological data, landscape models, historical information, and art be used to build an interactive “time machine” that can be a new, innovative tool for conservation?</td>
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Natural Areas Association Awards Dinner  
6 – 10 pm  Alumni Hall  
• 6 pm cocktails  • 7 pm dinner  • 7:15 pm program commences  • 10 pm evening concludes

Doors will open to the Indiana Memorial Union’s soaring Alumni Hall at 6 pm, when guests can enjoy drinks from the bar and connect with friends and colleagues. It’s a great opportunity to review the select items to be auctioned off later in the evening. All auction proceeds support the Natural Areas Association. Our featured speaker will be Arthur Pearson, author of Force of Nature: George Fell, the Founder of the Natural Areas Movement. NAA will recognize our student poster and presentation competition winners, and honor the distinguished recipients of the Carl N. Becker Stewardship Award and the George B. Fell Award. The evening will conclude with a longstanding conference tradition: the Prairie Fire Auction.

THE GEORGE B. FELL AWARD
The George B. Fell Award, the NAA’s highest award, recognizes exceptional achievements in the natural areas profession.

W. William Weeks holds the Scolnik Clinical Chair in Conservation Law at the Indiana University Maurer School of Law. He is also the director of the Bloomington-based Conservation Law Center, which provides legal counsel to conservation organizations, works to improve conservation law and policy, and offers law students clinical experience in the practice of law and the profession’s public service tradition. Prior to this, Weeks practiced law in Indianapolis and Washington, D.C. He has also worked with The Nature Conservancy and the U.S. Army Corps of Engineers at Monroe Lake. Weeks also served as state director, director of the Center for Compatible Economic Development, chief operating officer, and executive vice president. From 2015 to 2018 he was chair of an American Bar Association section task force that considered reforms to conservation easement law.

For 31 years, Joyce Bender managed the state nature preserve system for the Kentucky State Nature Preserves Commission. Bender began her career with the Ohio Division of Natural Areas and Preserves in 1980 and worked for The Nature Conservancy in Ohio and Minnesota prior to her arrival in Kentucky. During her time with the commission, Bender began working on invasive species and was a founding member and officer of both the Kentucky and Southeast Exotic Pest Plant Councils. She also successfully obtained fire law exemptions for state employees conducting prescribed burns and was a founding member and vice president and president of the Kentucky Prescribed Fire Council. Bender was recognized for her work by the Kentucky Natural History Society, Kentucky TNC chapter and the National Board of Wild Ones. She received a Lifetime Achievement Award from the Kentucky Environmental Quality Commission. In retirement, Bender remains dedicated to protecting Kentucky’s natural areas and engaging the public in valuing natural places.

THE CARL N. BECKER STEWARDSHIP AWARD
The Carl N. Becker Stewardship Award recognizes individuals or groups for excellence and achievement in managing the natural resources of reserves, parks, wilderness, and other protected areas.

The George B. Fell Award. The evening will conclude with a longstanding conference tradition: the Prairie Fire Auction.

Keys to Conservation Careers

This session is designed for students and young professionals interested in careers in conservation and natural areas management. The session includes a panel of presentations by representatives of different career areas, followed by time for discussion and questions. After a break, the session continues with workshops on using the USAJOBS system and how to take advantage of the U.S. Forest Service Pathways Program.

CAREER PANEL

8:30 am  Welcome and session introduction
— Dr. Brian Forist, Indiana University

8:40 am  Federal representative — Michael Coleman, Park Ranger, U.S. Army Corps of Engineers at Monroe Lake (Ind.)

8:55 am  State representative — Dan Bortner, Director, Indiana State Parks

9:10 am  County representative — Sarah Wolf, Naturalist, Hendricks County (Ind.) Parks

9:25 am  City representative — Mallory Kirby, Naturalist, Holliday Park (Indianapolis Parks and Recreation)

9:40 am  Nonprofit representative — Adam Schnutt, Urban Naturalist Manager, Keep Indianapolis Beautiful, Inc.

9:55 am  Business representative — Evan Elsbury, Arborist/Manager, Franks Tree Care and Arborist Services (Columbus, Ind.)

10:00 am  Federal representative — Dr. William Carromero, National Botanist, USDA Forest Service

10:25 am  Academia representative — Dr. Gary Machlis, University Professor of Environmental Sustainability, Clemson University

CAREER WORKSHOPS

11:30 am  USAJOBS training

11:50 am  Pathways Programs

12:15 pm  Session ends

Wednesday, Oct. 24

Thursday, Oct. 25
### Oral Sessions & Symposia

<table>
<thead>
<tr>
<th>Room</th>
<th>Topic</th>
<th>Moderator</th>
<th>Time</th>
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<tbody>
<tr>
<td>Dogwood Room</td>
<td>Private Land Conservation</td>
<td>Amy Silva</td>
<td>9:00 am</td>
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<tr>
<td>Maple Room</td>
<td>Restoration Ecology</td>
<td>Rebecca Swed</td>
<td>9:30 am</td>
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<tr>
<td>Oak Room</td>
<td>Managing Data and Technology to Inform Natural Resource Management</td>
<td>Hull/Belknap</td>
<td>10:00 am</td>
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<tr>
<td>Persimmon Room</td>
<td>STEM/FFI: Managing Plantations Outcomes in the U.S.</td>
<td>Kayla Kneus</td>
<td>1:00 pm</td>
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<tr>
<td>Walnut Room</td>
<td>Karet Conservation and Management</td>
<td>Jerry Lewis</td>
<td>2:30 pm</td>
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<tr>
<td>Sassafras Room</td>
<td>STEM/FFI: Indiana's Grassroots Efforts for a Statewide Partnership to Address Invasives</td>
<td>Dawn Stack</td>
<td>3:00 pm</td>
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**Room Locations:**
- Dogwood Room
- Maple Room
- Oak Room
- Persimmon Room
- Walnut Room
- Sassafras Room

**Symposia:**
- **Private Land Conservation**
- **Restoration Ecology**
- **Managing Data and Technology to Inform Natural Resource Management**
- **STEM/FFI: Managing Plantations Outcomes in the U.S.**
- **Karet Conservation and Management**
- **Indiana’s Grassroots Efforts for a Statewide Partnership to Address Invasives**

**Instructors:**
- Dawn Slack
- Ellen Jacquart
- Paul Rothrock
- Stephanie Frischie

**Moderators:**
- Amy Silva
- Rebecca Swed
- Hull/Belknap
- Kayla Kneus
- Jerry Lewis
- Dawn Stack

**Speakers:**
- Anand Persad
- Scott Black
- John Taylor
- Kealie Vogel
- Cassandra Hauswald
- Brian Forist
- Leslie Bishop
- Alexys Nolan
- Jessica Ray
- David Kriska
- Marc Milne
- Angela Sturdevant
- Andrea Kramer
- Will Elmore
- Ellen Laurant
- Katie Kucera

**Workshops:**
- **Invasive Plant Identification Workshop**
- **Digital Herbarium Workshop**
- **Working Landscapes Conservation**

**Schedule:**
- 8:30 am – 3 pm
- **Noon – 11:30 am**: Oral Sessions & Symposia
- **10:00 am – 11:30 am**: Break

**Themes:**
- Collaborative Approaches to Conservation
- Invasive Species Management
- Climate Change
- Native Seed Strategy

**Participants:**
- Researchers
- Educators
- Conservationists

**Location:**
- Bloomington, Indiana

**Conference:**
- 2018 Natural Areas Conference

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### Roundtable Discussion

**Date:** Thursday, Oct. 25

**Time:** 1:30 – 3 pm

**Location:** State Room East

**Theme:** Honey Bees & Native Bees

**Panelists:**
- Stephanie Frei
- Michael Kelchner
- Brian Jackson
- Mark Arons

**Moderator:** Alix Cleveland

**Focus:**
- Discussing the challenges and opportunities of managing pollinators and public lands.

**Details:**
- Join us for an interactive discussion to learn more about pollinator conservation and the role of diverse mixed-source seed lots in the Midwest.

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**Note:**
- All current NAA members are encouraged to attend.
- Meet new friends and network with old ones, all while hearing about what’s new and in the works for the organization — and what we’re doing for you, our members. Those who preregister for the luncheon will have tickets in the sleeve of their name badge.

**Venue:**
- The beginning of a movement...
Our Closing Plenary session is devoted to two leaders in conservation whose recent book has offered an inspiring blueprint for moving conservation efforts forward in the face of huge challenges. We welcome Dr. Gary Machlis and former National Park Service chief Jonathan Jarvis as they talk about their “chart for rough water” and what it means for natural areas practitioners. A Q&A session will follow their presentation.

3:30 pm The Future of Conservation in America: A Chart for Rough Water by Gary E. Machlis and Jonathan Jarvis

As part of a national book tour, Gary Machlis and Jon Jarvis present their views on the current state of conservation in America and strategies for positive progress in the near and long-term future. Their lecture is based on their new book, The Future of Conservation in America: A Chart for Rough Water (University of Chicago Press, 2018). This candid and caring book about conservation has been described by Pulitzer Prize-winning scientist E.O. Wilson as "a call to action written with authority and passion" and by former President Jimmy Carter as "a clarion call for citizen engagement ... a visionary pragmatism that is clear, concise, and prescriptive." Machlis and Jarvis discuss their experiences in conservation politics and their new book.

Book Signing

Please join the authors following their presentation as they sign copies of their book, which will be available for purchase.
Native plant communities are key to ecosystem integrity and resilience. Human influences such as invasive species, altered wildfire regimes, and natural disasters are negatively affecting our ecosystems. Our ability to repair these damaged lands and stem the loss of cultural and economic benefits to society depends upon appropriate seed, research, decision tools, and public support for ecological restoration. Through collaboration and communication, we can more effectively manage public lands and protect our valuable natural resources.

Emergency Preparedness: the Need for Seed

>10 million acres burned by wildfires in 2017
Harvey, Irma, and Maria cost $265 Billion in damages, the costliest year for U.S.
~80 million weed infested acres on Bureau of Land Management (BLM) lands
BLM brought 200 species into commercial production
BLM spends ~$13 mil on seed from private sector seed producers supporting ~430 jobs

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<thead>
<tr>
<th>Planning Committee</th>
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<tbody>
<tr>
<td>James Farmer, Conference Chair, Indiana University</td>
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<tr>
<td>Alice Heikens, Program Chair, Franklin College</td>
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<tr>
<td>Kate Angell, NAA</td>
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<tr>
<td>John Bacone, Indiana Department of Natural Resources</td>
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<td>Cliff Chapman, Central Indiana Land Trust</td>
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<td>Brian Forst, Indiana University</td>
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<td>Spencer Goehl, Eco Logic</td>
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<td>Terri Hogan, National Park Service</td>
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<td>Melissa Page, Indiana University</td>
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<td>Dawn Slack, The Nature Conservancy — Indiana Field Office</td>
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<td>Lisa Smith, NAA</td>
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<tr>
<td>Amy Willis, NAA</td>
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<tr>
<td>Joanna Woodruff, Central Indiana Land Trust</td>
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| Additional support from: |
| Renee Boronka, Cleveland Museum of Natural History |
| Ruark Cleary, Florida Fish and Wildlife Commission |
| Christopher Evans, University of Illinois |
| Fran Harty, The Nature Conservancy |
| Ryan Klopf, Virginia Department of Conservation and Recreation |
| Mike Leahy, Missouri Department of Conservation |
| Roger McCoy, Tennessee Department of Environment and Conservation |
| Sarah Mincey, Indiana University |
| Richard Myers, Virginia Department of Conservation and Recreation |
| Steve Olson, U.S. Forest Service |
| Miranda Redmond, Colorado State University |
| Jody Shimp, Illinois Department of Natural Resources (ret.) |
| John Taylor, Ball State University |

Join Us

The Natural Areas Association has been supporting the community of natural areas practitioners for more than 40 years.

Stand with your community

Become a member of NAA today and get access to the quarterly Natural Areas Journal, discounted registration for NAA regional workshops and conferences, and more - plus the satisfaction of standing with your community. New members who join before Dec. 31 will receive 30% off - use the code NACNEW online. We're better together.

Go to naturalareas.org and click Join or visit the NAA table during the conference. We'll see you there!
Mark your calendar and plan to join us for the Natural Areas Conference in Pittsburgh, Pennsylvania, October 8-10, 2019.

The theme for 2019 focuses on a crucial locus for the work of natural areas professionals — the interaction between land and water in a time of accelerating change.

Some of the topics featured include:
- Mitigating the Impact of Energy Development
- Best Management Practices for Freshwater Ecosystem Integrity
- Advances in State Forest Management
- Management of Wildlife Habitat
- Urban Natural Areas & Green Infrastructure

We’re excited to be partnering with the Western Pennsylvania Conservancy, Pennsylvania Natural Heritage Program and the Pennsylvania Department of Conservation and Natural Resources for this event.

Sponsorship and exhibitor opportunities are available.

Information at naturalareas.org