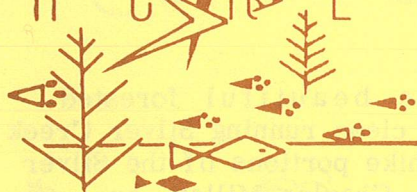


A C R E S



QUARTERLY

SPRING • 1979

Vol. XVIII, No. 2



FIELD TRIPS

april 28

SATURDAY - Explore the beautiful forested high banks and creek bottom of clean running Silver Creek near Akron, Indiana. We will hike portions of the Silver Creek under the guidance of Dr. Charles Miller, an Akron resident with a long-time interest in this scenic creek area. Time permitting, we may also explore a nearby Tamarack swamp.

MEETING PLACE: In Fort Wayne, meet to share-the-ride at 8:45 AM at K-Mart West on Illinois Rd. (intersection Rte. 24 & 14). Meet at west side of parking area. Or meet at Dr. Miller's, North edge of Akron at 10 AM (Phone Lee for directions.)

BRING: Lunch, drink, camera, binoculars, friends.

NATURALIST-IN-CHARGE - Lee Casebere 424-4588

may 19

SATURDAY - Fogwell Forest, Foxfire Woods and an Allen County special-spot along Cedar Creek. This will be a good time to do some late spring botanizing at two of our Allen County Nature Preserves. We will then visit an interesting habitat area along the Cedar Creek where some unique plants are known to occur.

MEETING PLACE: Fox Island Park, Nature Preserve
10:00 AM parking area at 10:00 AM.

BRING: Lunch, drink, camera, binoculars, potential ACRES members and mosquito repellent.

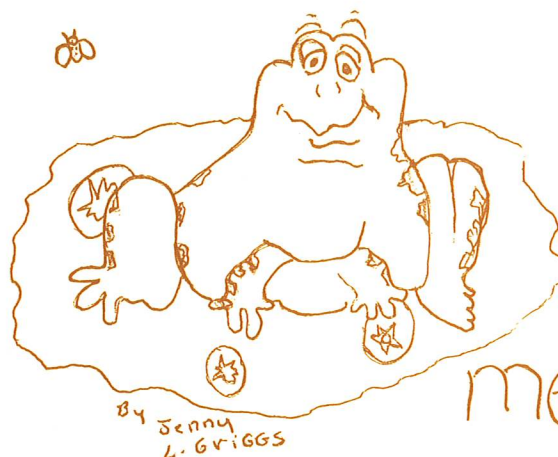
NATURALIST-IN-CHARGE - Lee Casebere 424-4588

WE GO, RAIN - OR - SHINE

QUARTERLY COVER ARTIST is Laurie Eberhardt, Sophomore at Angola High School. Laurie is enjoying art at school, and leaning towards a Biology major. The cover is a pen and ink drawing.

LEAP OVER

AND



RENEW

your

membership!

MEMBERSHIP RENEWAL TIME

Your membership card is attached.

Select the membership category and remit to:

ACRES, INC.

1802 Chapman Rd.

Huntertown, Ind. 46748

You fill in the membership card and keep it.

Return the address portion with your remit -
tance in the return envelope provided.



TRAIL GUIDES NEEDED AT FOX ISLAND NATURE PRESERVE

A terrific training program is scheduled April 21 and 22 at the Park. Courses include: SENSORY SAFARI, MOTHER NATURE'S BLOOMERS?!, GOOP-SCOOP DELIGHT!, IT FOLLOWED ME HOME....MAY I KEEP IT? And who has more fun, the guides or the guided? Contact Pat Bolman 747-7846, Sharon Hultquist, 672-3338 or Judy Esterline, 432-8455.

EARTHWORMS

by Mary Appelhof

"It may be doubted whether there are many other animals which have played so important a part in the history of the world, as have these lowly creatures." Charles Darwin, 1881



Did you know that...The animal, decreed by Cleopatra to be sacred, to be revered and protected by all her subjects, was... the earthworm?

Picture a small walled garden in Bayswater, England. On a calm evening, Mr.D.F. Simpson heard an extraordinary rustling noise under a tree from which many leaves had fallen. Mr. Simpson used a light to see what was causing the noise - many worms dragging and squeezing the leaves into their burrows. So reported Darwin in his treatise on earthworms almost a century ago.

In his many observations of earthworms feeding, Darwin found that night crawlers always grasp leaves by the pointed end. As the worm draws the leaf into its burrow, the leaf rolls to form a plug, which the worm eats safely at its convenience.

Earthworms eat many kinds of organic materials, most of which are already rotting or decaying. In natural habitats, they have been observed to eat decaying organic material such as leaf litter, dead grass, rotting roots or plants, fruits which have fallen on the ground, and animal manure. Domesticated worms thrive on manures, sewage sludge, poultry mash, chopped hay, fish mash, canning factory refuse, walnut meal, apple pomace, grape pulp - - the list gets longer every year. Recent experiments by Edward F. Neuhauser indicate that earthworms will gain weight when they are fed bacteria, protozoa (microscopic animals), microscopic algae, and tiny fungi. An interesting observation was that worms gained more weight when fed living organisms than when fed dead organisms. There is still much to learn about earthworm diets.

Food and soil that an earthworm eats moves through its digestive tract. Food is stored in a thin-walled crop, from which it passes to a thick-walled gizzard. Muscular contractions of the gizzard help to grind up the food with the aid of sand and mineral particles in the soil. Most of the digestion and absorption of food materials occurs in the intestine where cellulase and other enzymes break down the food into a form the worm can use. Bacteria and protozoa living in the intestine also help to digest the food. Grains of sand, clay, and dirt are not digested, but are mixed with organic residue and thousands of the bacteria and other organisms in the worm's intestine. These black masses are expelled as worm castings and can be seen as small irregular globs on the surface of the soil. These castings are valuable for plants because they contain many times more nutrients than an equal portion of dirt. For example, worm castings contain: 5x more Nitrogen; 7x more Phosphorus; 11x more Potassium; and 1/2 more bacteria than ordinary soil. Even though each cast is small, in good agricultural land there may be as many as two million worms per acre. They could convert 700 pounds of organic matter and soil to worm castings per day during favorable conditions. This could amount to over 105,000 pounds per acre per year!

It is no wonder that Aristotle called earthworms "the intestines of the earth."

Most earthworms work underground, coming to the surface only at night. They are very sensitive to light -- ultraviolet rays from the sun kill them very quickly. Their burrow systems are extensive and help enhance soil conditions by aerating it, keeping it loose, improving its texture, breaking up hardpans, making channels to improve waterholding capacity, mixing deep mineral layers with surface organic materials, etc.

In general, the more earthworms that live in a particular plot of land, the more fertile will it be. However, it is not just the earthworms making the soil fertile. They are there because they have favorable environments of food in the form of organic matter, essential minerals, moisture and no dangerous chemicals to kill them. As conditions are favorable for earthworms, the presence of earthworms will make conditions more favorable for plants - - another example of the interdependence of living things and their environment. The study of earthworms is an important part of the ecology of the soil.

Of the nearly 2,000 species of earthworms, we are most likely to be familiar with nightcrawlers, the smaller redworms (manure worms), and garden worms. Earthworms can be as short as a few millimeters. The largest, though, found in Australia, are almost 3 meters (10 ft.) long and over 3 centimeters (1 1/2 in.) in diam.

Earthworms are segmented, meaning that their bodies consist of series of externally similar units separated internally by membranes - the whole body appearing ringed or grooved.

On a damp night, if you have been out in the yard with a flashlight, you may have seen two nightcrawlers joined together for about a third of their body length. If you looked closely you could see their "heads" pointing in opposite directions. The conspicuous swollen band (clitellum) on each worm secretes sticky mucus to hold the worms together. During mating, sperm from each worm move down a mucous-covered groove into a pouch on the other worm where they are stored until a capsule is formed. The worms separate and the clitellum again secretes, this time a mucus which hardens over its outer surface. The worm moves backwards, literally crawling out of the forming capsule tube, depositing eggs and stored sperm into it. When the worm is completely free of the tube its ends close, leaving a lemon-shaped capsule containing eggs and sperm. The sperm fertilize the eggs and embryos begin to form. About three weeks later (depending upon kind of worm and environmental conditions), from 2 - 20 baby worms leave the capsule. Each worm, like its parent, is bisexual, meaning that it will produce both eggs and sperm when it becomes sexually mature several months later.

NOTES: Mary Appelhof heads a project at the Kalamazoo Nature Center, "Winter Composting With Worms" funded by the National Center for Appropriate Technology. Appelhof has shown that two pounds of worms can eat a pound of garbage per day, producing 200-300 pounds of potting soil in a period of six months. The project has prepared a 4-page informational flyer available for \$1.00 from the Kalamazoo Nature Center, 7000 N. Westnedge Ave. Kalamazoo, Michigan 49007. The above article was written for the Kalamazoo "Nature Center News."



The bird pictured here is a seldom seen denizen of marshland habitats. This member of the heron family is most commonly associated with cattails and other tall marsh vegetation. Often when it is approached, rather than fly away it will point its bill skyward and remain motionless in hope that protective coloration will conceal it. The bird in the photo is demonstrating the practice, but the lack of thick vegetation renders it still easy to observe. Imagine its effectiveness in thick stands of cattails.

Although this bird is known in our area both as a migrant and a breeder, the continuing loss of wetland habitat is reducing its numbers. What is it? American Bittern

DEAR BEECHWOOD NATURE PRESERVE WE LOVE YOU!

Mon. Feb.6 '79

Dear Board of Directors and my fellow members of ACRES,

Saturday afternoon my doorbell rang and when I got to the door I saw three beautiful people (the Eberhardts') standing outside. One of them (Art) hugged a huge book under his arm.

The book (Album) was for me. I had heard it was a work of art and so it is. It is beautiful and a prized record regarding Beechwood. I am so proud to possess it.

The artistry, and perfection of the composition excites my deepest admiration. I know hours of thought, work and skill went into it and I do thank you all so very much.

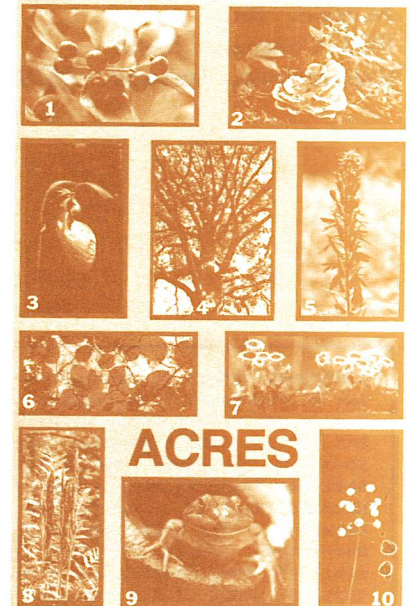
I am so grateful God trusted us with this wee bit of His green earth while we sojourn here. It has been real joy to share a part of it for those who care.

Your thoughtfulness in so many ways is most deeply appreciated.

-Garnette Foster-

ACRES NEW FOUR-COLOR BROCHURE - What's In The Pictures?

1. fruit of the shrubby honeysuckle (Lonicera sp.) Beechwood hill.
2. cluster of sulfur shelf fungus (Laetiporus (Polyporus) sulphureus) woods at Ropchan Memorial.
3. moccasin flower (pink lady's slipper) (Cypripedium acaule) bog at Ropchan Memorial.
4. upper trunk of white oak (Quercus alba) Ropchan Refuge.
5. cardinal lobelia (Lobelia cardinalis) Elkhart River, Bender Mem.
6. witchhazel leaves (Hamamelis virginiana) Ropchan Refuge.
7. a red cup fungus (Sarcoscypha floccosa) Foxfire Woods.
8. cinnamon fern (Osmunda cinnamomea) bog at Ropchan Memorial.
9. green frog (Rana clamitans)
10. white baneberry (doll's eye) (Actaea pachypoda)



SEND FOR YOUR COPY, TODAY!

ACRES WORK DAY **APRIL 7**

CHORES TO DO - OUTDOOR PROJECTS - GET TO REALLY KNOW AN ACRES AREA

Ted Heemstra, In-Charge 484-4385

8:30 AM for share-the-ride, meet at Peoples
Trust Gold Dome Bank, Northcrest.

OR go directly to either the
ROPCHAN WILDLIFE REFUGE, Rt.
827 south of Fremont.

OR

ACRES ALONG THE WABASH, Rt. 116
between Markle and Murray.

BRING: Lunch, Drink, work gloves, spade, prun-
ers.

ACRES WORK DAY

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