

# The Natural History Research Reserve

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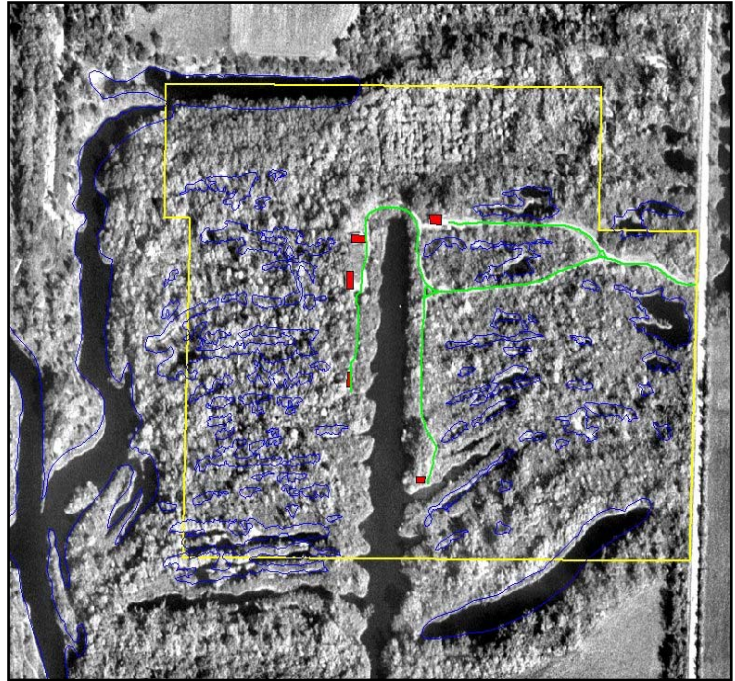
## Description

The Natural History Reserve (NHR) is 79 acres (32 ha) of partially reclaimed abandoned mine land. It was originally covered by tallgrass prairie then converted to agriculture prior to the coal mining era. Mining ceased before the regulation requiring restoration and so it was left as a series of parallel spoil banks and over 60 long and narrow strip-mine lakes of various sizes in the depressions beneath them. Four of the pits are large, three bordering the property and one mostly within it. The spoils are heavily wooded with a dense shrub layer.

Natural succession since the late 1930s has resulted in a brushy woodland type of complex in which cottonwood, American elm, sycamore, sumac, poison ivy, Japanese honeysuckle, amur honeysuckle, and gray and red-osier dogwood are common. Many of the smaller pits hold water only intermittently. The larger pits hold water permanently, but are subject to water level fluctuations of three to four feet depending on rainfall

Four buildings constructed in the 1940's (prior to PSU acquiring the property) stand on the site; one a house occupied by graduate students as a caretaker's residence, two barns, and a quonset hut. In the late 1960's, the south barn was converted into a classroom and laboratory serving field biology classes. This building was demolished in late 2005. The other barn is now used mostly for storage.

A new building will be built in the place of the demolished one and will use four large aquacultural tanks (2 indoor and 2 outdoor). Adjacent to this site are large pens for the raptors. The large main strip pit has a floating dock and several fish aquacultural cages used for teaching and research. Several boats are also kept at this site for work at the main pit and nearby lakes and pits.



## Acquisition

The land was mined in the early 1930s. The site, consisting of strip pits and mine spoils, was deeded to the Kansas Forestry, Fish, and Game Commission (precursor of today's Kansas Dept. of Wildlife and Parks) in 1936. In 1950 the agency passed the property to the Kansas State Teacher's College of Pittsburg (precursor of today's Pittsburg State University) who managed it as a university farm with orchards and other horticultural endeavors. It was also used in this period as a veteran's vocational training center in agriculture. In the 1960's, the Biology Department began managing the property as a site for field research.

## Usage

The Research Reserve has a history of use for research, education, and service. An initial aquatic study was published in 1953 by Charles C. Burner and Claude Leist ("A Limnological Study of the College Farm Strip-Mine Lake." Transactions of the Kansas Academy of Science. 56:78-85). Many theses, most recent ones involving fish culture,

have been conducted on the site or using the site (see list below).

Undergraduate students have also been involved in research or service projects at the NHR. In Spring 2004, Jamie Horton established a small prairie plot for the purposes of environmental education.

The NHR is also used extensively in undergraduate and graduate education. Upper division and graduate field biology classes use the Reserve for class-related field work. In "Limnology", the main pit is used for sampling and the lab building as a base for field water quality analysis. In "Terrestrial Field Ecology" vegetated areas have been used for quantitative vegetation surveys. In "Regional Natural History" the sites is used for mammal track and sign collection, bird observation, and plant identification. The NHR is also used by Mammalogy and Ornithology. The site is also used for observations of ecology or raptors in the non-major biology course "Environmental Life Science" and the mixed-major "General Biology". Over 400 students access the site each year.

The NHR also houses the raptor rehabilitation program of the Department's environmental education program, Nature Reach. The program uses a set of outdoor cages and the barn for rehabilitating raptors that have been injured and maintaining education birds (birds to damaged to be released). Biology majors also gain experience (course work or volunteer) in the raptor rehabilitation program and learn raptor husbandry, supervised medical treatment, and rehabilitation techniques. The department maintains the appropriate state and federal permits for the program.

Many construction and service projects have occurred at the Reserve, mostly involving infrastructure for the raptor program. Students in the "Principles of Conservation" class do service projects for the site. Outside parties have also contributed to the NHR. Donations of money or in-kind contributions have been received from the Sperry-Galligar Audubon Society, including \$2,300 to help construction of a new raptor/lab building. Westar Energy, through its Green Team program, has donated materials and labor to construct cages for non-releasable birds.

The house is used as a caretakers residence. This resident is usually the person directing the Nature Reach program, due to the house's proximity to the birds.

## Management

There is little active management other than some mowing along the road and open areas near the buildings and road. The University provides much of the maintenance needed at the site.

## Theses

- 2003. Training White Crappie (*Pomoxis annularis*) to a Commercial Pellet Using Ground Gizzard Shad (*Dorosoma cepedianum*). Spencer, Amy D. (Advisor: Dr. J.R. Triplett) [used NHR to manage fish for use in study]
- 2002\*. Compensatory Feeding and Culture of Black Crappie (*Pomoxis nigromaculatus*) in a Recirculating System. Doolin III, James P. (Advisor: Dr. J.R. Triplett)
- 1995\*. Culture of White Crappie (*Pomoxis annularis*) in a Recirculating System. Thomas, George L. (Advisor: Dr. J.R. Triplett)
- 1994. Cage Culture of Black, White, and F1 Hybrid Crappie (*Pomoxis* Species). Read, D.V.M., Emily R. (Advisor: Dr. J.R. Triplett)
- 1992. Comparisons of Three Feeding Techniques in the Cage Culture of *Ictalurus punctatus*. Bussone, Jim J. (Advisor: Dr. J.R. Triplett)
- 1991\*. Trainability, Growth, and Conversion Efficiency of White Crappie *Pomoxis annularis* on an Artificial Diet. Amspacker, Troy D. (Advisor: Dr. J.R. Triplett)
- 1978. The Mammals of the PSU Natural History Research Reserve. Foutchi, Hossein. (Advisor: Dr. Horace Hays)
- 1977. The Growth Rate of Certain Fishes in a Strip-mine Lake. Renegar, Steven J. (Advisor: Dr. J. Carl Bass)
- 1977. An Ecological Study of the Cottontail Rabbit (*Sylvilagus floridanus*) at the PSU Natural Research Reserve. Racy, Jeffrey L. (Advisor: Dr. Horace Hays)
- 1977. The Diatom Flora of Two Strip-mine Lakes on the PSU Natural History Reserve. Frank, Jann P. (Advisor: Dr. Eugene Fairchild)
- 1972. Growth-Rate Analysis of Members of a Centrarchid Community in a Strip-mine Lake. Meyer, Robert E. (Advisor: Dr. J. Carl Bass)

1972. A Taxonomic Study of the Yeasts Isolated from Orchard Soil on the Natural History Research Reserve of Kansas State College of Pittsburg. Byler, Donna I. (Advisor: Dr. Bettie Duncan)
1971. Age and Growth of Three Species of Centrarchids from a Natural History Research Reserve Strip-mine Lake and Comparison with Growth Rates Attained in Similar Lakes. Reed, Mildred A. (Advisor: Dr. J. Carl Bass)
1970. An Analysis of the Age and Growth Rates of A *Lepomis cyanellus* Population Taken from a Strip-mine Lake in Southeast Kansas. Rudella, John D. (Advisor: Dr. J. Carl Bass)
1970. Age and Growth of a Population of Bluegill. Coffey, Roger L. (Advisor: Dr. J. Carl Bass)
1968. The Osteogenesis of the Pectoral Spine of the Channel Catfish *Ictalurus punctatus* (Rafinesque). Triplett, James Robert. (Advisor: Dr. J. Carl Bass)
1967. A Growth Comparison of the Bluegill *Lepomis macrochirus* in a Pennsylvania and a Kansas Strip-mine Lake. Wessner, John. (Advisor: Dr. J. Carl Bass)
1965. Some Aspects of the Ecology of Small Rodents in a Strip-mine Habitat. Heacock, Kenneth L. (Advisor: Dr. Horace Hays)
1965. Comparison of Growth Rate of *Pomixis annularis* in Two Strip Pits in Crawford County Kansas. Alexander, Ronald R. (Advisor: Dr. J. Carl Bass)
1951. Fish Production in Strip-mine Lakes of Southeastern Kansas: II. A Preliminary Limnological Study of the College Farm Strip-mine Lake. Burner, Charles G. (Advisor: Dr. C. Leist)
- Geological Survey Open-File Report 92-22. 91 pp.
1983. Briggs, John M., Jeffrey L. Racey, and Horace A. Hays. A five-year study (1975-1979) of the home range of the Cottontail Rabbit [*Sylvilagus floridanus alacer* (Bangs)] on strip-mined land in southeast Kansas. Transactions of the Kansas Academy of Science. 86(1):24-30.
1963. Sperry, Theodore M. The Natural History Research Reserve of the Kansas State College of Pittsburg. Transactions of the Kansas Academy of Science. 66(1):76-81.
1954. Maupin, James K., James R. Wells, Jr., and Claude Leist. A preliminary survey of the food habits of the fish and physico-chemical conditions of the water of three strip-mine lakes. Transactions of the Kansas Academy of Science. 57(2):164-171.
1953. Burner, Charles C. and Claude Leist. A limnological study of the college farm stripmine lake. Transactions of the Kansas Academy of Science. 56(1):78-85.
1953. Wells, James R. The reclamation of strip-mined areas in southeastern Kansas. Transactions of the Kansas Academy of Science. 56(3):296-292.
- 1952\*. Burner, Charles C. and Claude Leist. Studies in strip-mine lake improvement. Kansas Forestry, Fish, and Game Commission, Bull. 9:2-4.
- 1951\*. Rogers, Nelson F. Strip-mined lands of the Western Interior Coal Province. Research Bulletin 475, Agr. Exp. Stud., Univ. of Mo., Columbia, Mo.
- 1949\*. Rogers, Nelson F. The growth and development of Black Walnut (*Juglans nigra* L.) on coal strip-mined land in southeast Kansas. Transactions of the Kansas Academy of Science. 52:99-104.

## Publications

1992. Ford, Steven. PSU Natural History Reserve. pp. 9-12 *in*: J. Arruda (ed), Kansas Academy of Science Multidisciplinary Guidebook 6. Fall Field Trip to the Natural Areas of Southeast Kansas. Kansas

\* thesis or publication related the theme of the field sites, but did not use the site

NATURAL HISTORY RESEARCH  
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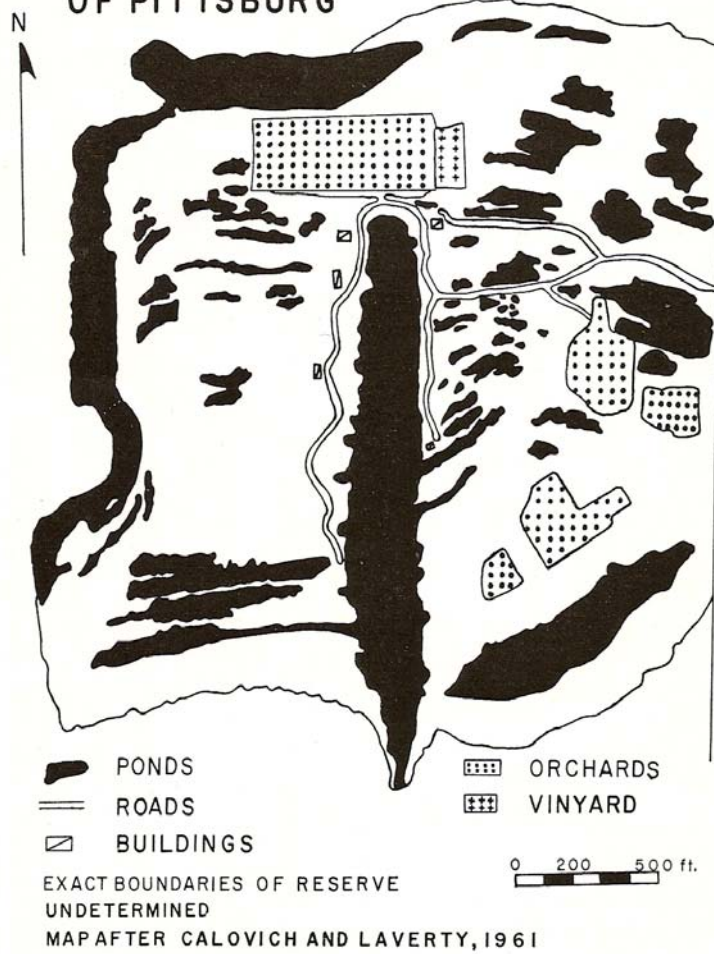


Figure 1. An early schematic of the Reserve while it was used as an ag farm by the University.