

Biological Inventory for Vertebrates at Fort Larned National Historic Site

*Source: Jennifer Delisle & William Busby
Kansas Natural Heritage Inventory*

PROJECT SUMMARY



NPS PHOTO

Great horned owl

Introduction

The Fort Larned National Historic Site (FOLS) is located in central Pawnee County, Kansas, along the banks of the Pawnee River. Fort Larned was established as a military outpost in 1859, primarily to protect U.S. mail and commercial freight traffic along the Santa Fe Trail. The site is comprised of developed areas, grassland, and the Pawnee River lined by a wooded riparian corridor. A detached 44-acre parcel, containing Santa Fe Trail wagon ruts, consists of native mixed-grass prairie. The purpose of this project was to inventory vertebrate groups for which data were lacking or incomplete. Birds and fish were the primary focus of the surveys, because no previous inventories had been conducted for these groups. Mammal and herpetological surveys had been conducted previously (in 1998 by Dr. Jerry Choate, Fort Hays State University), but species documentation had not reached the target of 90%; therefore, a secondary focus was to document additional mammal and herp species.

Methods

Vertebrate inventories were conducted in spring and summer of 2001. Prior to conducting surveys, lists for each group were compiled based on the best available resources (e.g., previous surveys, Kansas Natural Heritage Inventory (KSNHI) databases, museum specimens, books/guides, and knowledgeable staff).

Birds

Due to limited funding, the inventory work for birds concentrated on breeding birds. Surveys were conducted on four days (during May 22-June 14) between the hours of 6:00 and 10:30 am. Approximately 12 person-hours were spent in woodlands, six in grasslands, and four in developed areas. Birds were identified by sight and sound. Nocturnal species were recorded on one night during herpetological surveys.

Fish

Fish were surveyed on September 13 by seining at two locations along the Pawnee River within the boundaries of FOLS. These two sites were the only sections of river containing water at the time.

Mammals

Mammals were inventoried by nighttime driving and walking surveys, by inspection of buildings for roosting bats, and by trapping using Sherman live traps and pitfall traps.

Sixty Sherman live traps were set for three consecutive nights (in late April), resulting in a sampling effort of 180 trap-nights. Thirty-five pitfall traps were set for three consecutive nights (in late May), resulting in a sampling effort of 105 trap-nights. Nocturnal surveys were conducted on foot and by vehicle on three separate days for a total of nine hours.

Herps

Herp surveys were conducted from April to June. Survey methods included: coverboards (metal and plywood), pitfall traps, area searches, nocturnal calling surveys, and visual nocturnal surveys while driving roads. Pitfall traps were set for three consecutive nights (in late May), resulting in a sampling effort of 105 trap-nights. Nearly 72 person-hours were spent in area searches, turning over rocks, logs, and other debris, checking coverboards, and looking around buildings. Nocturnal calling surveys were conducted throughout FOLS on two nights in June.

Results

Birds

Fifty-seven bird species were documented during surveys for breeding birds; these include the red-tailed hawk (*Buteo jamaicensis*), common nighthawk (*Chordeiles minor*), American goldfinch (*Carduelis tristis*), and house wren (*Troglodytes aedon*). Using a revised (based on project results) master species list for birds, 57 of 78 predicted species have been documented, making documentation 73% complete. Species documented at FOLS are common birds of grasslands and woodland edge. The woodlands are especially important to bird diversity, with species associated with trees accounting for 84% of those encountered. However, grassland birds are the most numerous due to the preponderance of grassland habitat.

Fish

Six fish species were documented in the Pawnee River within FOLS during the survey: common carp (*Cyprinus carpio*), fathead minnow (*Pimephales promelas*), red shiner (*Cyprinella lutrensis*), Channel catfish (*Ictalurus punctatus*), black bullhead (*Ameiurus melas*), and white crappie (*Pomoxis annularis*). Fish were concentrated in a few isolated pools and much of the river channel was dry at the time of the survey. The depth of the water was at most 0.5 m and the substrate consisted of a deep layer of muck. Thirty-five percent of the species originally expected to occur at FOLS have been documented. The species observed are tolerant of poor water quality, including high turbidity and low oxygen.



PHOTO: DELISLE & BUSBY 2004

One of the two fish sampling sites

Mammals

Thirteen mammal species were documented at FOLS during the survey. The big brown bat (*Eptesicus fuscus*)



PHOTO: RON SINGER

Black-tailed prairie dog

was discovered in cracks above the doorways of several historic buildings. One mammal was observed during nocturnal surveys, two species were captured in Sherman live traps, two species were identified by tracks or mounds, and coyotes (*Canis latrans*) were heard howling at night. Six species were observed during daylight hours (e.g., the Eastern cottontail (*Sylvilagus floridanus*), black-tailed prairie dog (*Cynomys ludovicianus*), and Eastern fox squirrel (*Sciurus niger*)). A total of 23 mammal species have been documented at FOLS, and according to the revised master species list, documentation of mammals is 56% complete.

Herps

The survey documented nine species of amphibians and reptiles, including the Plains leopard frog (*Rana blairi*), Great Plains toad (*Bufo cognatus*), six-lined racerunner (*Cnemidophorus sexlineatus*), and bullsnake (*Pituophis catenifer*). None of the nine species were newly recorded. A total of 17 species have been documented at FOLS, and using the revised species master list, the documentation of herpetological species is 49% complete.

Discussion

See the full project report for a discussion of management and monitoring recommendations. Currently the only species for which monitoring is warranted is the black-tailed prairie dog, due to its status as a species proposed for listing under the Endangered Species Act. Additional surveys are recommended for fish, breeding birds, and non-breeding birds.

Contacts

Jennifer M. Delisle and William H. Busby, Kansas Natural Heritage Inventory, Kansas Biological Survey