



# FINDINGS FROM THE FIELD

**SUBJECTS:** Science, Social Studies, Career Education, Government, Language Arts and Art.

**GRADES:** 4-5

**KERA GOALS:** Meets KERA goals 1, 2, 3, 4, 5, and 6

**ACADEMIC EXPECTATIONS:** use reference and research tools; make sense of a variety of materials they read; organize information and use of classification rules and systems; write using appropriate forms for different audiences and purposes; speak using appropriate forms for different audiences and purposes; make sense of and communicate ideas with the visual arts; understand scientific ways of thinking and working; understand conditions of nature; understand the democratic principles; create works of art and make presentations; analyze their own and others' artistic products; show their ability to become self-sufficient individuals; show their abilities to become responsible members of a family, work group, or community; use critical thinking to solve a variety of problems in real-life situations; organize information to develop or change their understanding of a concept; connect knowledge and experiences from different subject areas; and use what they already know to acquire new knowledge, skills, or interpret experiences.

**DURATION:** One class period of 35-50 minutes

**GROUP SIZE:** One or two classes for 10-60 students

**SETTING:** Indoors or outside

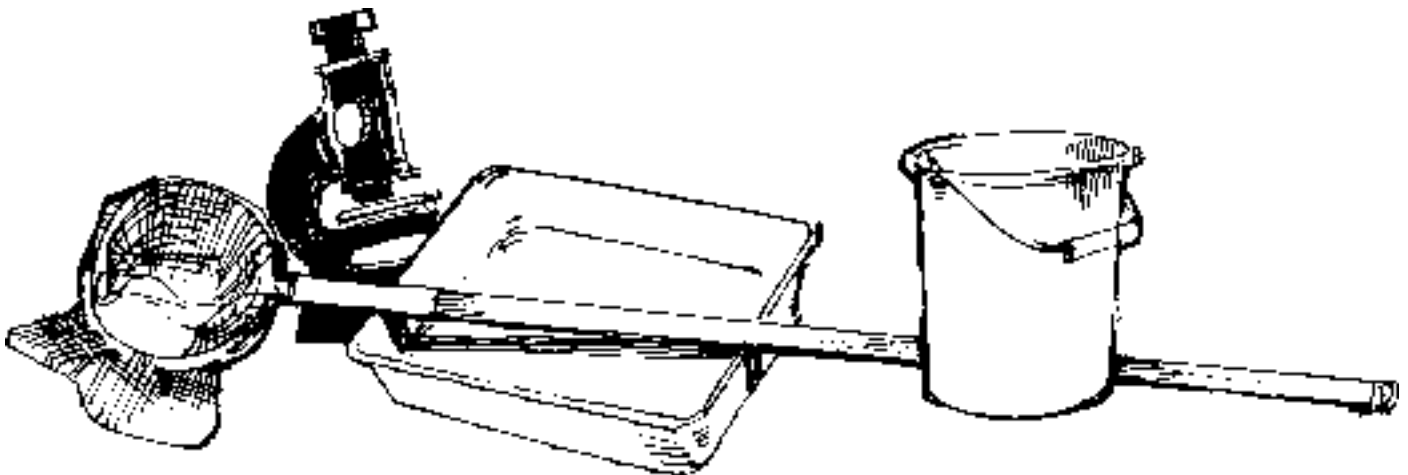
**KEY VOCABULARY:** Naturalist, journal, evaluate, regions, habitats, boundary and observation

**ANTICIPATORY SET:** Has anyone ever kept a diary or journal? What types of things do we write about? Scientists often keep a daily record of what they observe when they work on an experiment or "in the field."

**OBJECTIVES:** The students will be able to: 1) evaluate journal entries and retrieve important information of a field study; 2) identify at least two animals and their habitats.

**MATERIALS:**

- ◆ colored pencils
- ◆ crayons or markers
- ◆ seven journal entries
- ◆ large sheets of paper or poster board



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**BACKGROUND:** For years scientists have developed various ways to keep and record information. Scientists who spend a large portion of their time outdoors or “in the field” making observations usually record their findings in a field notebook or journal. They record items such as their location, number of animals seen, weather or anything specific to that day.

Scientists in a laboratory are in a more controlled environment. Their research is more methodical. They follow specific steps of acquiring information. These steps include **hypothesis, questioning, experimentation, observation** and **conclusion**.

Claude W. Hibbard was the first naturalist at Mammoth Cave National Park (June 1, 1934 to August 22, 1935). His job was to evaluate the area and record the types of wildlife he found in this region. Hibbard was to look at various habitats in this region and evaluate them to help determine what should be included in the “new” national park. Before this area became a national park there were many farms and several small communities that were well established. Animals were very scarce and some species were rarely seen. Squirrels were an animal Hibbard had difficulty finding and much of their habitat was destroyed in the spring just as the babies were being born. We might find it hard to believe that squirrels were not as common then as they are today. Part of his job was to review his notes on various animal species that were found and to help develop boundaries for what was to become Mammoth Cave National Park.

In the journal entries, information has been added in [brackets ] to help name the animal Hibbard is writing about. If you read [sic] that means that is the way it was written in the journal – so the word may be spelled wrong or have incorrect punctuation.

### PROCEDURE:

1. After discussing the uses of a journal, the teacher tells the students that they are going to look at a few journal entries from the first naturalist at Mammoth Cave National Park. His name was Claude W. Hibbard and he spent over a year recording various animals and where they were found. He was here to evaluate the various regions surrounding the cave to determine what areas should be included in the national park boundary.
2. The teacher places the students into groups of four to six students and hands each group a different journal entry. The groups read their entries.
3. Then each group receives a large piece of paper to draw the habitat described in their entry and to prepare a list of reasons why it is important that their area be protected in the new park.
4. Once the groups have completed their poster and list, the teacher asks for the first group to present why their area is important and needs to be included.
5. The class discusses the importance of protecting various habitats to maintain a diversity of plant and animal life in our world. Each area has special qualities that are worth protecting. If Hibbard had not taken such complete notes would we have been able to work on this project? Because of his notes we are able to look back over many years to get an idea of what this area looked like as the park was being formed.

**CLOSURE:** Observation is the most important skill of a scientist. They need to take time to notice and record the data or objects for a given area to be able to refer to it at a later time and to appreciate its differences.

**EVALUATION:** The teacher is able to evaluate the students through class discussion, group interaction and the completed drawings and lists.

### EXTENSIONS:

1. Look at writings from other famous naturalists like John Muir and report on a place that was special to Muir.
2. The class could take a trip outdoors, on the school grounds or another location, to record what wildlife they find. Put these observations together in a field notebook.
3. Obtain a copy of the old homestead map and try to locate the areas discussed in the journal entries on the map and then compare that to a current map of the same area.

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### Journal Entry- Area 1

July 24, 1934

Dixon Cave was visited for the first time which is a sort [sic- short] distance north of the entrance of old Mammoth Cave. The cave is large, having a high ceiling ranging from 40 to 60 ft. It is about 1/4 mile long. In the back of the cave were found two groups of Bats (*Myotis sodalis*) and a few scattered ones, about 350 in number, a few flew at our approach, two specimens were collected. Eight *Pipistrellus subflavus subflavus* [bat- Eastern Pipistrelle] were found hanging singly from the ceiling. The bats hanging singly were covered with small drops of moisture clinging to the fur. The temperatures, at the ceiling 46° F., and at the floor 56° F. Pack rats [sic] signs were observed well back in the cave where there is total darkness. At the entrance were found: one *Terrapene carolina carolina* [box turtle], 3 *Rana palustris* [pickerel frog, spring frog], 2 *Plethodon glutinosus* [slimy salamander], and 1 *Eurycea longicauda* [long-tailed salamander]. The salamanders were under old rotten lumber at entrance where the ground was kept moist by the slow dripping of water from the walls of the cave at the entrance.

### Journal Entry- Area 2

July 25, 1934

The first day that I arrived at the park, May 31, I heard rumors about the blind fish, especially that no authentic record was known of blind fish from Mammoth Cave and the Park area; though all roadside stands have blind fish to sell. At present the owners of the stands are paying local men and boys \$1. per inch for blind fish and selling them for \$2.50 to \$5.00 apiece. While working at Stockholm I came in contact with Mr. W. E. Constant who had always lived in this region and had collected arrowheads, other Indian material, and digging up graves for Indian bones, and collecting blind fish to sell to tourists visiting this region. He told me of two places that blind fish occurred [sic] in the Park area where they were collected and sold as coming from Old Mammoth Cave in Echo River; one was Cedar Sink, and the other was Sanders' Spring on the north side of Green River just north of Sander's Ferry crossing. Sanders [sic] Spring was visited the forenoon of July 25, by Clumbo Hyde an assistant C.C.C. enrollee, Mr. Constant and myself. Here a permanent spring runs through a small cave at the entrance one may stand erect, but following the stream one must soon crawl. Blind crayfish are common throughout the stream. Blind fish were observed the 3/4 of a mile traveled after we were in the cave, beyond the influence of light. They were hard to observe. If one wades in the stream they will take refuge under rocks when vibration is set up in the water. When a pool could be approached freely about. Only *Typhlechthys subterraneus* (Girard) [blind cave fish] were found and collected. They are white in color with the blood of the gills and heart showing through, giving it the effect of a pink color. They are both beautiful and graceful in their movements in clear streams. The temperature of the water was 56° F. Along the entire stream bed were tracks of coon and evidence of their feeding upon the crayfish in the stream. In the entrance of the cave. *Rana palustris* [pickerel frog, spring frog] was common and adult *Plethodon glutinosus* [slimy salamander] and *Eurycea longicauda* [long-tailed salamander] were taken. *Pipistrellas subflavus subflavus* [bat- Eastern Pipistrelle] were observed in the opening leading to the left upon entering the cave. They were hanging singly from the low ceiling. Over three hours were spent in the cave.

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### Journal Entry- Area 3

October 3, 1934

A number of deer tracks had been reported by our erosion crew working in Woolsey Valley. The area was carefully covered and a number of tracks were found, ranging from those of large bucks to those of fawns. The tracks of a yearling were observed for over a 1/4 of a mile where it had been chased by a dog. In the small gullies where the tracks were common, cedars were found along the edges and on the slopes. A short distance up the valley is a small pond with clear fresh water fed by a spring and the overflow disappearing in a sink. Around the marshy border is a large bed of cat tail in which were observed rusty black birds. A Kingfisher was seen feeding upon a small fish using the limbs of Hickories along the banks as perches, from which he could overlook the water. Coon tracks were common around the edge of the pond and a few opossum tracks were observed. Signs of deer using it as a watering place were present but not enough to be frequent. On the east side of [the] valley by a small sink which had grown up to vegetation and is shaded by oaks, was found a spot grown up to a tender weed (kind unknown) which had been browsed close to the ground by the deer.

### Journal Entry- Area 4

October 24, 1934

The day was spent in Strawberry Valley, which is a small valley along the Edmonson, Hart, and Barren County lines. This is a region in which intensive farming has been practiced, in that field after field has been turned into pasture. Due to farming and pasturing, much erosion has resulted. The day that I was in this valley, Camp #2 started their erosion work for planting. The valley is made up of a series of sinks which is typical of all Hollows and Valleys south of Green River. In the Valley is a large natural pond which affords a permanent water supply for wildlife. A large blue heron was at the pond, and from the tracks, it had been a regular visitor. Many killdeer were also around the pond. This is the ideal place for the study of shore birds during migration. Mammals were scarce only cotton-tail rabbits were observed (3). A few grey fox tracks, one opossum was observed and one skunk. Song birds were numerous in old fields and along the wooded slopes and ridges.

### Journal Entry- Area 5

November 7, 1934

The afternoon was spent with Mr. Holland on Green River. Many gray squirrels were seen along the banks both gathering nuts and in the trees. A number of chipmunks were heard calling. A large number of turtles were present on logs and the bank taking advantage of the small amount of warm sunlight. No shore or water birds were seen. Though the River presents an abundant supply of water, it is not suitable for the above due to the great depth of the water and the lack of mud flats and sandbars. Also very seldom is the bank exposed as it is over grown with Willows on other bank. A number of birds were present along the bank - a redtailed hawk, Broad winged and Marsh Hawk was observed along the tops of the ridges bordering the river. It was a good day to view tracks as the river had just gone down and the banks were covered with soft mud. Only tracks of turtles were observed.

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### Journal Entry- Area 6

January 8, 1935

A continuous rain fell during the day. The country was worked from Mammoth Cave to Buffalo Ferry. On the ridge between turnhole and Silent Grove schoolhouse a flock of starlings consisting of hundreds were observed. They were very shy and could not be approached very close on in a running car and would fly as soon as the car was stopped near them. Black vultures roost along the river just below and above turn hole. They were just starting on their morning search for food and many came flying low over the ridge going toward the southwest. It presented quite a sight as twelve came into view at once. After coming over the ridge they began to take on altitude much different from the turkey vulture as they flew in a small circle laboriously flapping their wings slowly getting higher and moving on out of sight. The country was then covered between camp #3 by Salons [sic] Crossing and Union City. A sawmill had been moved in on tract and was in full operation regardless of the weather. At that time they were concentrating on yellow poplar, *Liriodendron Tulipifera*. The Brownsville lumber company was hauling away the lumber which was hauled to the road on sleds. Another instance where they have been able to take advantage of the roads built in the park. If the road had not been improved it would have been impossible to haul by truck and would not have paid if they had to take it out that distance by team. They intend to remove everything possible that will make a board.

### Journal Entry- Area 7

July 10, 1935

A survey was made of First Creek from head to Nolin River. Starting at the head one finds sandstone formation which soon narrows to a small stream course, rather deep with numerous falls from 1 to 15 feet in height. Along this region are hemlock, holly, magnolia, mountain laurel and yellow birch. Minnows are not found in this area since they are unable to get over the falls. At the last fall there was observed [sic] a number of minnows in a small pool. Here the stream has cut through the sandstone and sinks into the underlying limestone. Just before it sinks there may be observed close to the channel a small sink with a rushing current at a lower level. The stream reappears again in a short distance as a spring in the rise of the channel from under a layer of limestone. The stream continues now for over 2 1/2 miles with small pools, some 4 feet deep. Only large minnows and many smaller ones appear in it. As it nears the river and a broad valley floor, it disappears about 1/2 mile above First Creek lakes, to reappear again a short distance above the lake. The lake covers at least three acres and is about 10 feet deep in places. Turtles are abundant and many fish - some are large. This area is flooded by back water from Nolin River during high stages. A nice stream leads from the lake into Nolin River.