

# USACE Natural Resource Management

## Mammals



### Gray Bat

### FAST FACTS

**REASONS FOR CURRENT STATUS:** The gray bat was listed by the U.S. Fish and Wildlife Service (USFWS) as an endangered species in 1976. Similar to the Indiana bat, listing of this species was primarily the result of a large population decline due to disturbance of hibernating bats by humans.

Gray bats occupy just a few caves in very large numbers; subsequently they are extremely vulnerable to disturbance. During winter hibernation, disturbance may result in the use of limited energy reserves which can lead to death. During summer months, disturbance may result in mortality as frightened females drop their non-volant young as they flee.

**MANAGEMENT AND PROTECTION:** Like other bat species that utilize caves, any gating at the cave entrance that prevents access or alters the air flow, temperature, humidity, and/or the amount of light has the potential to render it uninhabitable by the species. Additionally, gray bats occupy caves near rivers or lakes where they forage for flying aquatic and terrestrial insects. Alteration to habitat surrounding the cave can result in negative effects to the species' food supply.

**HABITAT NEEDS:** Gray bats occupy caves year-round. During the winter season, gray bats occupy cold caves while in the summer they occupy warmer caves. It has been documented that only 5% of available caves provide gray bat habitat as they need to provide appropriate climatic conditions.

- Warm caves must be of a temperature to support necessary metabolic processes for digestion and growth.
- Cold caves must be a temperature to maintain torpor and hibernation conditions in the fall and winter.
- Few caves in the northeastern US are warm enough for rearing young, and few in the southeast are cold enough for successful hibernation (USACE-ERDC).
  - Surveys have shown that on rare occurrences gray bats may roost at man-made sites that simulate summer caves. This includes storm drains and even dam gate-rooms.

**Appearance:** Gray bats are the largest member of the *Myotis* genus, measuring from approximately 3-4 inches in length and weighing one-quarter to one-half of an ounce.

Gray bats are distinguished from other bats by their uni-colored dorsal fur. They are also the only species in which the wing membrane connects to the foot at the ankle as opposed to connecting at the base of the first toe.

*Photos: USACE-ERDC, USFWS, Kentucky Department of Fish and Wildlife*

*Natural Resource Management (NRM)*

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**USACE NATURAL RESOURCE MANAGEMENT ROLE:** According to the Engineering Research and Development Center's Threatened and Endangered Species Team Cost Estimates, the USACE has expended over \$1,254,332 since 2006 on efforts related to the Indiana bat. The costs associated with this species have been incurred by multiple business lines including Navigation, Regulatory, Planning and Program Management, and Environmental Stewardship.

**WHAT IS USACE NRM DOING:** Despite a geographic range limited to the limestone karst areas of the southeastern US, nearly 40 projects with a NRM mission spread across 8 USACE districts reported potential, rare, occasional, and even common occurrence of the species during the FY20 NRM Assessment.

A technical report published by ERDC in 2002, focused on the gray bat as part of an examination of cave and crevice-dwelling bats on USACE projects. As noted within the report, caves on USACE lands provide opportunities to support the species. For example, at Harry S. Truman Lake, which still reports common occurrences of the species, has a cave that has been known to support a maternity roost.

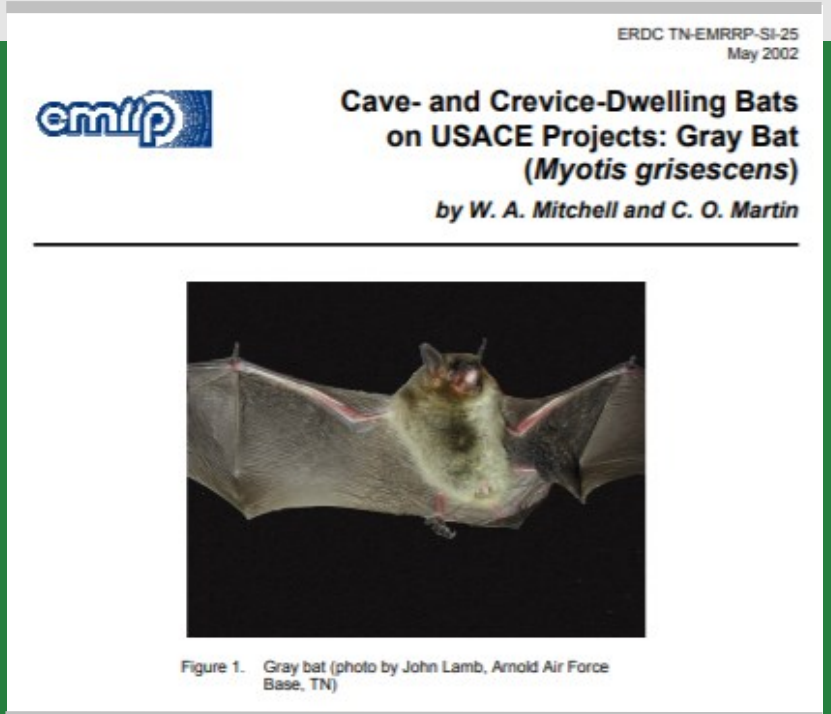
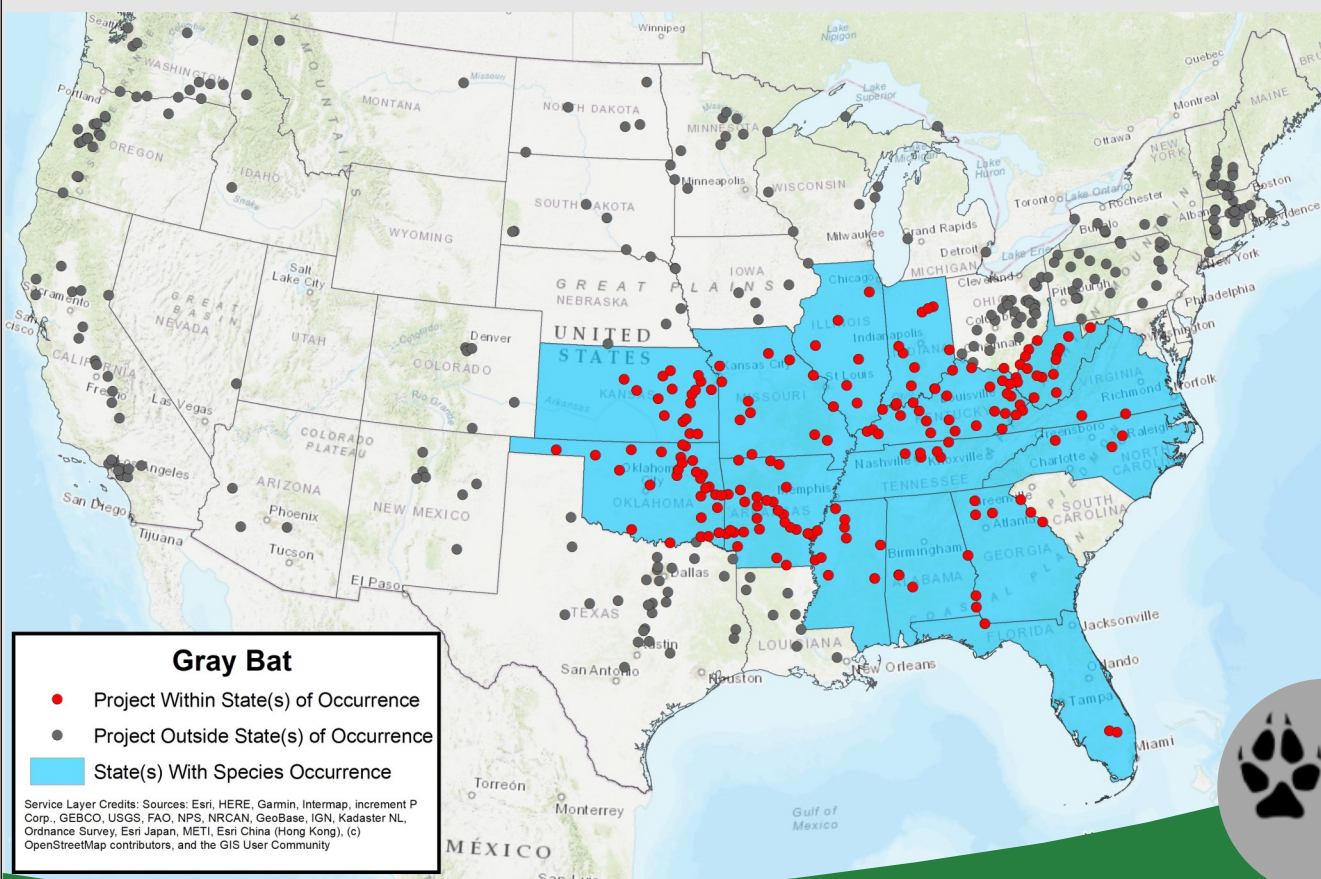


Photo Above: An ERDC Technical Note from the Ecosystem Management and Restoration Program examines gray bat use of USACE lands.



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Source: Map provided by Ashleigh Boss, ORISE Fellow, Institute for Water Resources

