

Project Title: **Fishes of Streams in Proximity to the Selman Living
Laboratory of NW Oklahoma, Survey and Public Education.**

Applicant's Names: **David L. McNeely, Professor of Biology
Langston University
P.O. Box 1500
Langston, Oklahoma 73050**

Email: dilmcneely@lunet.edu
Phone: 405-466-6025

**William Caire, Professor of Biology and
Dean of the College of Mathematics and Science
The University of Central Oklahoma
Edmond, Oklahoma 73034**

Email: Wcaire@ucok.edu
Phone: 405-974-2481

Summary Statement

The NANFA has among its objectives in its mission statement (1) “ to increase and disseminate knowledge about North America’s native fishes and their habitats among educators, students, and others ;” and (2) to promote the conservation of native fishes and the protection/restoration of natural habitats.”

This project will do both of the above by:

1. Documenting the fish fauna of a set of aquatic habitats in NW Oklahoma that to date has not been adequately defined, and
2. Providing educational materials in the form of a web page, posters for dissemination to schools, museums, and public agencies, and an interpretive sign board to be prominently displayed at a public access point of the Selman Living Laboratory. All of these educational materials will have (1) photographs of fishes including those documented in the field work and important and threatened species of prairie streams, their habitats, and students engaged in field and lab work of the survey described in 1 above; and (2) text describing the fishes and their habitat, and explaining their importance and the causes of their decline.

Throughout the project, students from Langston University and The University of Central Oklahoma will be involved in field work, fish identification, and educational materials development.

Educational Objectives

The Educational Objectives of this project are to:

1. Provide increased knowledge of the fish fauna of a type of aquatic habitat, gypsum springs and spring runs, and the small, hardwater streams to which they are confluent, in NW Oklahoma
2. Make school students, undergraduate students of Oklahoma colleges and universities, persons who visit the Selman Living Laboratory, and the museum going public in Oklahoma more knowledgeable about the prairie streams of the Southern Plains and their biota.
3. Provide an opportunity to students of the two universities to participate in and learn from an educational project about the biota of their nearby environment.

Target Audience

A wide diversity of individuals will benefit from the educational materials. In rural communities, the opportunities to have educational materials with relevancy to the immediate surrounding local faunas are few. The impact will be positive and there will be an increased local awareness of the unique and interesting fish fauna of the mixed-grass-gypsum area of northwestern Oklahoma. The target audiences and estimated numbers of individuals that will view the educational information are bulleted below.

- K-12 students and teachers – several hundred students (posters in library areas of local elementary and high schools in the towns of Enid, Freedom, Mooreland, Woodward, Buffalo and Alva)
- University Undergraduate Students and Graduate students – several hundred students (posters in library building and hallways of science buildings of Langston University, University of Central Oklahoma, Northwestern Oklahoma State University)
- Community Agencies and Groups – several hundred individuals – tourists and school groups -- posters in public viewing areas (Alabaster Caverns State Park; Boiling Springs State Park; Plains Indians & Pioneers Museum, Woodward; Buffalo Museum, Buffalo; Freedom Museum, Freedom; Leonardo's Discovery Center, Enid; Museum of the Cherokee Strip, Enid)
- Oklahoma Department of Wildlife Conservation –posters for use by wildlife biologists and ODWC sponsored education activities

Project Description

Field Work and Faunal Delineation

The first stage of the project will be to make two collections of the fishes of Salt and Trader Creeks and associated springs of the Selman Living Laboratory (see attached materials) and vicinity, and to identify the fishes. During this stage we will make photographs of the aquatic habitats, the field work, and the fishes for storage as electronic digital images. Students from both Langston University and The University of Central Oklahoma will be involved in this work. Students at both universities are encouraged to have a service requirement (University of Central Oklahoma, Service Learning, and

Langston University, Community Service) for which they receive no academic credit. At Langston University they must fulfill this requirement in order to graduate. The students who participate in this project will be offered the opportunity to use their participation to partially satisfy these requirements at their respective institutions. Opportunities to participate will also be offered to the Adventure Scouts (Mr. Mike Caywood – advisor), a Boy Scouts of America group in NW Oklahoma.

The second stage will be development and implementation of the educational materials described below.

Educational Format

The Educational format will be of three types:

1. We will produce a web page, to be mounted at the two university biology department web sites, and easily found. The title will include words that anyone searching for information about fishes, regional fauna, conservation, or natural history education will readily find by browsing. The web page will contain images of fishes, their habitats, and students engaged in field work, as well as text describing the Selman Living Laboratory, the aquatic habitats of the Southern Plains emphasizing small streams and associated springs, the fishes found in the aquatic habitats of Selman Living Laboratory and nearby, and other important fishes of the Southern Plains. Additional text will describe the loss and decline in quality of stream habitat in the Southern Plains, the decline in fish faunas that has resulted, and what students and members of the public can do to participate in conservation of this important resource.
2. We will also produce a large format, glossy poster that will be distributed to schools, area museums, and public agencies with the same content as the web pages.
3. Finally, we will build and erect an interpretive sign board , 4 ft. x 6 ft., protected from weather, at a public access site of the Selman Living Laboratory overlooking a stretch of either Salt or Trader Creek, containing the same information as the web page and the poster.

Planned Sites

1. Field work will be at the Selman Living Laboratory on Salt and Trader Creek, and in the springs and spring runs at the site. These aquatic habitats are described in the material on Selman Living Laboratory accompanying the proposal.
2. Students will work with the two project investigators/coordinators at the University of Central Oklahoma and Langston University.

Project Lifespan

1. The field work of the project will take place over the summer of 2002 during the months of May and June.
2. Development of educational materials will take place during the remainder of the summer and the fall of 2002 (September – December).
3. The materials developed will remain available and active for a minimum of three years, and will be revised from time to time as needed. The posted sign will be essentially permanent.
4. As students can be recruited to participate, revision of content and revision of materials will be carried out so long as the two investigators/coordinators remain active participants in biology education.

Expected Outcomes

1. Students who participate will have greater knowledge and a fuller appreciation of their aquatic resources than they presently do, and will be able to pass that along to peers and others.
2. Teachers and members of the public who receive or view the educational materials will have a greater knowledge and a fuller appreciation of their aquatic resources than they presently do.
3. Students of a mostly Anglo-American university and a mostly African-American university will cooperate in field work and production of educational materials resulting from the field work.
4. The results of the field investigation will be presented in statewide and regional conferences, and will be submitted to the *Transactions of the Oklahoma Academy of Science*, *The Southwestern Naturalist*, or another appropriate journal for publication.
5. An article will be submitted to *American Currents* for publication.

Methods of Evaluating Project Success

1. We will monitor the web pages by means of an electronic counter to determine the number of viewers.
2. The web pages will include email links for viewers to contact the investigators with questions or comments. We will maintain a count and log of the content of such contacts.
3. We will provide a pad of "tear off" comment and question cards, preaddressed to the investigators, with each poster and at the interpretive sign for readers to send in if they would like.
4. We will compile all responses we receive after three, six, and twelve months

Timeline

1. Materials for field work will be assembled and the field work done in early summer of 2002, completed by June 30th.
2. Photographs of field work, habitats, and live fishes will be completed in summer 2002, by August 31.
3. Collections will be sorted, fish identified, and any needed photographs of preserved fishes will be completed by August 31st.
4. Educational materials will be developed and published by December 31st.
5. Project Evaluation will be carried out over the next 12 months, through December 31st 2003.

Cooperating Individuals

David L. McNeely, Professor
Biology Department, Langston University
P.O. Box 1500
Langston, Oklahoma 73050
Email: dmcneely@lunet.edu
Phone: 405-466-6025
Member, NANFA

William Caire, Professor of Biology, Dean
College of Mathematics and Science
University of Central Oklahoma

Edmond, OK 73034
Email: Wcaire@ucok.edu
Phone: 405-974-2481
Is joining NANFA with this application

Both investigators will recruit and supervise students from their two respective universities, will participate in the field work, will supervise and assist students in developing the educational materials. David McNeely is a fish ecologist with expertise in the biota involved, and William Caire is an ecologist and an administrator with excellent organizational skills and ability to motivate others to get the best effort from them. He has long worked on the biota of the Selman Living Laboratory and the surrounding environment.

Langston University is the only Historically Black university in Oklahoma, and has an enrollment of approximately 3800 students, about 69% of whom are African-American. The University of Central Oklahoma is a regional university with an enrollment of approximately 12,000 students. This project will be the first formal cooperation of the two institutions in an endeavor involving students in field work and development of educational materials. Each investigator will recruit two or three students to participate.

Budget

<u>Budget Item</u>	<u>Description</u>	<u>Amount</u>
Travel	Two trips from Edmond, OK to Woodward, OK to collect fishes. 800 miles @\$0.365 per mile	\$292.00
Collecting supplies	Bottles, formalin, alcohol, labels, notebooks	75.00
Poster Materials	Paper, printer ink, laminating costs	300.00
<u>Sign</u>	<u>Lumber, Construction, Installation</u>	<u>325.00</u>
Total		\$992.00