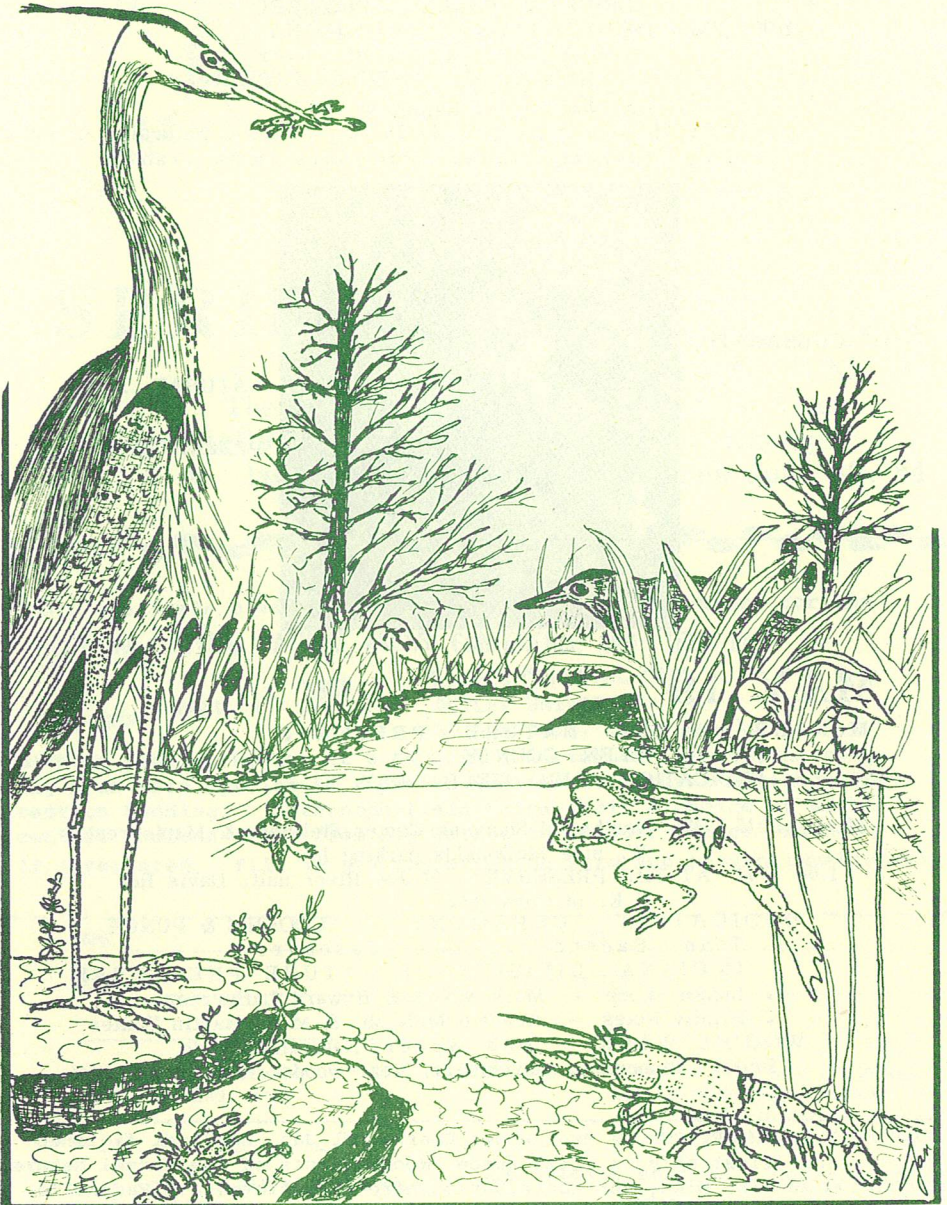


A C R E S

QUARTERLY
SPRING • 1984
Vol. XXIII No.2



APRIL 7

ANNA BRAND HAMMER NATURE PRESERVE WELLS COUNTY DEDICATION AND WORK DAY

- Meet: 9:30 AM Waynedale Rogers Market, W. side of parking lot.
 10:00 AM AT THE PRESERVE - S.W. of Ossian, 800N & Meridian.
 • Tree planting in eastern acreage. Roadside cleanup.
 • Install area marker. Install registry box.
 NOON - Lunch together. Bring sandwich
 DRINKS & DESSERT PROVIDED
 1:00 PM DEDICATION CEREMONY
 John Bacone • Lee Casebere
 INDIANA DIVISION OF NATURE PRESERVES
 • Woods Notes - Art Hammer
 WOOD'S WALK - Judy Esterline, Naturalist Guide
 Bring: Sandwich, spade, work gloves, boots, camera



CELEBRATE

NATURAL AREA
PRESERVATION

MAY 19

McNABB/WALTER NATURE PRESERVE ALLEN COUNTY DEDICATION AND FIELD DAY

- Meet: 12:15 PM Northwood Shopping Center, St. Joe River unit, Davis Rd.
 W. side McDonalds parking lot.
 1:00 PM AT THE PRESERVE - St. Joe River unit, Davis Rd.
 N.E. of Cuba Rd.
 DEDICATION CEREMONY - COOKIES & PUNCH
 • John Bacone • Lee Casebere
 INDIANA DIVISION OF NATURE PRESERVES
 • Indian Lore - Mark Moore & Howard LaHurreau
 • Family Notes - Kenneth McNabb & Mrs. Martin Walter
 WOOD'S WALK - Bob Weber - Naturalist Guide
 Bring: Binoculars and camera, wear woods clothes and boots.

QUARTERLY COVER ARTIST is Mrs. Roger Eberhardt. Jan has just finished writing and illustrating a trail guide, "Woody Plants of the Hormel Nature Center" at Austin, Minn. Her contribution here illustrates Jim Haddock's article on crayfish. Jan and Roger live in Murray, Kentucky.



SPRING

SUPPORT RENEW
NATURAL AREA JOIN
PRESERVATION

ACRES MEMBERSHIP TIME
You fill in the membership card and keep it. Return the address portion with your remittance in the return envelope provided, marked for your selected membership category. Please make recommendations for new members on reverse side.

ACRES MEMBERSHIP YEAR
IS JULY 1 TO JUNE 30

The number on the upper right on your label tells you the year of expiration. Example: a 4 on label says membership expires June 30, '84

Join the State Division of Nature Preserves and others for the
CENTRAL INDIANA NATURAL AREAS CONFERENCE AND FIELD DAY

SATURDAY APRIL 14, 1984
CLOWES MEMORIAL HALL
BUTLER UNIVERSITY
INDIANAPOLIS, INDIANA

Morning session begins at 8 AM with a series of discussions ranging from rare species, to riparian habitat, to Natural Heritage Protection Funding. Afternoon field trips visit a choice of seven central Indiana areas from Big Walnut to Shrader-Weaver Woods. If interested, fill in pre-registration form and return immediately.

NAME _____ TELEPHONE _____
ADDRESS _____ AFFILIATION _____

Field Trip Preference
(Mark 1st, 2nd, 3rd)

A. B. C. D. E. F. G. .

____ I plan to eat at the campus cafeteria.

► Mail To: Division of Nature Preserves
601 State Office Building
Indianapolis IN 46204
Phone: 317-232-4052

☐ Please send me a conference flyer

CHIMNEY BUILDERS OF THE INVERTEBRATE WORLD

Crayfish, or "crawdads" as they are affectionately known, belong to the order Decapoda of the crustaceans which includes many other familiar forms: shrimp, prawns, lobsters and crabs. All are characterized by having 5 pairs of large appendages in the mid-body including a chela or claw and four pairs of walking legs. Some decapods are among the largest of invertebrate animals - weighing up to as much as 50 lbs! There are approximately 200 species of crayfish in North America, many of which are restricted to ponds, sloughs, lakes, streams, lowland meadows or caves. Species inhabiting our Indiana cave ecosystems are well known for their interesting adaptations - loss of eye and body pigment but compensate for their sightless condition by having longer antennae or "feelers" than their relatives who reside in lighted environments.

Behaviorally, crayfish can be placed into one of 3 groups:

(1) those that regularly burrow in wet pastures and marshy areas where there is no open water, (2) those that burrow only during the dry times of the year to aestivate or (3) those that live in permanent waters and do not burrow. Burrow construction varies considerably depending on the species, the type of soil and the depth of the water table. Generally, there are 1-3 entrances and tunnels may be vertical, diagonal or horizontal. There is always a chamber at a lower level where the crayfish remains during the day. Since the gills must remain wet, the burrow must at least extend to the water table - sometimes to a depth of 2-3 meters. Burrows are frequently identified by their "chimneys" which represent mud deposits laboriously hauled up at night.

Some species of crayfish exhibit a wide color range from blues to greens and reds. Generally, freshly molted specimens are more brightly colored than earlier molters since the latter usually have an accumulated coat of algae and debris. Some species are capable of camouflaging themselves by changing the distribution of pigments in the body covering to match that of the substrate.

Mating appears to be unorganized in most species that have been studied. Apparently, the males have little or no ability to recognize a female and during the mating season will seize and turn over every crayfish coming their way. If another male is encountered, fighting usually occurs. Females are generally receptive and copulation may take place from a few minutes up to 10 hours.

Most crayfish are nocturnal in behavior - generally hiding in their burrows or under objects during the day and either feeding or excavating their burrows at night. In feeding habits they are considered to be omnivorous but preferring aquatic vegetation. Tagging and release-recapture studies have shown that crayfish tend to be territorial in that a "home range" is established. In some cases the range may be as great as 30 meters in length along a stream margin. Movements away from the protective burrow can be upstream as well as down, indicating some directional response to catastrophic flooding that flushes organisms downstream. Females tend to be more stationary than males and will remain in their home range for a longer period of time. When females do move, however, they generally move longer distances. Most movement within the territory occurs at night during the process of feeding. Many individuals remain in or close to their burrows for several days at a time while periodically shedding their exoskeleton. After the new exoskeleton has been formed it is very soft and pliable for a few days until calcium deposition occurs that hardens the cuticle. It is during this time that crayfish are defenseless and are most highly subject to predation if they are exposed.

Crayfish exhibit a very interesting aggressive behavior as is typically seen among territorial animals. Individuals fight by use of their claws which are raised and separated above their

heads. If two specimens of different sexes that are size-matched are placed together in an aquarium, the males almost invariably will win the aggressive encounter. A large female will dominate a medium-sized male, however. Additional observations illustrate an interesting phenomenon: a large crayfish will easily maintain an upper hand in an aggressive encounter with a smaller individual of the same sex. It will engage in a ritualized behavior of "tolerating" the aggressive acts of the smaller individual without harming it in return. It firmly but gently puts the smaller individual "in its place." This aggressive behavior establishes a dominance hierarchy among members of a crayfish population. This is very beneficial for the species as it ensures its survival (although rather disconcerting for those individuals that are low in the "peck order")! Thus, females will mate with males that are sexually mature rather than wasting energy attempting to copulate with smaller sexually immature juveniles.

Like most animals, crayfish engage in competition with other species. In one interesting study, two species (*Orconectes immunis* and *O. virilis*) were found to have similar geographic ranges in the midwest but were ecologically isolated within these ranges. One species (*O. immunis*) typically inhabits ponds and sloughs while the other is commonly a resident of stream and lake margins. Why weren't the two commonly found to co-exist in the same habitat? Investigators looked long and hard to answer this question and finally located a stream system that contained both species. *O. immunis* was found to survive well in pools located in the stream's headwaters by burrowing into the muddy bottom as the pools typically dried up during the summer. *O. virilis*, a non-burrowing species, was most abundant in the gravel and rock-bottomed stretches of the stream. Even though it is a non-burrower it thrives in this environment because of its ability to hide in crevices under rocks and logs.

Transplantation experiments were then performed in which the pool dweller was tagged and introduced into the habitat of the stream inhabiting *O. virilis* and vice versa. Subsequent sampling showed that *O. immunis* survived the low oxygen tensions in the bottom of the pools during the dry season and was able to burrow down into the moisture as the pools dried up. They even constructed chimneys! It's transplanted competitor sustained high mortality rates, however, because of lack of burrowing ability. What happened when the pool dwellers were introduced to the flowing part of the stream having a gravel or rock bottom? Here, *O. virilis* was observed to have the competitive edge because it was more aggressive in occupying crevices under rocks and logs. The pond dweller was unable to burrow into the hard substrate to escape predators.

In addition to several research papers, Pennak's book on freshwater invertebrates was used in the writing of this article.



Jim Haddock

A new definition of conservation

Conservation is wise use of natural resources.
Conservation is intelligent use of natural resources.

Nobody argues with either of those definitions. How can they? Our way of life, our very lives, depend on soil, air, water, minerals, animals, plants, gas, oil and the natural resources. How can anyone argue against wise and intelligent use? And yet . . .

We encourage soil erosion, deplete soil fertility, spread poison on the land.

We discharge chemicals and noxious gases into the air. We dump sludge and wastes into the water.

Outdoor Notes

By NEIL CASE

We use minerals for products, use these products once, then cast them aside.

We kill plants and animals, directly and indirectly.

We expend gas and oil and measure growth in terms of machines and products which result from this expenditure.

Stated like this, does it seem we are practicing wise and intelligent use?

And yet, how can we stop.

To plow, cultivate and plant crops is to encourage soil erosion and to deplete soil fertility.

To light a fire, whether gas, oil, coal or wood to start an engine is to discharge gases into the air.

Water is necessary for cleanliness, elimination of wastes, power generation and manufacturing.

Minerals provide the tools of our lives, plus many utilities and luxuries. Plants and animals provide shelter and food.

It seems to me we need a new definition of conservation, one that we can live with, not just recite.

Conservation, I believe, is a process. It begins with awareness of the world around us. All of it, chickadee to eagle, tiny spring beauty to giant redwood, insect to mammal, soil, water, air, even the clouds. It is the awareness that we, too, are part of this world. Aldo Leopold wrote, "We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect." We abuse all nature, the world, and it is all a community, and we are citizens of this natural community of the world.

Conservation is trying to understand the natural world, its parts, and their relationships. Concern for a rare species such as the snail darter or the whooping crane, concern about soil erosion, water pollution, acid rain, show efforts toward understanding.

Finally, conservation is responsibility. We, the human animal, have the knowledge and power to cause greater effects, greater changes than any other animals.

Historically we have made changes without regard for effects other than those we wished to bring about. We wanted wood; we cut the forests. We wanted meat; we exterminated the passenger pigeon, nearly exterminated the bison. We plowed the land. We built cities, factories, industrial complexes.

The natural community has always been changing, not just a result of our actions. The coal and oil we now consume were created before man was there to cause change. Even the changes we are now causing are not as cataclysmic as some natural changes, the extinction of the dinosaurs, the eruption of Krakatoa. But we are making so many changes so rapidly.

Fortunately, I believe, we are also showing more of the elements I consider parts of conservation. We show awareness by study of the different elements of the natural community. We have developed a science of ecology which is the study of interrelationships between living things and their environment. This is carrying awareness to understanding. Finally, there is a feeling of responsibility as expressed by organizations such as the National Audubon Society, Sierra Club, Wildlife Federation, Nature Conservancy and many more. In the United States, we now require environmental impact statements which combine awareness, understanding and responsibility.

That combination, then, is conservation, a definition we can live with. To restate it, conservation is an awareness of the world around us and of our place in the world, an understanding of the interrelationships of all things in the world, and the responsibility to strive to perpetuate this world and all its myriad parts and relationships.



WINIFRED A. POE, Mrs. Glenn W. Poe, celebrated her 80th birthday, Mar. 17, 1984. Winifred and Glenn donated the FOXFIRE WOODS in 1974, located off Hull Rd. north of Hollopeter Rd. in northeastern Allen County. Glenn Poe was an ACRES' founder. Grandson, David Menge has prepared a loop trail and map to assist visitors. Foxfire is named for a luminescent fall fungus (False Chantrelle) which glows in the dark.

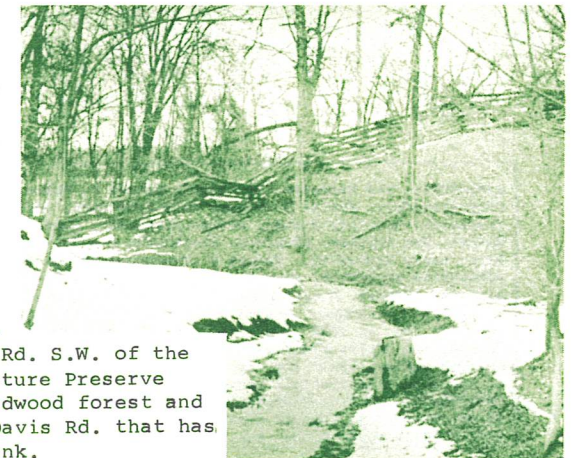
A GLIMPSE INTO THE PAST OF THE McNABB/WALTER NATURE PRESERVE



The photo at left was taken of maple sugar camp in 1934 and shows John C. McNabb, father of Alwilda Walter and Kenneth McNabb. The spring of 1938 was the last time John C. McNabb made sugar here and the Spring of 1940 was the last for this location. This camp was located in the front woods and was said to produce the best syrup - better than the later camp located further northeast of this one. This was probably true because the old camp woods is predominantly sugar maple whereas there are more black maple where the later camp was located.

There were 200 rods of split rail fence to maintain on the McNabb farm. Gradually wire fence replaced the rails. But sections, like this one, were patched by rails from the new lines. This photo was taken about 50 years ago of the ravine leading to the St. Joe River. Sadly, there are no more picturesque split rail fences.

Please accept our invitation to visit and hike on Saturday, May 19, 1PM. The McNabb/Walter Woods is located on Davis Rd. N.E. of Cuba Rd. S.W. of the town of Spencerville. The Nature Preserve contains a large piece of hardwood forest and a St. Joe River unit, west of Davis Rd. that has wooded ravines and river bank.





FOX ISLAND Training for Spring guides
April 14 and 15. Call 747-7846 or 436-3125

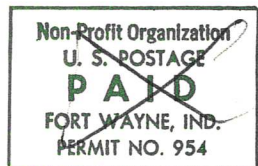
APRIL 11, 7:30 PM FOX ISLAND NATURE CENTER
SWAMP led by Pat Bolman, Park Naturalist
STOMP Wear boots, bring flashlight.
Free with ACRES membership card.

WILDFLOWER

WATCH at FOX ISLAND. 1:30 to 2:30 PM
every Saturday and Sunday thru May 13. Doug
Rood and Audrey Oliphant - Naturalist Guides.

SUNDAY MAY 6, 4 PM Join The Fox Island Alliance
at the Nature Center to celebrate the
10th Anniversary of Fox Island. For
more details call Sharon Harris 485-9805.
Alton A. Lindsey will be guest speaker.

ACRES, Inc.
1802 Chapman Road
Huntertown, Indiana 46748



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