



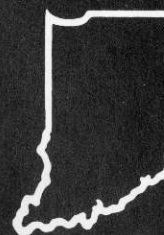
Robert D. Orr
Governor
Dept. of Natural Resources
James Ridenour
Director
William Andrews
John Costello
Paul Greenwalt
Deputy Directors
Willis McConnaha
Controller
Thomas Barton
Director, Accounting
Doug Phelps
Supt., Law Enforcement
Carl North
Director, Engineering
John Favinger
Director, Entomology
Edward Hansen
Director, Fish and Wildlife
John Datena
Director, Forestry
John Patton
Director, Geological Survey
Richard Gantz
Director, Historic Preservation
Rex Becker
Director, Information Systems
Cynthia Erlandson
Director, Land Acquisition
Lee Scott Theisen
Director, Museums & Memorials
John Bacone
Director, Nature Preserves
Gary Fricke
Director, Oil and Gas
Gerald Pagac
Director, Outdoor Recreation
Pam Longworth
Director, Personnel
Larry Sloan
Director, Purchasing
Stephen Stafford
Director, Reclamation
G.T. Donceel
Director, Reservoirs
Charles McKee
Director, Soil and Water
Conservation Committee
William Walters
Director, State Parks
John Simpson
Director, Water

Outdoor Indiana Staff

Jim Parham
Editor; Director, Public Info.
Matt Morris
Assistant Editor
Marilyn Glander
Photographer
Rae Reynolds, Thelma Brindley,
Connie Barron, Dana Scott

OUTDOOR INDIANA

1934-1984 The guide to Indiana's outdoors for 50 years.



Volume 49, Number 8

October 1984

The Photographs

Randy Shedd captured the flavor of fall with this month's cover shot of a rather unusual sumac leaf. Marilyn Glander and Lee Casebere joined forces to present some spectacular flower pictures on page two. Shedd provides a fitting end to this issue with a collage of color for the back cover.

Inside This Issue

- 4 Natural Remnants** by John Bacone and William Weeks
The first of four stories on an exciting new program for preserving natural areas
- 8 The Buffalo Trace** by Mike Homoya
A trip along an historic trail with botanist Andre' Michaux
- 12 Help For The Rare** by James Aldrich and D. Brian Abrell
Endangered plants and animals will benefit from natural area protection
- 15 Protecting Wild Land** by Thomas Post
Northern Indiana plant communities are worth preserving
- 20 Autumn — Nature's Coloring Book** by Jeff Cummings
Full-color section on why leaves change color
- 23 Holding Their Own** by Matthew Morris
Amish families shy away from modern conveniences
- 26 Sandhill Stopover** by Eileen Morey
Graceful cranes make annual migration through state
- 28 Spirited Tradition** by Jan Meiresonne-Kreuger
Halloween scares up practices from the past
- 29 Drawing On Deer** by Roy Grimes
Archers take to the fields in search of whitetails
- 33 Everchanging** by Marie Baker
Delaware Township in Hamilton County has interesting history
- 36 Where The Water Falls** by Carl Rexroad and John Hill
Indiana's lesser-known waterfalls should not be missed by travelers



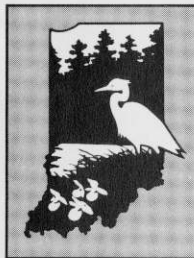
Outdoor Indiana is published 10 times annually by the Indiana Department of Natural Resources, 612 State Office Building, Indianapolis, IN 46204. Second Class postage paid at Indianapolis. Copyright 1984 by the Indiana Department of Natural Resources. All rights reserved. Printed in the U.S.A. All 10 1984 issues constitute Volume 49. Subscriptions: \$7.50 per year; \$13.50 for two years (prices include state sales tax); and \$10 for foreign. Cover price does not include sales tax. Prices subject to change. Make checks or money orders payable to Outdoor Indiana. Issued monthly, except for combined July/August and December/January issues. Renewals and changes of address should be sent promptly to avoid delay. Address changes should include old and new zip codes. For new subscriptions, please allow at least six weeks for delivery of first issue. POSTMASTER: Send address changes to Outdoor Indiana, 612 State Office Building, Indianapolis, IN 46204. The programs and facilities of the Department of Natural Resources are available to everyone without regard to sex, creed, color or national origin.

*Re-enacting journey offers
lesson in natural history*

THE BUFFALO TRACE

By Mike Homoya

The Buffalo Trace, also known as the Vincennes Trace, was one of the first thoroughfares in Indiana, connecting what is now Louisville and Vincennes. It is believed to have been created by years of heavy trampling by buffalo herds passing from the Illinois prairies to the salt licks of Kentucky.



Indians and explorers often used the trail. One of those explorers, French botanist and naturalist Andre' Michaux, made an excursion across southern Indiana along the trace in 1795. It's hard to imagine what Michaux encountered on his trip through the wilds of Indiana. One thing is certain, he saw a drastically different state than the one we live in today. However, it's not too difficult to re-enact Michaux's trip based on what is known about the flora and fauna of early Indiana. Michaux's six-day trip in 1795 is a lesson in natural history.

Day 1

The buffalo appear restless as their appetite for salt increases. With the onset of autumn, they are ready to partake in an ancient ritual of migration from the Illinois prairies to the great salt licks of Kentucky. A small herd of eight buffalo start the journey by crossing a large river (the Wabash River) that is quite shallow and easy to wade. The river water is clear; schools of fish can be seen scattering to seek deeper pools during the buffalo's crossing. Sitting on a snag in the river, a bald eagle eyes the commotion, then takes advantage of the opportunity by swooping down in the shallows on a disoriented fish. The herd ignores the drama as it continues on.

Once on the east side (in Indiana), the buffalo enter a prairie with vegetation very similar to their Illinois homeland. Unlike the bottomland forests and swamps they will soon see, this area



Courtesy Indiana Historical Society

is mostly void of trees, except for a few scattered oaks. In these lowlands, the prairie has exceptionally tall grass, mostly big bluestem and Indian grass, which is almost taller than the buffalo. On sandy, dunelike ridges nearby, the vegetation is shorter. Little bluestem is the dominant grass here, providing plenty of good forage.

Wildlife is abundant, with elk, deer, prairie chicken, turkey, swallow-tailed kite present. Several species, such as bull snake, ornate box turtle and western glass lizard, are also found here.

Colorful herbs create a brilliant spectacle, with blazing star, compass plant, spreading aster, hairy sunflower, prairie dock and rattlesnake master contributing their hues of purple and yellow. Prairie plants such as these thrive in full sun because shade is not a desirable condition for them. The buffalo move eastward along the trace to the forest.

East of the river there exists a large expanse of bottomland forest and swamp with plants and animals unlike anything the buffalo have encountered. Huge bald cypress trees, their branches burdened with the weight of heron and egret nests, tower above the swamp. In addition to the cypress, other familiar southern vegetation is found, including water locust, swamp holly, woolly pipe-vine and bloodleaf. The slightly drier sites have overcup oak, swamp chestnut oak, swamp white oak and sweetgum. Under the bark of the sweetgum, fat grubs have been exposed by the workings of an ivory-billed woodpecker. On a nearby ridge, a swamp rabbit seeks refuge in a cane thicket, a hiding place from its principal predator, the bobcat. The buffalo appear uneasy in this unfamiliar environment, so they move on. Soon they come to another large river (the White River), where they stop to rest and wait for morning.

Day 2

The herd is active at the break of dawn, and they cross the river with ease. The vast forests ahead appear endless, with

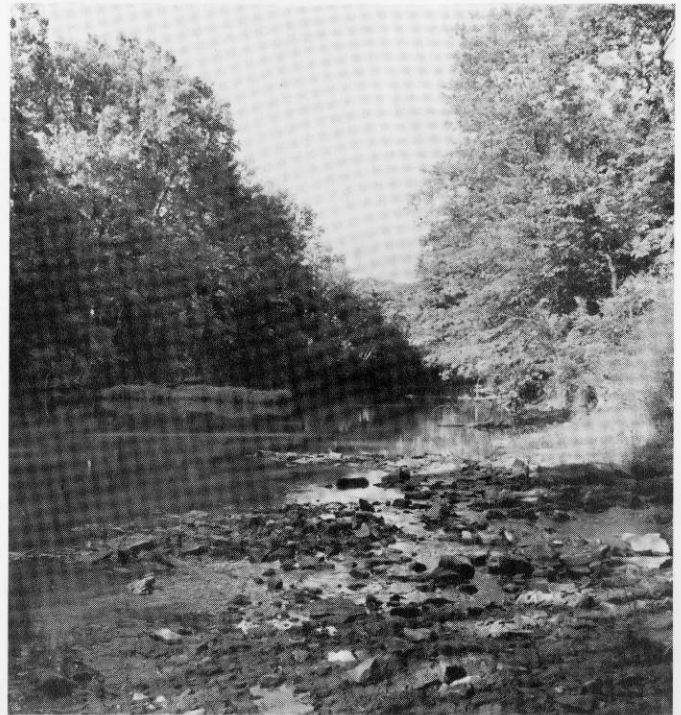
vegetation much like the bottomland forest of the day before, but without cypress. Occasional openings occur where earlier windstorms had passed, but the route is densely forested. There is not much to offer as forage for a prairie buffalo, but woodland herbs are plentiful and adequate.

About 25 miles from the river, the animals hear the bellows of other buffalo for the first time on the trace. They soon discover the commotion centers on a large, wet, wallowing place (Mudhole Branch of Mill Creek), where several buffalo are utilizing muck for mud baths. The source of the water for these mudholes comes from bog-like seep springs at the base of a nearby hillside. Water oozes through the soil and muck into the adjacent bottomland providing moisture even in the driest of times. The seep springs have an unusual tropical appearance, with huge cinnamon and royal ferns arching more than 6 feet in height. Sphagnum moss carpets the ground, from which numerous kinds of grasses, sedges and herbs emanate. Some of the characteristic plants are the autumn bluegrass, Atlantic sedge, spotted touch-me-not, roughleaf goldenrod, cowbane and potato bean. Species not usually found this far south are located here. This includes plants such as bog bluegrass, poison sumac, small, green wood orchids, bartonia and crested woodfern.

Occasionally an animal will get too close to the seep spring and become mired in the deep muck, unable to free itself. Such is the case of one of the buffalo. It will remain, ultimately succumbing to predators while the others move on. The herd is now reduced to seven.

Day 3

The previous evening, the herd had settled a short distance off the trace on a hillside overlooking a large bottomland swamp and pond (Buffalo Flats). Loud, raucous screeching of Carolina parakeets permeate the early morning air, stirring the buffalo from their slumber. These greenish-yellow birds roosted on the border of the swamp in a hollow of a large sycamore tree and are now leaving in search of seeds. In this swamp, Virginia



Marilyn Glander

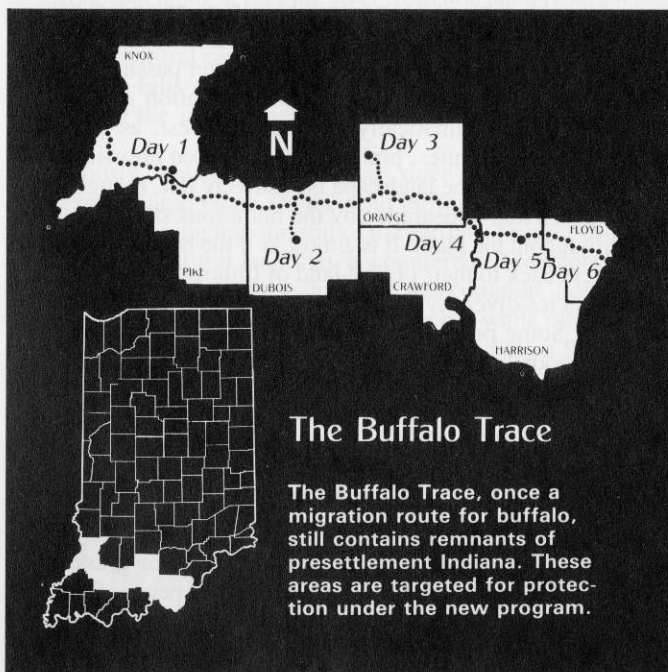
Buffalo herds crossed the Blue River in Harrison County on their trip to the salt licks of Kentucky.

willow, American snowbell, crossvine and Louisiana sedge occur together as in the more familiar swamps of the Carolinas. A short distance north of the trace, none of these species can be found. Might this pond be the northern limit of their range in the midwest?

The buffalo leave the overlook for the trace to begin another day's trek. Rugged hill country is soon encountered. Sandstone cliffs jut out along the steep, upper slopes and provide an environment for plants specially adapted for growing on rock. One group, the ferns, is particularly fond of sandstone. Here one can find spinulose wood fern, marginal shield fern, hay-scented fern, Christmas fern, polypody fern, pinnatifid spleenwort, maidenhair spleenwort and mountain clubmoss. Characteristic flowering plants, though not in flower at this time, include firepink, Indian cucumber-root, liverleaf, winterberry, partridgeberry, rattlesnake orchid and black huckleberry.

Certain animals favor the cliffs, too. On a nearby cliff ledge, an abandoned raven nest is noted. No birds are seen at the nest, but a pair circle overhead, uttering their guttural croaks. These cliffs also provide shelter for the mountain lion, one of which is sitting on a boulder observing the passing herd. This cat has the remains of a freshly killed small deer nearby. Its hunting urge apparently satisfied, the buffalo are allowed to pass. At a hungrier time, the cat might have attacked a calf or even an old or sick adult buffalo.

In the late afternoon, the herd encounters a large trail branching off the trace to the north. They take it and travel for about three miles to a dead end at a salt spot several acres in size. It is so trodden and broken up that not a blade of grass can grow, leaving the entire woods (French Lick) quite bare for miles. This herd, like others before them, digs the ground, constantly licking the soil to satisfy their craving for salt. This activity con-



Toward the end of a long day's journey, the herd approaches a small river with clear, milky blue water (Blue River). Limestone cliffs drape the rugged hillsides bordering the river, providing a visual, if not an authentic, obstacle to travel.



Marilyn Glander

Ferns growing on sandstone cliffs were a common sight to Andre' Michaux as he traveled Indiana recording biological information for scientific use.

tinues well into the evening, leaving little time for rest for the next day's journey.

Day 4

The herd's appetite for salt is incredible. They head down the trace once again, in search of the substance. They toil over and through the seemingly endless hills and valleys, most of which are forested with oaks and hickories, though beech, tulip poplar, black walnut and sugar maple are not uncommon, especially in the ravines and valleys.

Toward the end of a long day's journey, the herd approaches a small river with clear, milky blue water (Blue River). Limestone cliffs drape the rugged hillsides bordering the river, providing a visual, if not an authentic, obstacle to travel. Fatigued from their rigorous trek, the buffalo take the opportunity to wade, drink and cool themselves in the river. Nearby, a pair of otters playfully slide off a steep mud bank down into a pool, where they disturb a huge, slimy salamander out from underneath its limestone slab refuge. One of them quickly grabs the normally nocturnal hellbender, takes it to the shore and shares the feast with its mate.

The soil on the steep hillsides above the cliffs is quite shallow. At spots where it is exceptionally rocky are grasses and wildflowers that occur on the prairie areas to the west. Some of the species found on the rocky openings (also known as glades) are false dragonhead, puccoon, blazing star, hairy phlox, tall coreopsis, little bluestem, big bluestem and Indian grass.

The herd travels no more as dusk approaches, choosing instead to laze on the riverbank, possibly contemplating their ascent up the steep hillside the next day.

Day 5

The ascent proved not to be so great an obstacle, for all seven were up and over the hillside in a matter of minutes. Their brief encounter with a black bear eating hazelnuts provided only a startle. The herd must have sensed no threat, for black bears are not normally predators of large game. After passing through a few more miles of hill country, the vegetation and terrain begins to change dramatically. Instead of forest, as has been dominant for many miles, prairie-like vegetation prevails as far as the eye can see. The landscape is relatively flat, though quite rolling, given that appearance by the numerous sinkholes scattered throughout the plain. It is almost as if the herd had traveled a full circle back to their prairie land of Illinois. Although quite rich in species diversity, the natural community here is called a barrens. Some people think because this area does not have trees it is poor land, but there may be another reason for the lack of tree growth. Since fire helps maintain the treeless character of prairie, it could be a factor on the barrens also. Not surprisingly, many of the same plants occur in the barrens as on the western prairie and glade.

Throughout the barrens plain are small sinkhole ponds and swamps that are very different from the surrounding grasslands. Oddly, many of these small wetlands have species found in cypress swamps and southern bottomland forests. For example, giant sedge, log sedge, beakrush, Virginia willow, netted chain fern and swamp cottonwood occur here.

The barrens are apparently to the herd's liking, for though they have traveled only a few miles from the river, they spend the remainder of the day here (Central barren).

Day 6

The herd must sense their relative closeness to the Kentucky salt licks, for they depart from the barrens in the darkness of early morning. They traverse through more forest, though now at a pace unequaled in speed by the previous travel. Just as the sun rises, they reach the edge of the rolling plain at an escarpment of rugged hills and knobs (Floyd Knobs). These knobs have the greatest relief of any hills encountered thus far on the trace. The great relief and thin soil dictate the occurrence of species that benefit from a dry, sometimes harsh environment, such as the ridgetop forests where chestnut oak and Virginia pine are predominate. On the steepest south and west facing slopes, grassy openings called balds or glades are found. These sites are almost desert-like, with the openings bordered by an elfin forest of stunted, gnarled blackjack and chestnut oaks. It is from one of these glades that the buffalo can see, for the first time on this journey, the magnificent Ohio River. They will cross the river shortly, but must negotiate the steep incline of the escarpment.

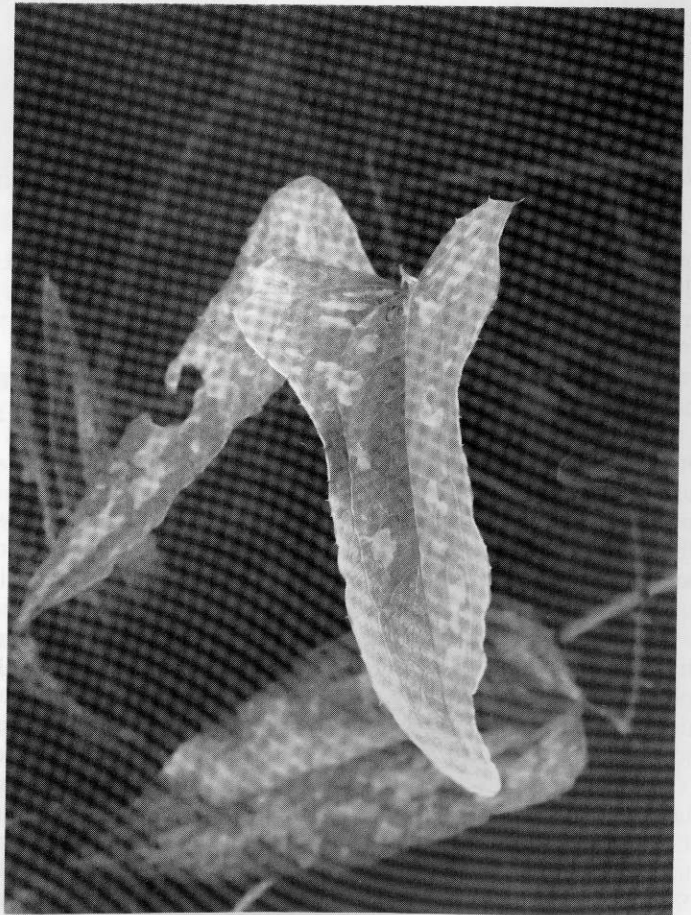
Apprehensively, the buffalo slowly work their way down, straining against gravity to keep their huge torsos under control and avoiding the possibility of crashing into a tree. Soon, a sizable area of dead trees is encountered, their whitewashed branches resembling the bleached bones of a large skeleton. It is a passenger pigeon roost, where thousands and thousands of birds must come to congregate during the evening. Their accumulated excrement has killed the trees and all vegetation underneath. This species must be a tremendously common bird, for nowhere else has such a spectacle been observed. Past this and successfully down the hill, the herd moves on to the river.

The Ohio River, even at low flow, can be quite challenging to cross. However, the trace leads them to a broad expanse of limestone extending across the river from one bank (Clarksville) to the other (Louisville) in a series of rock flats, rapids and small falls. This natural causeway allows for a relatively easy crossing at these falls of the Ohio and permits the seven buffalo to continue to the nearby licks in their quest for salt.

Obviously, much has changed since Michaux explored southern Indiana. Gone are the wild buffalo. Never again will their hoofprints dig into the soil of the Buffalo Trace. Also gone is most of the natural land they encountered. Remnants are all that remain of the landscape that once was common. Some communities such as the prairie are totally gone, while others, such as cypress swamps and barrens, are down to only a few acres. However, a few remnants of presettlement Indiana still exist. Indiana does have some seep springs, glades and bottomland forests. Unfortunately, because of radical changes in land use and the increase in land development, there are very few unique areas left. These areas will soon be just historical memories, like the buffalo, unless action is taken to preserve them. Every Hoosier can help save remnant pieces of our heritage. The natural areas campaign is designed to do just that.

Mike Homoya is a field ecologist for the Nature Preserves Division. He is an expert on Indiana's natural communities.

The herd must sense their relative closeness to the Kentucky salt licks, for they depart from the barrens in the darkness of early morning. They traverse through more forest, though now at a pace unequaled in speed by the previous travel.



Marilyn Glander

The fringed greenbrier is a rare plant limited to counties along the Ohio River near where buffalo crossed the mighty river into Kentucky.