

# **The Fishes of Pea Ridge National Military Park, Arkansas, 2003**

Prepared in cooperation with the  
National Park Service

Scientific Investigations Report 2005-5129

**U.S. Department of the Interior**  
**U.S. Geological Survey**

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By B.G. Justus and James C. Petersen

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# The Fishes of Pea Ridge National Military Park, Arkansas, 2003

By B.G. Justus and James C. Petersen

## Abstract

A fish inventory was conducted at Pea Ridge National Military Park, Arkansas, during base-flow conditions in September 2003. Six sites including four streams and two ponds were sampled using conventional electrofishing equipment (a seine also was used at one site). There were 653 individuals collected comprising 18 species (plus 1 hybrid) and 15 genera. The number of species collected at the four stream sites ranged from 1 to 16. Most fish species collected generally are associated with small streams in the Ozark Plateaus. The two most common species were the banded sculpin and the southern redbelly dace. Three species and a sunfish hybrid were collected from the quarry pond. No fish were collected from the unnamed pond.

A preliminary expected species list incorrectly listed 42 species because of incorrect species range or habitat requirements. One species not on the original list was added to the revised list. Upon revising this list, the inventory yielded 18 of the 40 species (45 percent) and 1 hybrid.

No previous fish inventories have been completed for the park but some observations can be made relative to species distributions. There were only five fish species collected in three headwater streams, and it is unlikely that many other species would occur in these three streams because of constraints imposed on the fish community by stream size. Little Sugar Creek, a medium-sized stream, had the most species collected, and it is likely that additional species would be collected from this stream if additional sampling were to occur. Distribution records indicate that all 18 species occur in the general area.

Although no species collected in this study are federally-listed threatened or endangered species, three species collected at Pea Ridge National Military Park may be of some special interest to National Park Service managers and others. Two of the species collected (cardinal shiner and stippled darter) are endemic to the Ozark Plateaus; both are rather common in certain parts of the Ozark Plateaus. The white sucker has a restricted range in Arkansas because northern Arkansas is at the southern edge of the white sucker's distributional range.

## Introduction

The National Parks Omnibus Management Act (1998) facilitated a monitoring program that enables National Park Service (NPS) employees to effectively monitor important selected natural resources located on parks managed by the NPS. The Heartland Network, a part of the NPS Inventory and Monitoring Program, is coordinating inventories of vascular plants and vertebrates in 15 parks in 8 midwestern States (Boetsch and others, 2000). Data collected over extended periods eventually will be evaluated to determine how biological communities are changing and to ensure that resources are being managed properly.

One of the 15 parks being inventoried is the Pea Ridge National Military Park, a park that commemorates the site where approximately 26,000 Confederate and Union soldiers fought in the Battle of Pea Ridge on March 7 and 8, 1862. The U.S. Geological Survey, in cooperation with the NPS, Heartland Network, inventoried fishes of the park.

The purpose of this report is to provide the NPS with information related to fish species of the park. This information includes a list of fish collected during an inventory of the fish species of the park conducted during base-flow conditions in September 2003, relative abundance of each species at each collection site, and a revised list of expected species at the park. Methods used to conduct the inventory also are described.

Thanks are extended to Curtis Tilghman with Pea Ridge National Military Park who assisted with locating sampling sites and with field sampling.

## Description of Study Area

Pea Ridge National Military Park (fig. 1) is located in northwestern Arkansas, a few miles northeast of the city of Rogers, on approximately 1,740 hectares (6.7 mi<sup>2</sup>). Pea Ridge National Military Park lies in the Springfield Plateau (Fenneman, 1938) and is dominated by mature deciduous hardwoods, which are sometimes bordered by grassland (National Park Service, 2004).

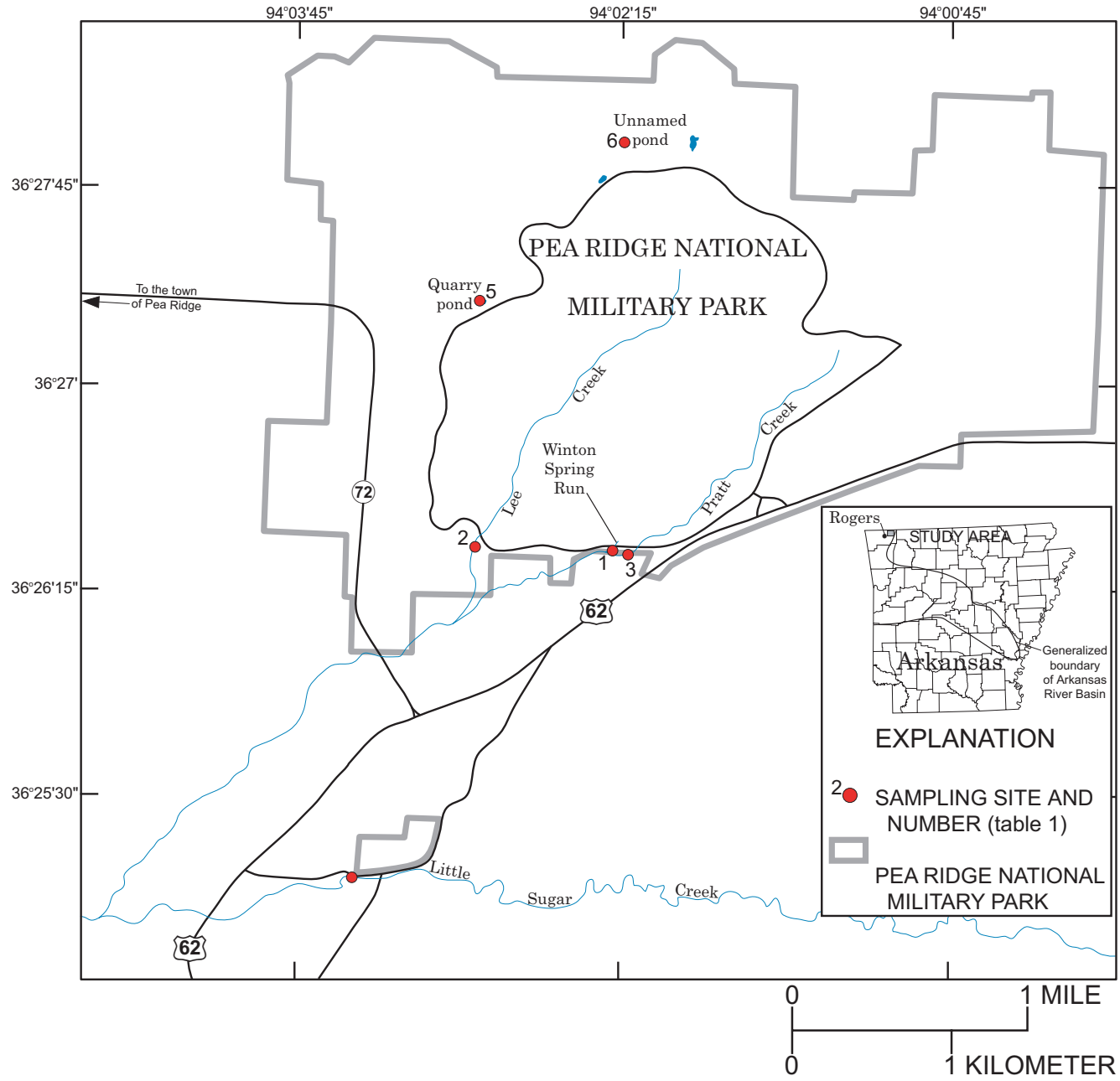


Figure 1. Location of sampling sites at Pea Ridge National Military Park.

A number of small waterbodies occur within the boundaries of Pea Ridge National Military Park. All of the streams of Pea Ridge National Military Park, with the exception of Little Sugar Creek that flows along the southern boundary, originate within the boundaries of Pea Ridge National Military Park. At least two of the streams are spring fed. The streams are in the Arkansas River Basin. Several small ponds also occur within the boundaries of Pea Ridge National Military Park.

Fish were sampled at six sites in Pea Ridge National Military Park (fig. 1, table 1). The three headwater streams (drainage areas were less than 2.6 km<sup>2</sup> (1 mi<sup>2</sup>)) that were sampled included two spring runs, Winton Spring Run and Pratt Creek, and a slightly larger stream, Lee Creek (which may or may not be spring fed and could be intermittent during low flow periods). Little Sugar Creek, the medium-sized stream (drainage area approximately 44 km<sup>2</sup> (17 mi<sup>2</sup>)) (Sullivan and Terry, 1970), was mostly wadeable and flowed along the southern border of Pea Ridge National Military Park in a westerly direction. The small quarry pond and the small, unnamed pond were located near the center of Pea Ridge National Military Park. The quarry pond was bordered by large limestone boulders and was not wadeable. The unnamed pond appeared to have been constructed long ago and was wadeable.

## Methods

Prior to fish sampling in the streams, a sampling reach was designated. Once designated, military-issue global positioning system (GPS) unit utilizing the Precise Positioning Service (PPS, authorized to U.S. Federal Civilian Agencies by the Department of Defense) was used to obtain Universe Transverse Mercator (UTM) measurements according to North American Datum of 1983 (NAD83). UTM measurements were made at the upstream and downstream ends of the reach. Because the measurements were made with PPS, no correction to the position was necessary.

Fish were collected at six sites during base-flow conditions in September 2003 using direct-current electrofishing equipment (a seine also was used at one site). At the three headwater streams and the unnamed pond, a battery powered backpack-electrofishing unit was used to collect fish. A combination of seining and backpack-electrofishing was used at the medium-sized stream and an electrofishing boat was used to sample fish in the quarry pond.

**Table 1.** Site information for six fish sampling sites within Pea Ridge National Military Park, 2003.

[EBP, electrofishing backpack; EB, electrofishing boat; BPS, electrofishing backpack/seine combination; n/a, not applicable]

| Site number and name | Sampling date | Reach length (meters) | Easting/Northing (upstream) <sup>1</sup> | Easting/Northing (downstream) <sup>1</sup> | Gear | Estimated sampling time (minutes) |
|----------------------|---------------|-----------------------|--|--|------|-----------------------------------|
| 1 Winton Spring Run  | 9/17/2003     | 80                    | 0407033 E/ 04033082 N                    | 0406976E/ 4033041N                         | EBP  | 90                                |
| 2 Lee Creek          | 9/19/2003     | 150                   | 0406116 E/ 04033187 N                    | 0406026E/ 4033067N                         | EBP  | 35                                |
| 3 Pratt Creek        | 9/19/2003     | 200                   | 0407162 E/ 04033098 N                    | 0407083E/4033013N                          | EBP  | 40                                |
| 4 Little Sugar Creek | 9/18/2003     | 300                   | 0405651 E/ 04030859 N                    | 0405175E/ 4030784N                         | BPS  | 180                               |
| 5 Quarry Pond        | 9/18/2003     | n/a                   | 0406059 E/ 04034768 N                    | n/a  | EB   | 45                                |
| 6 Unnamed pond       | 9/19/2003     | n/a                   | 0407549 E/ 04035862 N <sup>2</sup>       | n/a  | EBP  | 10                                |

<sup>1</sup>The horizontal datum used for obtaining Universe Transverse Mercator (UTM) measurements was North American Datum of 1983 (NAD83).

<sup>2</sup>Reading at pond dam.

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Small mesh dipnets were used to collect fish incapacitated by the sampling equipment. Once fish had been netted, they were temporarily placed in a plastic bucket containing ambient stream water. After a brief sampling period (and partial sampling of the reach), fish in the bucket were identified (Robison and Buchanan, 1988; Pflieger, 1997; Nelson and others, 2004) and counted; fish numbers were recorded on field sheets by species and all fish collected were identified to species. Photographs were taken of each species collected, and specimens that could be identified in the field were released outside of the area being sampled. Fish that were not readily identifiable in the field were preserved for laboratory identification. This process was repeated until the entire stream reach was sampled. The amount of time spent sampling and identifying fish at each site generally varied by water body size and also was recorded on field sheets. Site-specific location and collecting information for all sampling efforts are provided in table 1.

At the four stream sites, all fish that could be collected were counted and relative abundance was determined for each species. Numbers for fish collected at the four stream sites are reported both by individual occurrence (table 2) and by relative abundance (table 3). However, the sole purpose of sampling the quarry and the unnamed pond was to determine what species occurred there. Consequently, only a few representatives of

each species encountered at the quarry and the unnamed pond were collected and relative abundance was not calculated.

Fish species collected also are classified according to how common they occurred in this study. Criteria for this classification were based on percent relative abundance and were as follows: most common - greater than 20.0 percent, common  $\bar{n}$  10.0 to 20.0 percent, least common  $\bar{n}$  2.0 to 10.0 percent, and rare - less than 2.0 percent, and not collected (table 4).

At the onset of the study, the NPS provided the USGS with a preliminary list of fish (Boetsch and others, 2000) based on county records from maps in Robison and Buchanan (1988) that were expected to occur at Pea Ridge National Military Park. This list was provided with the intent that the USGS would make revisions that would result in a more accurate list of fish species that could reasonably be expected to occur at the park, and was to be used as a guide to determine if 90 percent of those species reasonably expected to occur at the park had been documented. The preliminary list included some fish that probably do not occur at Pea Ridge National Military Park because the park is outside of the species' range, or the aquatic habitats in the park are not representative of the typical habitat inhabited by the species. After reviewing the literature and environmental settings at Pea Ridge National Military Park, the list was revised to better reflect species that have been collected and could occur in the park.

**Table 2.** Number of fish collected at six sampling sites within Pea Ridge National Military Park, 2003.

[--, not collected]

| Common name                     | Scientific name                           | Winton<br>Spring<br>Run | Lee<br>Creek | Pratt<br>Creek | Little<br>Sugar<br>Creek | Quarry<br>Pond | Unnamed<br>pond |
|---------------------------------|---|-------------------------|--------------|----------------|--------------------------|----------------|-----------------|
| Banded sculpin                  | <i>Cottus carolinae</i>                   | 20                      | 1            | 4              | 15                       | --             | --              |
| Black bullhead                  | <i>Ameiurus melas</i>                     | --                      | --           | --             | --                       | 1              | --              |
| Bluegill                        | <i>Lepomis macrochirus</i>                | --                      | --           | --             | --                       | 79             | --              |
| Bluegill X green sunfish hybrid | <i>Lepomis macrochirus X L. cyanellus</i> | --                      | --           | --             | --                       | 10             | --              |
| Cardinal shiner                 | <i>Luxilus cardinalis</i>                 | --                      | --           | --             | 43                       | --             | --              |
| Central stoneroller             | <i>Campostoma anomalum</i>                | --                      | 2            | --             | 66                       | --             | --              |
| Creek chub                      | <i>Semotilus atromaculatus</i>            | --                      | 6            | 17             | 49                       | --             | --              |
| Fantail darter                  | <i>Etheostoma flabellare</i>              | --                      | --           | --             | 54                       | --             | --              |
| Green sunfish                   | <i>Lepomis cyanellus</i>                  | --                      | --           | --             | 6                        | 17             | --              |
| Largemouth bass                 | <i>Micropterus salmoides</i>              | --                      | --           | --             | 1                        | --             | --              |
| Northern hog sucker             | <i>Hypentelium nigricans</i>              | --                      | --           | --             | 1                        | --             | --              |
| Ozark minnow                    | <i>Notropis nubilus</i>                   | --                      | --           | --             | 2                        | --             | --              |
| Orangethroat darter             | <i>Etheostoma spectabile</i>              | --                      | 2            | --             | 35                       | --             | --              |
| Redspot chub                    | <i>Nocomis asper</i>                      | --                      | --           | --             | 9                        | --             | --              |
| Shadow bass                     | <i>Ambloplites ariommus</i>               | --                      | --           | --             | 2                        | --             | --              |
| Slender madtom                  | <i>Noturus exilis</i>                     | --                      | --           | --             | 5                        | --             | --              |
| Southern redbelly dace          | <i>Phoxinus erythrogaster</i>             | --                      | 48           | 84             | 38                       | --             | --              |
| Stippled darter                 | <i>Etheostoma punctulatum</i>             | --                      | --           | --             | 34                       | --             | --              |
| White sucker                    | <i>Catostomus commersoni</i>              | --                      | --           | --             | 2                        | --             | --              |
| Number of species collected     |   | 1                       | 5            | 3              | 16                       | 3              | 0               |
| Number of individuals collected |   | 20                      | 59           | 105            | 362                      | 107            | 0               |



**Table 3.** Percent relative abundance of fish collected at four sampling sites within Pea Ridge National Military Park, 2003.

[Fish sampling at the two pond sites was qualitative and relative abundance was not calculated; --, not collected at site]

| Common name            | Scientific name                | Winton Spring Run | Lee Creek | Pratt Creek | Little Sugar Creek |
|------------------------|--------------------------------|-------------------|-----------|-------------|--------------------|
| Banded sculpin         | <i>Cottus carolinae</i>        | 100.0             | 1.7       | 3.8         | 4.2                |
| Black bullhead         | <i>Ameiurus melas</i>          | --                | --        | --          | --                 |
| Cardinal shiner        | <i>Luxilus cardinalis</i>      | --                | --        | --          | 11.9               |
| Central stoneroller    | <i>Campostoma anomalum</i>     | --                | 3.4       | --          | 18.3               |
| Creek chub             | <i>Semotilus atromaculatus</i> | --                | 10.2      | 16.2        | 13.3               |
| Fantail darter         | <i>Etheostoma flabellare</i>   | --                | --        | --          | 15.0               |
| Green sunfish          | <i>Lepomis cyanellus</i>       | --                | --        | --          | 1.7                |
| Largemouth bass        | <i>Micropterus salmoides</i>   | --                | --        | --          | 0.3                |
| Northern hog sucker    | <i>Hypentelium nigricans</i>   | --                | --        | --          | 0.3                |
| Ozark minnow           | <i>Notropis nubilus</i>        | --                | --        | --          | 0.6                |
| Orangethroat darter    | <i>Etheostoma spectabile</i>   | --                | 3.4       | --          | 9.7                |
| Redspot chub           | <i>Nocomis asper</i>           | --                | --        | --          | 2.5                |
| Shadow bass            | <i>Ambloplites ariommus</i>    | --                | --        | --          | 0.6                |
| Slender madtom         | <i>Noturus exilis</i>          | --                | --        | --          | 1.4                |
| Southern redbelly dace | <i>Phoxinus erythrogaster</i>  | --                | 81.4      | 80.0        | 10.5               |
| Stippled darter        | <i>Etheostoma punctulatum</i>  | --                | --        | --          | 9.4                |
| White sucker           | <i>Catostomus commersoni</i>   | --                | --        | --          | 0.6                |

**Table 4.** Abundance classification of fish collected at four sampling sites within Pea Ridge National Military Park, 2003.

[MC, most common (greater than 20.0 percent); C, common (10.0 to 20.0 percent); LC, least common (2.0 to 10.0 percent); R, rare (less than 2.0 percent); --, not collected]

| Common name            | Scientific name                | Winton Spring Run | Lee Creek | Pratt Creek | Little Sugar Creek |
|------------------------|--------------------------------|-------------------|-----------|-------------|--------------------|
| Banded sculpin         | <i>Cottus carolinae</i>        | MC                | R         | LC          | LC                 |
| Cardinal shiner        | <i>Luxilus cardinalis</i>      | --                | --        | --          | C                  |
| Central stoneroller    | <i>Campostoma anomalum</i>     | --                | LC        | --          | C                  |
| Creek chub             | <i>Semotilus atromaculatus</i> | --                | C         | C           | C                  |
| Fantail darter         | <i>Etheostoma flabellare</i>   | --                | --        | --          | C                  |
| Green sunfish          | <i>Lepomis cyanellus</i>       | --                | --        | --          | R                  |
| Largemouth bass        | <i>Micropterus salmoides</i>   | --                | --        | --          | R                  |
| Northern hog sucker    | <i>Hypentelium nigricans</i>   | --                | --        | --          | R                  |
| Ozark minnow           | <i>Notropis nubilus</i>        | --                | --        | --          | R                  |
| Orangethroat darter    | <i>Etheostoma spectabile</i>   | --                | LC        | --          | LC                 |
| Redspot chub           | <i>Nocomis asper</i>           | --                | --        | --          | LC                 |
| Shadow bass            | <i>Ambloplites ariommus</i>    | --                | --        | --          | R                  |
| Slender madtom         | <i>Noturus exilis</i>          | --                | --        | --          | R                  |
| Southern redbelly dace | <i>Phoxinus erythrogaster</i>  | --                | MC        | MC          | C                  |
| Stippled darter        | <i>Etheostoma punctulatum</i>  | --                | --        | --          | LC                 |
| White sucker           | <i>Catostomus commersoni</i>   | --                | --        | --          | R                  |

## Fishes of Pea Ridge National Military Park

There were 653 individuals collected at the six sampling sites (tables 2 and 3). These individuals represented 18 species (plus one hybrid) and 15 genera. Most fish species collected generally are associated with small streams in the Ozark Plateaus. The number of species collected at the four stream sites ranged from 1 to 16. Three species and a sunfish hybrid (*Lepomis macrochirus* x *L. cyanellus*) were collected from the quarry pond. No fish were collected from the unnamed pond. Distribution records indicate that all 18 species occur in the general area and all are native to the area and are not exotic (Robison and Buchanan, 1988; Pflieger, 1997). No species collected in this study are federally-listed threatened or endangered species (U.S. Fish and Wildlife Service, 2004).

Two species were classified as “most common”—the banded sculpin (*Cottus carolinae*) and southern redbelly dace (*Phoxinus erythrogaster*) (table 4). Several species were collected at only one site and were not common at this site (table 4).

The preliminary expected species list incorrectly listed 42 species because of incorrect species range or habitat requirements (table 5). One species not on the original list was added to the revised list. Upon revising this list, the inventory yielded 18 of the 40 species (45 percent) and 1 hybrid (table 5).

### Relation of Fishes to Habitats and Distributional Ranges

The two most common species (banded sculpin and southern redbelly dace) are typical of habitats found in streams of Pea Ridge National Military Park. Both species have preferences for small, headwater streams and spring runs (Robison and Buchanan, 1988). The bluegill (*Lepomis macrochirus*), cardinal shiner (*Luxilus cardinalis*), central stoneroller (*Campostoma anomalum*), creek chub (*Semotilus atromaculatus*), and fantail darter (*Etheostoma flabellare*) also were common at one or more sites. Bluegill often are abundant in small ponds. Cardinal shiners are often one of the more abundant species in small creeks in the Arkansas River Basin (Pflieger, 1997). Creek chubs were common in three streams at Pea Ridge National Military Park and are typical of headwater streams in the Ozark Plateaus (Robison and Buchanan, 1988).

Several species were collected at only one site and were not common at that site (table 2). Five or less black bullhead (*Ameiurus melas*), largemouth bass (*Micropterus salmoides*), northern hog sucker (*Hypentelium nigricans*), Ozark minnow (*Notropis nubilis*), shadow bass (*Ambloplites arriomus*), slender madtom (*Noturus exilis*), and white sucker (*Catostomus commersoni*) were collected at single sites. The black bullhead was collected from the Quarry Pond and all other species were collected from Little Sugar Creek. With the exception of the black bullhead (which prefers lakes and quiet pools of small

streams), largemouth bass (which prefers streams or parts of streams with little current), and white sucker (which is uncommon in Arkansas), these species generally are not uncommon in streams of this part of the Ozark Plateaus.

Several species potentially present within the boundaries of Pea Ridge National Military Park (and on the preliminary list of expected species) were not collected during 2003 and many of these species, while potentially present, are unlikely to be found within Pea Ridge National Military Park (for reasons described in Robison and Buchanan, 1988). Four species typically occur in larger streams and one species has only been reported in Arkansas from caves (table 5). Thirty-nine additional species were removed from the list because they are absent from or rare in the Arkansas River drainage or the part of the Arkansas River Basin near Pea Ridge National Military Park (table 5).

No previous fish inventories have been completed for the park but some observations can be made relative to species distributions. There were only five fish species collected in the three headwater streams, and it is unlikely that many other species would occur at these three sites because of constraints imposed on the fish community by drainage basin size, which generally determines quantity of streamflow. Little Sugar Creek, the medium-sized stream, had the most species collected and it is likely that additional species would be collected from this stream if additional sampling was to occur.

### Species of Interest

Although no species collected in this study are federally-listed threatened or endangered species (U.S. Fish and Wildlife Service, 2004), three species collected at Pea Ridge National Military Park may be of some special interest to NPS managers and others. Two of the species collected (cardinal shiner and stippled darter, *Etheostoma punctulatum*) are endemic to the Ozark Plateaus; both are rather common in certain parts of the Ozark Plateaus. The white sucker has a restricted range in Arkansas because northern Arkansas is at the southern edge of the white sucker's distributional range (Robison and Buchanan, 1988; Pflieger, 1977).

**Table 5.** Lists of fish species expected to occur at Pea Ridge National Military Park.

[Preliminary list, list provided by National Park Service; Revised list, list compiled by USGS after review of pertinent literature; USGS, collected by USGS in 2003; 0, unexpected, park is outside of species' range or lacks appropriate habitat; 1, species is expected within park; 2, collected; 3, collected but not on the preliminary list. Comments based on information from Robison and Buchanan (1988); ARB, Arkansas River Basin]

| Family name   | Genus species                            | Common name                 | Pre-liminary list | Revised list | USGS | Comment                               |
|---------------|--|-----------------------------|-------------------|--------------|------|---------------------------------------|
| Amblyopsidae  | <i>Amblyopsis rosae</i>                  | Ozark cavefish              | 1                 | 0            | No   | In Arkansas, reported only from caves |
| Atherinidae   | <i>Labidesthes sicculus</i>              | Brook silverside            | 1                 | 0            | No   | Not reported from this part of ARB    |
| Catostomidae  | <i>Moxostoma duquesnei</i>               | Black redhorse              | 1                 | 0            | No   | Not reported from this part of ARB    |
| Catostomidae  | <i>Moxostoma erythrurum</i>              | Golden redhorse             | 1                 | 0            | No   | Not reported from this part of ARB    |
| Catostomidae  | <i>Carpiodes velifer</i>                 | Highfin carpsucker          | 1                 | 0            | No   | Not in ARB                            |
| Catostomidae  | <i>Hypentelium nigricans</i>             | Northern hog sucker         | 1                 | 2            | Yes  |                                       |
| Catostomidae  | <i>Moxostoma carinatum</i>               | River redhorse              | 1                 | 1            | No   | Typically occurs in larger rivers     |
| Catostomidae  | <i>Ictiobus bubalus</i>                  | Smallmouth buffalo          | 1                 | 0            | No   | Not reported from this part of ARB    |
| Catostomidae  | <i>Minytrema melanops</i>                | Spotted sucker              | 1                 | 0            | No   | Not reported from this part of ARB    |
| Catostomidae  | <i>Catostomus commersoni</i>             | White sucker                | 1                 | 2            | Yes  |                                       |
| Centrarchidae | <i>Pomoxis nigromaculatus</i>            | Black crappie               | 1                 | 1            | No   |                                       |
| Centrarchidae | <i>Lepomis macrochirus</i>               | Bluegill                    | 1                 | 2            | Yes  |                                       |
| Centrarchidae | <i>Lepomis marginatus</i>                | Dollar sunfish              | 1                 | 0            | No   | Not reported from this part of ARB    |
| Centrarchidae | <i>Lepomis cyanellus</i>                 | Green sunfish               | 1                 | 2            | Yes  |                                       |
| Centrarchidae | <i>Micropterus salmoides</i>             | Largemouth bass             | 1                 | 2            | Yes  |                                       |
| Centrarchidae | <i>Lepomis megalotis</i>                 | Longear sunfish             | 1                 | 1            | No   |                                       |
| Centrarchidae | <i>Lepomis humilis</i>                   | Orangespotted sunfish       | 1                 | 0            | No   | Not reported from this part of ARB    |
| Centrarchidae | <i>Ambloplites rupestris</i>             | Rock bass                   | 1                 | 1            | No   |                                       |
| Centrarchidae | <i>Ambloplites ariommus</i>              | Shadow bass                 | 1                 | 2            | Yes  |                                       |
| Centrarchidae | <i>Micropterus dolomieu</i>              | Smallmouth bass             | 1                 | 1            | No   |                                       |
| Centrarchidae | <i>Micropterus punctulatus</i>           | Spotted bass                | 1                 | 0            | No   | Not reported from this part of ARB    |
| Centrarchidae | <i>Lepomis gulosus</i>                   | Warmouth                    | 1                 | 0            | No   | Not reported from this part of ARB    |
| Centrarchidae | <i>Pomoxis annularis</i>                 | White crappie               | 1                 | 1            | No   |                                       |
| Clupeidae     | <i>Dorosoma cepedianum</i>               | Gizzard shad                | 1                 | 1            | No   |                                       |
| Clupeidae     | <i>Dorosoma petenense</i>                | Threadfin shad              | 1                 | 0            | No   | Not reported from this part of ARB    |
| Cottidae      | <i>Cottus carolinae</i>                  | Banded sculpin              | 1                 | 2            | Yes  |                                       |
| Cyprinidae    | <i>Hybopsis amblops</i>                  | Bigeye chub                 | 1                 | 0            | No   | Not reported from this part of ARB    |
| Cyprinidae    | <i>Pimephales notatus</i>                | Bluntnose minnow            | 1                 | 1            | No   |                                       |
| Cyprinidae    | <i>Luxilus cardinalis</i>                | Cardinal shiner             | 1                 | 2            | Yes  |                                       |
| Cyprinidae    | <i>Notropis percobromus</i> <sup>1</sup> | Carmine shiner <sup>1</sup> | 1                 | 1            | No   |                                       |
| Cyprinidae    | <i>Campostoma anomalum</i>               | Central stoneroller         | 1                 | 2            | Yes  |                                       |
| Cyprinidae    | <i>Cyprinus carpio</i>                   | Common carp                 | 1                 | 1            | No   |                                       |
| Cyprinidae    | <i>Semotilus atromaculatus</i>           | Creek chub                  | 1                 | 2            | Yes  |                                       |

**Table 5.** Lists of fish species expected to occur at Pea Ridge National Military Park.—Continued

[Preliminary list, list provided by National Park Service; Revised list, list compiled by USGS after review of pertinent literature; USGS, collected by USGS in 2003; 0, unexpected, park is outside of species' range or lacks appropriate habitat; 1, species is expected within park; 2, collected; 3, collected but not on the preliminary list. Comments based on information from Robison and Buchanan (1988); ARB, Arkansas River Basin]

| Family name   | Genus species                  | Common name            | Pre-liminary list | Revised list | USGS | Comment                            |
|---------------|--------------------------------|------------------------|-------------------|--------------|------|------------------------------------|
| Cyprinidae    | <i>Luxilus pilsbryi</i>        | Duskystripe shiner     | 1                 | 0            | No   | Not in ARB                         |
| Cyprinidae    | <i>Pimephales promelas</i>     | Fathead minnow         | 1                 | 0            | No   | Not reported from this part of ARB |
| Cyprinidae    | <i>Notropis buchanani</i>      | Ghost shiner           | 1                 | 0            | No   | Not reported from this part of ARB |
| Cyprinidae    | <i>Notemigonus crysoleucas</i> | Golden shiner          | 1                 | 1            | No   |                                    |
| Cyprinidae    | <i>Carassius auratus</i>       | Goldfish               | 1                 | 0            | No   | Not reported from this part of ARB |
| Cyprinidae    | <i>Ctenopharyngodon idella</i> | Grass carp             | 1                 | 1            | No   |                                    |
| Cyprinidae    | <i>Erimystax x-punctatus</i>   | Gravel chub            | 1                 | 0            | No   | Not reported from this part of ARB |
| Cyprinidae    | <i>Nocomis biguttatus</i>      | Hornyhead chub         | 1                 | 0            | No   | Not reported from this part of ARB |
| Cyprinidae    | <i>Campostoma oligolepis</i>   | Largescale stoneroller | 1                 | 0            | No   | Not reported from this part of ARB |
| Cyprinidae    | <i>Erimystax harrisi</i>       | Ozark chub             | 1                 | 0            | No   | Not reported from this part of ARB |
| Cyprinidae    | <i>Notropis nubilus</i>        | Ozark minnow           | 1                 | 2            | Yes  |                                    |
| Cyprinidae    | <i>Notropis ozarcanus</i>      | Ozark shiner           | 1                 | 0            | No   | Not in ARB                         |
| Cyprinidae    | <i>Lythrurus umbratilis</i>    | Redfin shiner          | 1                 | 0            | No   | Not reported from this part of ARB |
| Cyprinidae    | <i>Nocomis asper</i>           | Redspot chub           | 1                 | 2            | Yes  |                                    |
| Cyprinidae    | <i>Phoxinus erythrogaster</i>  | Southern redbelly dace | 1                 | 2            | Yes  |                                    |
| Cyprinidae    | <i>Cyprinella spiloptera</i>   | Spotfin shiner         | 1                 | 0            | No   | Not reported from this part of ARB |
| Cyprinidae    | <i>Cyprinella whipplei</i>     | Steelcolor shiner      | 1                 | 0            | No   | Not reported from this part of ARB |
| Cyprinidae    | <i>Luxilus chrysocephalus</i>  | Striped shiner         | 1                 | 0            | No   | Not reported from this part of ARB |
| Cyprinidae    | <i>Notropis telescopus</i>     | Telescope shiner       | 1                 | 0            | No   | Not in ARB                         |
| Cyprinidae    | <i>Notropis greeniei</i>       | Wedgespot shiner       | 1                 | 0            | No   | Not in ARB                         |
| Cyprinidae    | <i>Pimephales tenellus</i>     | Slim minnow            | 1                 | 0            | No   |                                    |
| Cyprinidae    | <i>Cyprinella galactura</i>    | Whitetail shiner       | 1                 | 0            | No   | Not in ARB                         |
| Fundulidae    | <i>Fundulus olivaceus</i>      | Blackspotted topminnow | 1                 | 1            | No   |                                    |
| Fundulidae    | <i>Fundulus notatus</i>        | Blackstripe topminnow  | 1                 | 0            | No   | Not reported from this part of ARB |
| Fundulidae    | <i>Fundulus catenatus</i>      | Northern studfish      | 1                 | 1            | No   |                                    |
| Ictaluridae   | <i>Ameiurus melas</i>          | Black bullhead         | 1                 | 2            | Yes  |                                    |
| Ictaluridae   | <i>Ictalurus furcatus</i>      | Blue catfish           | 1                 | 0            | No   | Typically occurs in larger rivers  |
| Ictaluridae   | <i>Ictalurus punctatus</i>     | Channel catfish        | 1                 | 1            | No   |                                    |
| Ictaluridae   | <i>Pylodictis olivaris</i>     | Flathead catfish       | 1                 | 1            | No   | Typically occurs in larger streams |
| Ictaluridae   | <i>Noturus albater</i>         | Ozark madtom           | 1                 | 0            | No   | Not in ARB                         |
| Ictaluridae   | <i>Noturus exilis</i>          | Slender madtom         | 3                 | 2            | Yes  |                                    |
| Ictaluridae   | <i>Ameiurus natalis</i>        | Yellow bullhead        | 1                 | 1            | No   |                                    |
| Lepisosteidae | <i>Lepisosteus osseus</i>      | Longnose gar           | 1                 | 0            | No   | Not reported from this part of ARB |
| Moronidae     | <i>Morone chrysops</i>         | White bass             | 1                 | 1            | No   | Typically occurs in larger rivers  |

**Table 5.** Lists of fish species expected to occur at Pea Ridge National Military Park.—Continued

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| Family name     | Genus species                 | Common name             | Pre-liminary list | Revised list | USGS | Comment                            |
|-----------------|-------------------------------|-------------------------|-------------------|--------------|------|------------------------------------|
| Percidae        | <i>Etheostoma cragini</i>     | Arkansas darter         | 1                 | 0            | No   | Not reported from this part of ARB |
| Percidae        | <i>Etheostoma euzonum</i>     | Arkansas saddled darter | 1                 | 0            | No   | Not reported from this part of ARB |
| Percidae        | <i>Etheostoma zonale</i>      | Banded darter           | 1                 | 0            | No   | Not reported from this part of ARB |
| Percidae        | <i>Etheostoma flabellare</i>  | Fantail darter          | 1                 | 2            | Yes  |                                    |
| Percidae        | <i>Etheostoma blennioides</i> | Greenside darter        | 1                 | 0            | No   | Not reported from this part of ARB |
| Percidae        | <i>Etheostoma microperca</i>  | Least darter            | 1                 | 0            | No   | Not reported from this part of ARB |
| Percidae        | <i>Percina caprodes</i>       | Logperch                | 1                 | 1            | No   |                                    |
| Percidae        | <i>Percina nasuta</i>         | Longnose darter         | 1                 | 0            | No   | Not in ARB                         |
| Percidae        | <i>Etheostoma spectabile</i>  | Orangethroat darter     | 1                 | 2            | Yes  |                                    |
| Percidae        | <i>Percina phoxocephala</i>   | Slenderhead darter      | 1                 | 0            | No   | Not reported from this part of ARB |
| Percidae        | <i>Etheostoma stigmaeum</i>   | Speckled darter         | 1                 | 1            | No   |                                    |
| Percidae        | <i>Etheostoma punctulatum</i> | Stippled darter         | 1                 | 2            | Yes  |                                    |
| Petromyzontidae | <i>Ichthyomyzon cataneus</i>  | Chestnut lamprey        | 1                 | 1            | No   |                                    |
| Petromyzontidae | <i>Ichthyomyzon gagei</i>     | Southern brook lamprey  | 1                 | 0            | No   | Not reported from this part of ARB |
| Poeciliidae     | <i>Gambusia affinis</i>       | Western mosquitofish    | 1                 | 1            | No   |                                    |

<sup>1</sup>Formerly known as rosyface shiner, *Notropis rubellus*.

## Summary

A fish inventory was conducted at Pea Ridge National Military Park, Arkansas, during base-flow conditions in September 2003. Six sites including three small headwater streams, a medium-sized stream, a small quarry pond, and a small, unnamed pond were sampled using conventional electrofishing equipment (a seine also was used at one site). At the three headwater streams and the unnamed pond, a battery powered backpack-electrofishing unit was used to collect fish. A combination of seining and backpack-electrofishing was used at the medium-sized stream and an electrofishing boat was used to sample fish in the quarry pond. All fish collected were identified to species. There were 653 individuals collected comprising 18 species (plus 1 hybrid) and 15 genera. The number of species collected at the four stream sites ranged from 1 to 16. Most fish species collected generally are associated with small streams in the Ozark Plateaus. The two most common species were the banded sculpin and the southern redbelly dace. Three species and a sunfish hybrid were collected from the quarry pond. No fish were collected from the unnamed pond.

The preliminary expected species list incorrectly listed 42 species because of incorrect species range or habitat requirements. One species not on the original list was added to the revised list. Upon revising this list, the inventory yielded 18 of the 40 species (45 percent) and 1 hybrid.

Although no species collected in this study are federally-listed threatened or endangered species, three species collected at Pea Ridge National Military Park may be of some special interest to NPS managers and others. Two of the species collected (cardinal shiner and stippled darter) are endemic to the Ozark Plateaus; both are rather common in certain parts of the Ozark Plateaus. The white sucker has a restricted range in Arkansas because northern Arkansas is at the southern edge of the white sucker's distributional range.

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