



PROGRAM

Things to Do

- ☞ check tickets (behind name tag)—meals, field trips

- ☞ sign up for Friday workshops

Things to Know

- ☞ any questions, need help—ask the staff; they have ribbons on their name tag

- ☞ after Wed. noon, registration, information, and sale items will be in the Frangipani Rm. (Mezzanine floor, #27 on IMU map)

- ☞ Field Trip Leaders meeting 7:00 pm Wed. See page 9.



red-bellied woodpecker

Eastern Deciduous Forests, by Korling and Petty, the book provided with your registration packet, was made possible by the generosity of Wild Birds Unlimited, Indianapolis, IN, and Bart's Ski Shop, North Webster, IN.

Emergency Telephone Number: (812) 855-1245
(This number is in service 24 hours a day)

Summary of Conference Week

Location numbers correspond to the numbers on the IMU map

Tuesday

- 9:00 am - 5:00 pm Registration (East Lounge; Mezzanine floor, #30)
- 1:00 pm - 5:00 pm Opening Session (Whittenberger Auditorium; 1st floor, #51)
"Natural Areas in the Future: Multidisciplinary Perspectives"
- 5:00 pm - 7:00 pm Dinner - on your own *
- 7:00 pm - 8:00 pm Annual Meeting of the Natural Areas Association (NAA) (Whittenberger Auditorium; 1st floor, #51)
- 8:00 pm - 9:00 pm ▶Endangered Species Act Reauthorization: An Update
▶A New Direction for the Bureau of Land Management
▶The Real Indiana—An Overview of Indiana's Natural Regions (Whittenberger Auditorium; 1st floor, #51)
- 9:00 pm - 10:30 pm Poster Session and Mixer (Solarium; 1st floor, #42)

Wednesday

- 8:30 am - 12:00 pm Concurrent Sessions (1-7) (see pages 3 - 5)
- 12:00 pm - 1:30 pm Buffet Lunch (Alumni Hall; 1st floor, #43)
- 1:30 pm - 5:00 pm Concurrent Sessions (8-14) (see pages 6 - 9)
- 5:00 pm - 7:00 pm Dinner - on your own *
- 7:00 pm - ? Roundtable Sessions (see page 9)
Free Time

Thursday

- 8:00 am - 5:00 pm Field Trips (see page 10; meeting time/site on handout)
- 6:30 pm - 8:00 pm Buffet Dinner (Frangipani Rm., Mezzanine floor, #27)
- 8:00 pm - ? Silent Auction and Mixer (Alumni Hall, 1st floor, #43)
Live Auction

Friday

- Sign up for workshops at Registration—space is limited
- 8:30 am - 12:00 pm Concurrent Sessions (1-6) (see pages 11-13)
Workshops (1-5) (see page 13)

* Dining in Bloomington: If you do not fancy anything that is offered in the eatery at the Indiana Memorial Union, there are several places to eat off campus that are within easy walking distance. Information will be provided at the registration table.

19th Annual Natural Areas Conference
14th Annual Meeting of the Natural Areas Association

October 27-30, 1992

**Indiana University
Bloomington, Indiana**

REDISCOVERING AMERICA: NATURAL AREAS IN THE 1990s

Amenities

ACCOMMODATIONS

**Indiana Memorial Union
(IMU)**

(812) 855-2536.

Eigenmann Hall

Located approximately 3/4 mile walking distance from IMU, one mile if driving.

Nearby Motels

Complimentary transportation to and from the IMU is supplied by both motels.

Ramada Inn: (812) 334-3252

Hampton Inn: (812) 334-2100

LIMOUSINE

Service is available between Bloomington and the Indianapolis International Airport. To reserve space, contact Indy Connection at 1-800-888-4639. Mention the Natural Areas Conference #158-92. The cost is \$35.00 one way and \$60.00 round trip. Reduced rates are available for multiple riders; inquire.

PARKING

When staying at the Union hotel, parking is free in the IMU lot and the overflow lot. For all other parking you must purchase a parking pass. For \$3.00 per day you can park in all campus lots, including the garage, except for the IMU lot and its overflow lot. You may purchase your pass when you register at IMU, or check in at Eigenmann Hall. The parking garage is located within easy walking distance from the IMU.

RECREATION

Passes will be available at the HPER Supervisor's Station, Wildermuth Gymnasium (indoor track), for \$2.75 per day. The facilities include indoor gym, track, pool, racquetball courts, and weight room.

CONVENIENCES

IMU offers a post office, copy center, automatic teller machines, bookstore and gift shop, and a variety of eateries. The post office is located on the Lobby floor (#7 on IMU map), the Copy Corner (#22 on IMU map), MoneyMover and CIRRUS banking machines, and most of the eateries are on the Mezzanine floor. The bookstore and gift shop (#25 on IMU map) can be entered from all 3 levels.

Them Botanists

*How 'bout them botanists,
ain't they a show?
Runnin' here and there
to where the green things
grow.*

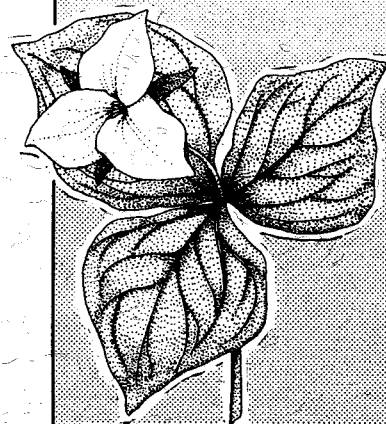
*Sluggin' through the spring
mud,
muckin' through the mire,
off to see an orchid
like their pants is on fire.*

*Them down-home botanists
take you for a ride,
find themselves a flower
and look inside.*

*Lookit that pistil,
stamens by the ton.
Pokin' at the privy parts
sure is fun.*

*How 'bout them botanists,
ain't they funny?
Can't get 'em clean
for love nor money.*

*How to be a botanist?
It'll make you sick.
Go and lose your shoes
where the mud's real thick.*
Forrest Marsh



The 19th Annual Natural Areas Conference is hosted by the Indiana Department of Natural Resources' Division of Nature Preserves, and the Natural Areas Association.

This conference has been made possible with the help of the following:

U.S. Forest Service
Shawnee National Forest
Hoosier National Forest

National Park Service

Indiana Dunes National
Lakeshore

Indiana Academy of Science

The Nature Conservancy,
Headquarters

The Nature Conservancy,
Indiana Chapter

U.S. Fish & Wildlife Service-
Midwest Region

U.S. Bureau of Land
Management

Indiana University
School of Public &
Environmental Affairs
Department of Biology

Purdue University
Department of Forestry &
Natural Resources

U.S. Army Corps of Engineers
Construction Engineering
Research Lab. - Natural
Resources Management Team

Indiana Department of Natural
Resources
Division of Forestry
Division of State Parks

U.S. Environmental Protection
Agency

TUESDAY

Location numbers correspond to the numbers on the IMU map

Registration

East Lounge; Mezzanine floor, #30

9:00 am - 5:00 pm

Opening Session

Whittenberger Auditorium; 1st floor, #51

1:00 pm - 5:00 pm

"Natural Areas in the Future - Multidisciplinary Perspectives"

Moderator: Dennis McGrath, The Nature Conservancy, Indiana Chapter

Welcome: Patrick Ralston, Director, Indiana Department of Natural Resources

Speakers: Jan Goldman-Carter, Environmental Attorney, formerly Wildlife Counsel for the National Wildlife Federation

Robert Ewing, Lead Staff to the California Executive Council on Biological Diversity

Chris Maser, Author, International Lecturer, and Consultant

Bill Weeks, Chief Operating Officer of The Nature Conservancy

Dinner (on your own)

5:00 pm - 7:00 pm

Meeting

Whittenberger Auditorium; 1st floor, #51

7:00 pm - 8:00 pm

Natural Areas Association Annual Meeting

The Natural Areas Conference is cosponsored each year by the NAA, which holds its annual meeting at the conference. All conference participants are invited to attend.

Evening Program

Whittenberger Auditorium; 1st floor, #51

8:00 pm - 9:00 pm

Endangered Species Act Reauthorization: An Update

David Wilcove, Environmental Defense Fund, Washington, D.C.

A New Direction for the Bureau of Land Management

Michael Dombach, Special Assistant to the Director, & Science Advisor, Bureau of Land Management

The Real Indiana—An Overview of Indiana's Natural Regions

This is a slide-illustrated talk by Mike Homoya, IDNR, Div. of Nature Preserves, on the diversity of Indiana's flora, fauna, and natural communities. Discover some of the finest natural landscapes to be found in the heartland of America.

Poster Session & Mixer

Alumni Hall & Solarium; 1st floor, #42-43

9:00 pm - 10:30 pm

The evening poster session will be a good opportunity to talk to the authors about their findings. Refreshments will be available.



1. **TRANSLOCATION OF SPECIES FOR CONSERVATION:** Moderator - Robert Sutter. The Nature Conservancy, Chapel Hill, NC.

Dogwood (Tree Suites, Mezzanine floor, east end)

Introduction of Lakeside Daisy (*Hymenoxys herbacea*) to Kelleys Island, Ohio. Jennifer Windus. OH Department of Natural Resources, Div. of Natural Areas & Preserves.

Criteria for Species Translocation: The Example of Apalachicola Rosemary (*Conradina glabra*). Doria Gordon & Greg Seamon. The Nature Conservancy (TNC), FL.

Genetic and Ecological Approaches for Rare Plant Recovery: Creating New Populations of *Amsinckia grandiflora*, a Grassland Annual. Bruce Pavlik. Mills College, CA.

No Rest for the Restorationist. Bart Johnson. Institute of Ecology, U. of Georgia.

Status and Restoration Planning for the Federally Threatened Pitcher's Thistle (*Cirsium pitcheri*) in Illinois. Marlin Bowles & Robyn Flakne, The Morton Arboretum, IL; Kathryn McEachern, U. of Wisconsin-Madison; Noel Pavlovic, Indiana Dunes National Lakeshore.

★ BREAK 10:00 - 10:30 ★

Panel Discussion on Species Translocation.

Robert Sutter, Chair, TNC, NC; Gretchen Bonfert, IL Nature Preserves Commission; Marlin Bowles, The Morton Arboretum; Doria Gordon, TNC, FL; Kelly Kearns, WI Department of Natural Resources; Peggy Olwell, Center for Plant Conservation; Bruce Pavlik, Mills College, CA.

2. **ECOLOGICAL RESTORATION OF NATURAL COMMUNITIES WITHIN THE OAK-HICKORY FOREST ECOSYSTEM:** Moderator - Larry Stritch. U.S. Forest Service, Eastern Region.

Whittenberger (1st floor, #51)

The Historic Occurrence of Savanna in the Missouri Ozarks. Tim Nigh. MO Department of Conservation.

Oak-Hickory Natural Areas in the Missouri Ozarks: Profile & Management. Doug Ladd. TNC, MO.

Missouri's Savannas and Woodlands: Ten Years and 10,000 Acres of Restoration on Missouri State Parks. Ken McCarty. MO Department of Natural Resources.

Preliminary Data on the Effects of Prescribed Fire in the LaRue-Pine Hills on *Pinus echinata* and *Rhododendron prinophyllum*. Elizabeth Shimp & Raymond Smith, U.S. Forest Service, Shawnee National Forest, IL.

★ BREAK 10:00 - 10:30 ★

Natural Forest Restoration on Disturbed Lands at the Cache River Bioreserve in Southern Illinois. Max Hutchison. TNC, IL.

Landscape Scale Restoration of an Oak-Hickory Forest Mosaic. Larry Stritch. Shawnee/Wayne-Hoosier National Forests, IL, IN, OH.

Vegetational Changes in a Dry Barrens Community Following Reintroduction of Fire (Pope County, IL). John Taft, IL Natural History Survey; Mary Kay Solecki, IL Nature Preserves Commission.

Restoration of the Boone Creek Barrens on the Hoosier National Forest. Steve Olson. U.S. Forest Service, Hoosier National Forest, IN.



3. GEOGRAPHIC INFORMATION SYSTEMS APPLICATIONS: Moderator - Irv Goldblatt. IN Department of Natural Resources.

Sassafras (Tree Suites, Mezzanine floor, east end)

Characterization of the Rural Landscape to Determine Conservation Priorities: A GIS Approach in Florida. Hilary M. Swain, FL Institute of Technology, & Vickie S. Larson, Bionetics Corporation, Kennedy Space Center.

The Tennessee Biodiversity Program: From Information to Application. Milo Pyne. TN Department of Environment & Conservation, Div. of Ecological Services.

★ BREAK 10:00 - 10:30 ★

An Environmental Information System for Regional Conservation Advocacy in Central Pennsylvania. Timothy Johnson, Neil Korostoff, & Thomas Yahner. Penn State U.

Using State Digital Databases in a GIS for Regional Reserve Planning. Pamela A. Frost & Ralph E.J. Boerner. Ohio State U.

Digital Database Construction for a GIS Used in Regional Nature Reserve Design. James R. Strittholt. Ohio State U.

4. HABITAT FRAGMENTATION AND THE LOSS OF SPECIES: Moderator - David Wilcove. Environmental Defense Fund. Washington, D.C.

Georgian (1st floor, #50)

Habitat Fragmentation and Biodiversity. Reed Noss. Corvallis, OR.

Preliminary Comparisons of Bird Distributions on Fragments and Intact Forest in Missouri. John Faaborg & Therese Donovan, U. of Missouri; Richard Clawson, MO Department of Conservation, Fish & Wildlife Research Center.

The Effect of Fragmentation on the Structure and Dynamics of Neotropical Migrant Breeding Bird Communities in South-central Indiana. Don Whitehead, Carolyn Frazer, Grant Greenberg, Matt Koukol, & Don Winslow. Indiana U.

★ BREAK 10:00 - 10:30 ★

Avian Nesting Success in Severely Fragmented Landscapes: Case Studies from Illinois. Jeffrey Brawn & Scott Robinson. IL Natural History Survey.

Fragmentation of Riverine Ecosystems: An Overview. Andrew Sheldon. U. of Montana.

Avifaunal Changes with Conversion from Native Pinelands to Plantation Management in Florida. John J. Kappes. U. of Florida.

5. INVERTEBRATE CONSERVATION: AN OVERVIEW OF ISSUES AND TECHNIQUES: Moderator - Dr. Robert D. Waltz. IN Department of Natural Resources, Div. of Entomology & Plant Pathology.

State Room East (2nd floor, #56)

Field Studies of Indiana Landsnails. Dr. David A. Smith. Wabash College, IN.

Everyone Lives Downstream of Somebody: What Mussels Tell Us about Indiana River Quality. Bob Anderson. IN Department of Natural Resources, Div. of Fish & Wildlife.

The Status and Distribution of Remnant-dependent Insects within a System of Small, Widely Scattered Prairie Preserves. Ron Panzer. Northeastern IL University.

★ BREAK 10:00 - 10:30 ★

Effects of Recent Prescribed Fire on Prairie Butterflies. Ann B. Swengel. Baraboo, WI.

How to Conduct a Lepidopteran Survey. Eric H. Metzler. OH Department of Natural Resources.

Rivers Exsponged: Aquatic Insects and Their Conservation. Dr. Robert D. Waltz. IN Department of Natural Resources, Div. of Entomology & Plant Pathology.

Wednesday am (cont.)

Concurrent Sessions

8:30 am - 12:00 pm

6. INVENTORY, ASSESSMENT AND MANAGEMENT OF URBAN NATURAL AREAS: Moderator - Charles Nilon. U. of Missouri.

State Room West (2nd floor, #56)

Methodologies, Results and Applications of Natural Resource Assessments in New York City, New York. Susan M. Sisinni, U.S. Forest Service, NY, & Anthony Emmerich, City Parks Foundation. NY.

GIS-based Natural Areas Planning for Greater Portland, Oregon. Joseph Poracsky. Portland State U., OR.

Buffer Zone Management and Planning at the Edward L. Ryerson Conservation Area, Deerfield, Illinois. Beverly A. Johnson. Edward L. Ryerson Conservation Area. Deerfield, IL.

★ BREAK 10:00 - 10:30 ★

Assessment and Management of Wildlife Diversity in an Urban Setting. Dr. Daniel R. Ludwig. Forest Preserve District of DuPage Co., Glen Ellyn, IL.

Habitat Selection of Grassland Birds in Three Non-native Grasslands in Northern Illinois. Scott Kobal. Forest Preserve District of DuPage Co., Glen Ellyn, IL.

Natural Features in Built Landscapes: A Wildlife Habitat Survey of Lincoln Park, Chicago, Illinois. Charles Nilon & Brian Lindenlaub. U. of Missouri-Columbia.

7. NATURAL AREAS MANAGEMENT TECHNIQUES AND EXOTIC SPECIES: Moderator - Bill Glass. IL Department of Conservation.

Persimmon (Tree Suites, Mezzanine floor, east end)

Spread and Control of Garlic Mustard (*Alliaria petiolata*), an Invasive Biennial Herb. Victoria A. Nuzzo. Native Landscapes. Rockford, IL.

Strategies to Control Invasive Exotic Plants in South Florida. Mike Bodle, A.P. Ferriter, F.B. Laroche, & D.D. Thayer. South Florida Water Management District.

An Assessment of Invasive Weed Problems on Nature Conservancy Preserves Nationwide. John Randall. TNC, CA, & U. of California-Davis.

Selective Vegetation Management with Triclopyr Herbicides. Michael P. Stafford. DowElanco. Indianapolis, IN.

★ BREAK 10:00 - 10:30 ★

Experimental Control of the Preservation of a Cedar Glade by the Removal of Woody Stems. Darlene Panvini. TNC, TN.

Habitat Management for Midwestern Grassland Bird Communities. Jim Herkert. IL Endangered Species Protection Board.

White-tailed Deer Management in Eastern National Parks. Michael A. Coffey. National Park Service. Washington, D.C.

Deer Exclosure Study - Brown County State Park: An Ecological and Sociological Problem and Public Perception. Jim Eagelman. IN Department of Natural Resources, Brown Co. State Park.

12:00 pm - 1:30 pm

BUFFET LUNCH

Alumni Hall (1st floor, #43)

Have your ticket ready!

Wednesday pm

Concurrent Sessions

1:30 pm - 5:00 pm

8. MANAGEMENT IMPLICATIONS OF PRE- AND POSTDISPERSAL SEED ECOLOGY: Moderator - Christopher J. Whelan. The Morton Arboretum. Lisle, IL.

Sassafras (Tree Suites, Mezzanine floor, east end)

Introduction. Chris Whelan. Morton Arboretum. Lisle, IL.

Landscape and Historical Effects on *Prunus* Abundance in Large Forest Disturbances in the Northeastern U.S. Chris Peterson. Institute of Ecosystem Studies, Millbrook, NY, & Princeton U., NJ.

Tree Species Recruitment: Experimental Studies. Diane De Steven. U. of Wisconsin-Milwaukee.

Woody Plant Seed Dispersal in Fragmented Landscapes. Mark McDonnell. Institute of Ecosystems Studies. Millbrook, NY.

★ BREAK 3:00 - 3:30 ★

Biotic Limitations to Red Oak Regeneration. Lou Auchmoody. U.S. Forest Service. Warren, PA.

Thinking Like a Granivore: Insights from Experimental Food Patches. Joel Brown. U. of Illinois-Chicago.

Managing Seed Crops for Seed Predators: Conifers and Crossbills. Craig Benkman. U. of California-Santa Cruz.

9. CASE STUDIES IN THE ENVIRONMENTAL ASSESSMENT OF AQUATIC SYSTEMS: Moderator - Dr. Richard Whitman. National Park Service. Indiana Dunes National Lakeshore.

Dogwood (Tree Suites, Mezzanine floor, east end)

Physical Processes in Wetlands. Dr. Paul Doss. Colby College, ME.

Water Quality Trends in Midwestern Rivers and Streams. Anne Spacie & Jerry Sweeten. Purdue U., IN.

Use of Coliform Bacteria in Assessing Human Sewage Contamination. Richard Whitman, Indiana Dunes National Lakeshore; A. Gochee & W. Dustman, Indiana U. Northwest; K. Kennedy, Indiana Dunes National Lakeshore.

The Use of Aquatic Algae in Pollution Assessment. Paul Stewart. Indiana Dunes National Lakeshore.

★ BREAK 3:00 - 3:30 ★

Wetland and Aquatic Macrophytes as Indicators of Hydrologic Disturbance. Doug Wilcox. U.S. Fish & Wildlife Service, National Fisheries Research Center-Great Lakes. Ann Arbor, MI.

Invertebrates and Other Benthic Features as Indicators of Environmental Change in Juday Creek, Indiana. Gary Lamberti & Martin Berg. U. of Notre Dame., IN.

Environmental Monitoring of the Wabash River and Its Tributaries. Jim Gammon. Depauw U., IN.

The Use of Bioassays to Assess Aquatic Environmental Quality: Field Applications in the Midwest. Anne Spacie, Purdue U., IN; Paul Stewart & Richard Whitman, Indiana Dunes National Lakeshore.



Wednesday pm

Concurrent Sessions

1:30 pm - 5:00 pm

10. FIRE EFFECTS AND MANAGEMENT: SHRUBS AND SHRUBLANDS: Moderator - Eric Menges. Archbold Biological Station. Lake Placid, FL.

Georgian (1st floor, #50)

Effects of Fires on Woody Vegetation in Longleaf Pine Savannas. William Platt & Matthew Olson, Louisiana State U.; Jeff Glitzenstein & Donna Streng, Tall Timbers Research Station. Tallahassee, FL.

Vegetative Responses to Underburning an Old-growth Mixed Pine-hardwood Stand on the Georgia Piedmont. Dale Wade. U.S. Forest Service, Southern Forest Fire Laboratory, GA.

Life History Strategies of Florida Scrub Plants in Relation to Fire. Eric Menges. Archbold Biological Station, FL.

Experimental Manipulation of Flammable Shrub Understories at Cape Cod National Seashore. William Patterson. U. of Massachusetts.

★ BREAK 3:00 - 3:30 ★

Response of Prairie/Forest Ecotonal Shrubs to Fire. Roger Anderson, Illinois State U., & John E. Schwegman, IL Department of Conservation, Div. of Natural Heritage.

Fire in Development and Maintenance of Oak Savannas in the Upper Midwest. Alan Haney. U. of Wisconsin-Stevens Point, & Steven Apfelbaum, Applied Ecological Services, Inc., Broadhead, WI.

Role of Variable Fire Regimes in the Maintenance of Biodiversity in California Chaparral. Jon Keeley. Occidental College, CA.

Consequences of Secondary Effects of Global Climatic Change on California Shrublands. George Malanson. U. of Iowa.

11. EASTERN U.S. OLD-GROWTH ISSUES, PROBLEMS, AND SOLUTIONS: Moderator - Don Leopold. State U. of New York. Syracuse, NY.

Whittenberger (1st floor, #51)

Defining Old-growth Forests in the Eastern United States. Lucy Tyrrell. U.S. Forest Service. Rhinelander, WI.

An Evaluation of Guidelines Established for Defining Eastern Old Growth Via Direct Application. Gregory J. Nowacki. TNC, NC.

Considering Old Growth from a Landscape Perspective. Thomas Crow. U.S. Forest Service. Rhinelander, WI.

★ BREAK 3:00 - 3:30 ★

Characterization of Current and Future Old-growth Forest in the Central Hardwood Forest Region. George Parker. Purdue U., IN.

Can Oak Be Maintained in Old-growth Forests without Fire? Marc Abrams. The Pennsylvania State U.

How Steady is the Steady State for Old-growth Forests of the Eastern United States? James Runkle. Wright State U., OH.



12. CAVE BIOLOGY AND CONSERVATION: Moderator - Horton H. Hobbs III, Wittenberg U. Springfield, OH.

State Room West (2nd floor, #56)

Conservation and Management Obstacles in Karst Regions. Horton H. Hobbs III, Wittenberg U., OH.**Protection of Water Quality in Cave Ecosystems.** Tom Aley, Ozark Underground Lab. Protem, MO.**Endangered Species and Endangered Communities in Karst.** David C. Culver, Karst Waters Institute, Charles Town, WV.**Detecting Anthropogenic Pollution in Aquatic Cave Communities.** Thomas L. Poulson, U. of Illinois-Chicago.**Bat Protection in Caves.** John McGregor, U.S. Forest Service, Daniel Boone National Forest, Berea, KY.**Biological Resources of Lechuguilla Cave: Is Protection Possible During Active Exploration?** Diana E. Northup, U. of New Mexico.

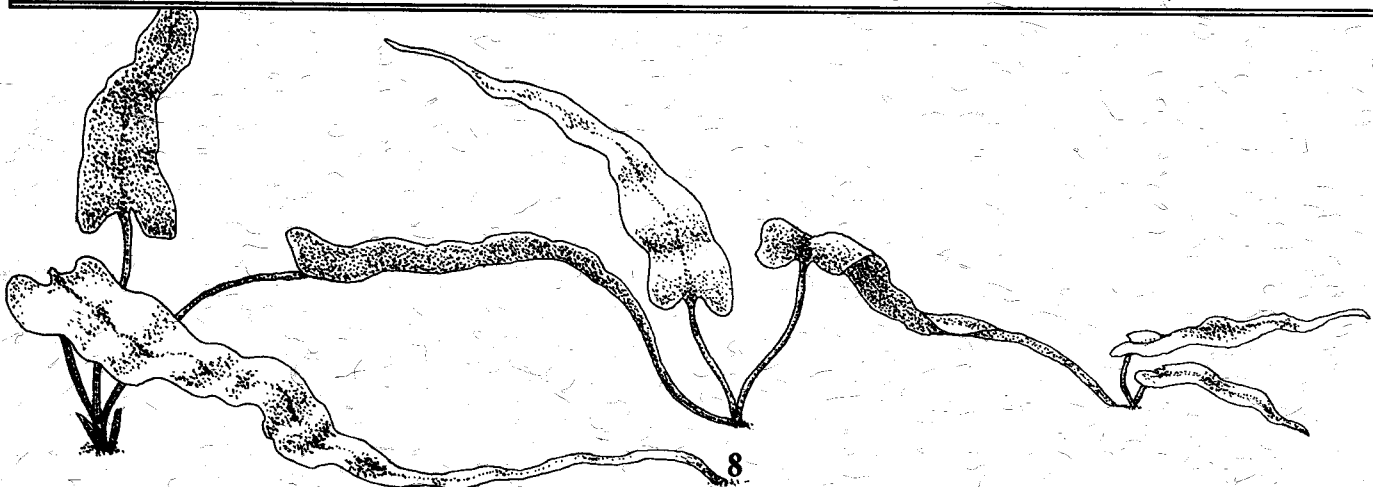
★ BREAK 3:00 - 3:30 ★

To Pee or not to Pee; Effects of Urine Deposition on Microbes in Cave Soils. Kathleen H. Lavoie, U. of Michigan-Flint.**Caves and the National Park Service.** Ron Kerbo, National Park Service, Sante Fe, NM.**Federal Cave Resources Protection Act.** Jim Nieland, U.S. Forest Service, Mt. St. Helens National Volcanic Monument, Amboy, WA.**Cave Management by Prescription.** Lawrence H. Mullins, Jr. U.S. Forest Service, Wayne-Hoosier National Forest, IN.**Caves, Karst, and America's Schools.** David G. Foster, American Cave Conservation Association, Horse Cave, KY.**13. IDENTIFICATION, PROTECTION AND MANAGEMENT OF BIG RESERVES:** Moderator - Bill McClain, IL Department of Conservation.

Persimmon (Tree Suites, Mezzanine floor, east end)

Biosphere Reserves: Expanding the Functional Area for Conservation through Cooperation. William P. Gregg, Jr. National Park Service, Washington, D.C.**Florida Keys Bioreserve, Florida.** Don Axelrad & Randy Tate, TNC, FL.**Chicagoland—Can Elements of the Original Landscape be Preserved?** Steve Byers, IL Nature Preserves Commission; Betsy Otto, Openlands Project; Richard Mariner, Northeastern IL Planning Commission.**The Biological Inventory Process; Applications for Preserve Design and Management.** Fred Clark, TNC, WI.

★ BREAK 3:00 - 3:30 ★

Selection and Design of Large Reserves in Illinois. John White, Ecological Services, Urbana, IL.**Making Partnerships Work at the Cache River Wetlands Project in Illinois.** Paul Dye, TNC, IL.**Biodiversity Conservation in the Oregon Coast Range.** Reed Noss, Coast Range Association, Corvallis, OR.

Wednesday pm (cont.)**Concurrent Sessions****1:30 pm - 5:00 pm**

14. **MANAGEMENT PLANNING:** Moderator - Ellen M. Jacquart. U.S. Forest Service, Wayne-Hoosier National Forest, IN.

State Room East (2nd floor, #56)

Managing for Biological Diversity and Multiple Use: The Resource Management Planning Process as a Tool. James M. Colby. U.S. Bureau of Land Management. Alexandria, VA.

National Wildlife Refuge Management Planning within the Columbia River Gorge National Scenic Area. Benjamin V. Harrison, Jeff W. Holm, & James R. Clapp. U.S. Fish & Wildlife Service, OR.

Framework for Developing a Nation-wide System of Ecological Areas—The Canadian Experience. Dr. David A. Gauthier. U. of Regina. Saskatchewan, Canada.

A Unique Research Natural Area: The Hanford Nuclear Reservation. Robert H. Gray. Battelle Pacific NW Lab. Richland, WA.

★ BREAK 3:00 - 3:30 ★

Multi-agency Natural Areas Management: The Highs and the Lows. William M. Helfferich & Fred E. Davis. South Florida Water Management District. West Palm Beach, FL.

Managing for Yellow-Fringed Orchids on the Wayne National Forest: An Example of the Project Planning Process Used by the Forest Service. Ellen M. Jacquart. U.S. Forest Service. Wayne-Hoosier National Forest, IN.

Toward a Standard Approach to Stewardship Planning: An Adaptation of the Limits of Acceptable Change (LAC) Process. Christine Hall, TNC, WV, & Steven Hollenhorst, West Virginia U.

They Either Don't Care or They Love Them to Death. Rebecca S. Marty. NC Div. of Parks & Recreation.

DINNER - on your own**Wednesday Evening****Round Table Sessions****7:00 pm - ?**

- | | | |
|---|---------------------------|--|
| 1. Site Managers | Bill Glass | Georgian (1st floor, #50) |
| 2. Land Protection Specialists | Mina Marsh | Persimmon (Tree Suites, Mezzanine floor, east end) |
| 3. Natural Area Program Administrators | Harold Grimmatt | Sassafras (Tree Suites, Mezzanine floor, east end) |
| 4. Dept. of Defense Partnering with State Programs | Dave Kowalski/Alison Hill | State Room West (2nd floor, #56) |
| 5. Field Trip Leaders | Lee Casebere | Dogwood (Tree Suites, Mezzanine floor, east end) |

visit • sleep • learn IMU floor plan • campus hike • pub crawl • read packet info • read abstracts

swim • phone home • jog • **FREE TIME** • prepare your talk for Friday

find field trip ticket • look at posters • find room key • eat • impromptu discussion group • read

A box lunch is provided

A. Leavenworth Barrens & Wyandotte Cave

The terrestrial portion of this hike emphasizes Leavenworth Barrens' grassy openings and dry upland woodlands (moderate to somewhat strenuous hiking; no official trails). The subterranean half will survey the dry passages of nearby Wyandotte Cave (easily traversed trail; a light jacket is recommended).

C. Sullivan's Cave

This is the most rugged cave trip offered—no lighted corridors, no boardwalks or stairways. Wear rugged clothes and sturdy boots. Bring a helmet and light if you have them (they will be provided). Bring a set of dry clothes—there is knee-deep water in one area.

E. Boone Creek Barrens, Hoosier National Forest

This trip will look at the results of the management of four areas, with the use of cutting, girdling, and prescribed burns (moderate to somewhat strenuous hiking; no official trails).

G. McCormick's Creek

McCormick's Creek flows through a limestone canyon, forming a beautiful waterfall at one site, and having old-growth forests of beech-maple and oak-hickory in several areas. Frequent sinkholes also dot the landscape (easy trails).

I. Lost River Karst Features

This system is known for its unique conglomerate of karst features, including the terminus zone, Elrod Gulf and a swallow-hole. Go especially if it rains! (moderate hiking).

K. T.C. Steele State Memorial, Yellowwood State Forest, and Brown County State Park

This trip visits the home and studio of turn-of-the-century landscape artist Theodore Steele, Selma Steele Nature Preserve, Crooked Creek Nature Preserve in Yellowwood State Forest, Ogle Hollow Nature Preserve, and deer exclosures in Brown County State Park (moderate hiking).

B. Pine Hills and Rocky Hollow-Falls Canyon

See deep sandstone canyons along scenic Sugar Creek. Eastern hemlock, white pine, and Canada yew cling to the cliff edge. The uplands contain old-growth forest of beech-maple and oak-hickory (moderate to rugged hiking on good trails).

D. Bluesprings Caverns

An easy, yet very interesting cave experience which includes above-ground sinkholes, and a one-hour boat trip through the caverns on an underground river. Rugged shoes and clothing are not required, but a light jacket is recommended.

F. Habitat Fragmentation

Visit areas in Hoosier National Forest and Yellowwood State Forest where studies are being conducted on the effects of landscape patterns and timber and wildlife management activities on the dynamics of neotropical migrant breeding bird communities (moderate hiking; no official trails).

H. Shooting Star Cliffs, Hoosier National Forest

This 6,210 acre Special Area was designed to protect a section of the forest known for its extensive sandstone cliff formations. Numerous rock shelters have been found to be prehistoric cultural sites (moderate hiking; some trails).

J. Lichens/Mosses/Ferns - Yellow Birch Ravine

This trip emphasizes the ecology and identification of the cryptograms found growing in the moist ravines, dry wooded uplands, and on the sandstone outcrops (moderate hiking; no official trails).

L. Donaldson's Woods, Spring Mill Village, Pioneer Mothers Memorial Forest

This trip visits two old-growth stands—Pioneer Mothers Memorial Forest, in the Hoosier National Forest; and Donaldson's Woods, at Spring Mill State Park. Both are National Natural Landmarks (easy trails).

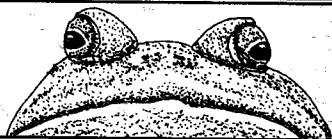
CANCELED



Thursday Evening**6:30 pm - ?****Buffet Dinner****6:30 pm - 8:00 pm****Frangipani Room (#27)****Silent Auction/Mixer, & Live Auction****8:00 pm - ?****Alumni Hall (#43)**

Here is an opportunity for great bargains! Signed and framed prints and books, & even trips will be auctioned. MASTERCARD & VISA will be accepted.

Entertainment provided by
The Humdingers

**Friday am****Concurrent Sessions & Workshops****8:30 am - 12:00 pm**

1. **SOCIAL SCIENCE ASPECTS OF NATURAL AREAS MANAGEMENT:** Moderator - David W. Lime. U. of Minnesota. St. Paul, MN.

Whittenberger (1st floor, #51)

Benefits-based Management of Natural Areas. B.L. Driver. U.S. Forest Service. Ft. Collins, CO.

Integrating Social Values into Biocentric Forestry. Mark Brunson. Utah State U.

Building Community Sustainability through Natural Areas Protection. Stephen F. McCool. Institute for Tourism & Recreation Research. The U. of Montana.

Understanding Visitors' Perceptions of Crowding in Wilderness to Aid Natural Areas Planning and Management. David W. Lime & Michael Lewis. U. of Minnesota.

★ BREAK 10:00 - 10:30 ★

Developing a National Network of Conservation Lands. Sara Vickerman. Defenders of Wildlife.

Expanding the Wildlife and Habitat Conservation Constituency: The Indiana Wildlife Viewing Guide. Hannah Kirchner. D.J. Case & Associates. Mishawaka, IN.

Dealing in Diversity: America's Market for Nature Conservation. Victoria M. Edwards. U. of Portsmouth. England.

Wilderness Experience and Self-actualization. Won Sop Shin. U. of Toronto. Canada.

- 2a. **PANEL DISCUSSION ON LANDOWNER COMMUNICATIONS:** Moderator - Mina Marsh. AR Natural Heritage Commission.

Sassafras (Tree Suites, Mezzanine floor, east end)

Mina Marsh, AR Natural Heritage Commission; Judy Faulkner, IL Nature Preserves Commission; Beverley Clark, TNC, Southeast Regional Office, NC; Hank Tyler, ME State Planning Office.

★ BREAK 10:00 - 10:30 ★

- 2b. **REGULATORY PROTECTION:** Moderator - Mark T. Southerland. Dynamac Corporation. Rockville, MD.

Targeting Priority Natural Resources at the U.S. Environmental Protection Agency. Mark T. Southerland, Dynamac Corporation, Rockville, MD; & Molly R. Whitworth, U.S. Environmental Protection Agency. Washington, D.C.

Watershed Protection: EPA's Approach. Louise Wise. U.S. Environmental Protection Agency. Washington, D.C.

Protection of Federally Listed Plant Species from Pesticides. Ursula C. Petersen & David L. Hagemeyer. WI Department of Agriculture, Trade & Consumer Protection.

Is it Time to Look Beyond the Wetlands? Kurt N. Olson. Natural Resource Consultant. Rochester, NH.

Friday am

Concurrent Sessions & Workshops

8:30 am - 12:00 pm

- 3. GLOBAL CLIMATE CHANGE AND NATURAL AREAS: THE CONSEQUENCES FOR MANAGERS:** Moderator - Dr. Edward T. LaRoe. U.S. Fish & Wildlife Service. Washington, D.C.

Dogwood (Tree Suites, Mezzanine floor, east end)

Potential Impacts of Global Climate Change on Natural Resources, an Overview. Dr. E.T. LaRoe. U.S. Fish & Wildlife Service, Global Change Research Program. Washington, D.C.

Natural Areas and Global Change: The Place and Time for Long-term Studies. Dr. Pete Comanor. Global Climate Change Research Coordinator, National Park Service. Washington, D.C.

How the Prospect of Global Climate Change Affects the Acquisition and Management of Natural Areas. Dr. Rob Shallenberger. U.S. Fish & Wildlife Service, Division of Refuges. Washington, D.C.

★ BREAK 10:00 - 10:30 ★

SESSION CONTINUED

- 4. LARGE SCALE NATURAL DISTURBANCES:** Moderator - Michael Duever. National Audubon Society. Naples, FL.

Persimmon (Tree Suites, Mezzanine floor, east end)

★ NO BREAK ★

Hurricane Hugo in a South Carolina Old Growth Floodplain Forest.

Environmental Effects. Michael Duever & Jean McCollom. National Audubon Society. Naples, FL.

Management Implications. Norman Brunswig. National Audubon Society. Harleyville, NC.

Eruptions of Mt. St. Helens in 1980.

Environmental Effects. Peter Frenzen. Mt. St. Helens National Volcanic Monument. Amboy, WA.

Management Implications. Edward Osmond. Gifford Pinchot National Forest. Vancouver, WA.

Fire in Yellowstone National Park.

Environmental Effects & Management Implications. Don Despain. Yellowstone National Park. Mammoth, WY.

Panel Discussion

- 5. RARE PLANT INVENTORY, ECOLOGY & MANAGEMENT:** Moderator - Eric Menges. Archbold Biological Station. Lake Placid, FL.

State Room East (2nd floor, #56)

Reproductive Ecology of a Rare, Dioecious Fen Species in Ohio, *Valeriana ciliata*. Jennifer L. Windus. OH Department of Natural Resources, Div. of Natural Areas & Preserves.

Status of *Platanthera integrilabia* (Orchidaceae), a Candidate for Listing as Federally Endangered or Threatened. Margaret Shea. KY Nature Preserves Commission.

Demography of *Lesquerella filiformis* in a Patchy Environment. Lisa P. Thomas. National Park Service. Wilson's Creek National Battlefield. Republic, MO.

★ BREAK 10:00 - 10:30 ★

Monitoring the Effect of Trampling on a Low Heath Bald in the Southern Appalachians. Robert Sutter & Susan Benjamin, TNC, NC; Nora Murdock, U.S. Fish & Wildlife Service, NC; & Bambi Teague, National Park Service, NC.

A Monitoring Plan for the Stability of Endemics and Successional Changes on a Cedar Glade in Middle Tennessee. Darlene Panvini. TNC, TN.

The Short-term Effect of Fire on Wild Lupine (*Lupinus perennis*). Michelle Grigore. Metropolitan Park Dist. of the Toledo Area, OH.

Friday am (cont.)**Concurrent Sessions & Workshops****8:30 - 12:00 pm**

6. **COMMUNITY ECOLOGY AND INVENTORY:** Moderator - Ralph Ramey. OH Division of Natural Areas & Preserves. Columbus, OH.

Georgian (1st floor, #50)

Conifer Expansion in Maryland Serpentine "Barrens". Wayne Tyndall. MD Natural Heritage Program.

Cemeteries as Refugia for Rare Plant Communities in Ohio. James S. McCormac. OH Department of Natural Resources, Div. of Natural Areas & Preserves.

Curtis Prairie Restoration, Using the Single-Species Plantings Method. Theodore M. Sperry. Pittsburg State U., KS.

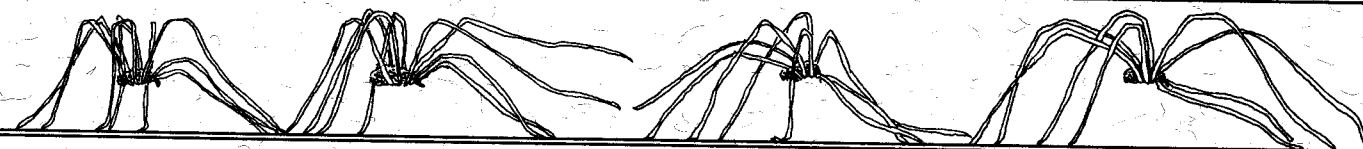
★ BREAK 10:00 - 10:30 ★

The "Lost Pines": An Ecologically Distinct Forest Region in Texas. Kamran K. Abdollahi, Southern U. and A&M., LA; Victor M. Bilan, Steven F. Austin State U., TX; & Zhu Hua Ning, Jarvis Christian College, TX.

Bog Inventory on the Kisatchie National Forest, Louisiana. Barbara MacRoberts, Michael MacRoberts, & Susan Carr. Kisatchie National Forest.

Storms and Forests: Natural Disturbance at Morgan-Monroe State Forest. Darrell Breedlove & Martin R. Calvert. IN Department of Natural Resources, Div. of Forestry.

Relative Roles of Landscape History, Human Land-use History, and Vegetation History in Shaping Plant Communities in Canyons of the Colorado Plateau. Cynthia E. Dott. U. of Wisconsin-Madison.

**Friday Workshops****Limited space—sign up in advance**

1. **Audiobiology** 8:30 am - 10:00 am State Room West (2nd floor, #56)

Randy Hoffman, WI Natural Areas Program, & Harvey Ballard, U. of Wisconsin. This workshop will focus on audiobiology techniques; how to utilize and make sound recordings to survey for Anurans (frogs & toads) and Orthoptera (locusts, katydids, grasshoppers, & crickets).

2. **Invertebrates** 8:30 am - 10:00 am Jordan Hall, Cleveland Room 246-248

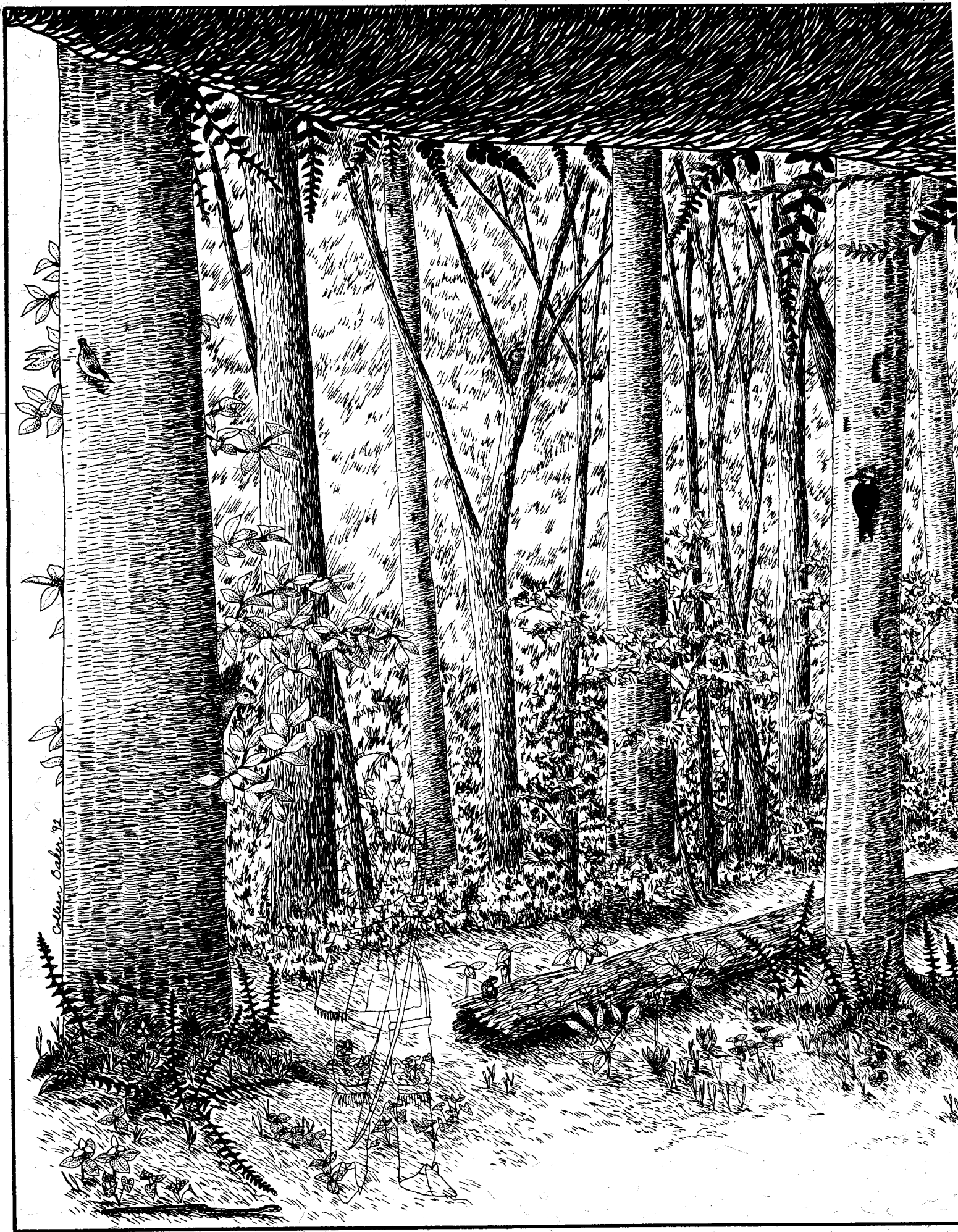
Dr. David Smith, Wabash College, IN, & Bob Anderson, IN Department of Natural Resources, Div. of Fish & Wildlife. Terrestrial and aquatic mollusks will be the focus of this workshop.

3. **Plant Identification** 8:30 am - 12:00 pm Jordan Hall, Room 031

Dr. Anton Reznicek. U. of Michigan. This is a hands-on workshop to develop skills in identifying *Carex* and other members of the sedge family.

4. **Geology** 8:30 am - 12:00 pm IN Geological Survey Bldg., Room S201

Welcome: Norman Hester; Nelson Shaffer, John Hill, & Curtis Ault. IN Department of Natural Resources, Geological Survey Division. This workshop will discuss Indiana geology, mineral and rock identification techniques, and the interplay of rocks and living things.



Allen Baker 92