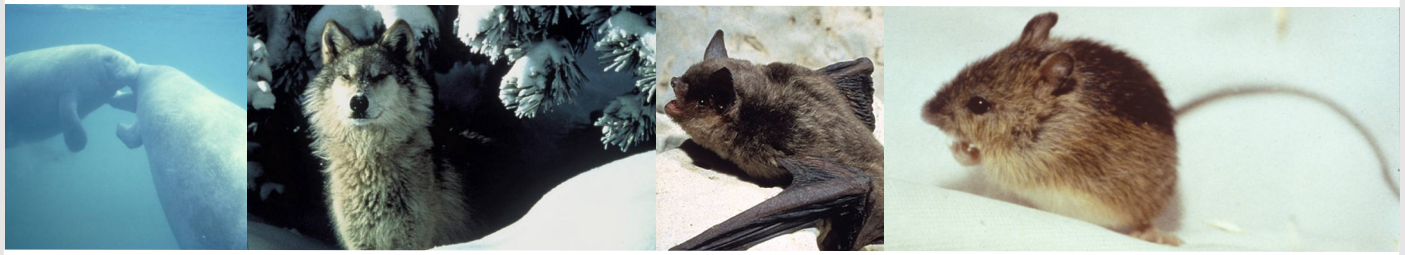


USACE Natural Resource Management Mammals



Purpose

As the manager of over 12 million acres of public lands and waters, the U.S. Army Corps of Engineers (USACE) works to manage and conserve natural resources while providing quality outdoor recreation experiences to the public. The USACE employs both passive and proactive management which sustains healthy ecosystems, promotes vibrant biodiversity, and protects special status species. The following factsheets were developed by the USACE's Natural Resources Management (NRM) Program in order to highlight species specific conservation efforts occurring at USACE projects.



Across USACE's projects there are over 300 unique, federally listed species for which conservation concerns exist. USACE expenditures relating to the Endangered Species Act average around \$230 million each year. Recognizing that USACE missions occur in a complex environment of regulations, compliance requirements, and high costs, the Engineering Research and Development Center (ERDC) and USACE Headquarters formed the

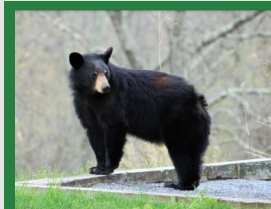
Threatened & Endangered Species Team (TEST). TEST works to accelerate the development of solutions for threatened and endangered species issues that will improve budget planning capabilities and operational flexibility to reduce future costs and adverse impacts to USACE mission execution. These factsheets are intended to complement the TEST initiative by highlighting unique project efforts and promote collaboration.

As part of this effort, the NRM based factsheets also highlight species which are not federally listed. A goal of the NRM Program is to maintain a factsheet for each species reported annually through the NRM Assessment and those for which special conservation efforts at lake and river projects are ongoing. Often these species may be listed at the state level, in State Wildlife Action Plans, or are target species for specific conservation initiative(s).



Canada Lynx

Conservation occurs in a multifaceted, ever-changing set of circumstances which may challenge project-level efforts. For instance, unpredictable changes in temperature and precipitation stemming from climate change will likely influence species' distribution. This complicates planning for future impacts as species may emigrate from, or immigrate to, the project in unpredictable fashions. Similarly, habitat loss, degradation, and fragmentation on lands surrounding USACE projects will influence species' abundance and distribution at the local scale. Changes in habitat and climate may also allow for the increased spread of non-native, invasive species which have the potential to degrade habitat past the point of usability for a species. Funding can also be a hurdle to conservation efforts, as it fluctuates with fiscal years.



Left: A black bear is seen walking through campsites at Baltimore

District's Raystown Lake Project. See how this interloper benefitted the project on page 3!

Photos Above (left to right): West Indian Manatees (USFWS), Gray Wolf (USFWS), Gray Bat (Kentucky Department of Fish & Wildlife), & Preble's Meadow Jumping Mouse (USFWS)

These factsheets have been informed by information provided by the USFWS, the NatureServe Explorer, and many other federal, state, and local organizations.

Natural Resources Management (NRM)

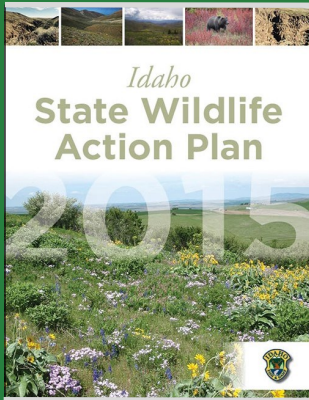
This fact sheet has been prepared as an unofficial publication of the U.S. Army Corps of Engineers (USACE). This online publication is produced to provide its readers information about best management practices related to special status species. Editorial views and opinions expressed are not necessarily those of the Department of the Army. Mention of specific vendors does not constitute endorsement by the Department of the Army or any element thereof.





State Wildlife Action Plans

In 2000, Congress passed the State Wildlife Grant Program (SWG) into law. This program, which is headed by the U.S. Fish and Wildlife Service's Wildlife and Sport Fish Restoration division, works to conserve sensitive or imperiled wildlife species through the provision of funding dollars. The SWG is an effort to take a proactive, preventative approach to conserving species which are not traditionally hunted or fished. The goal of the SWG is to fund early conservation efforts for these species in order to circumvent the need for more drastic and expensive efforts that may be necessary if conservation occurred later. Funds are released annually via congressional appropriations and may be used to address a variety of conservation needs including research, surveys, restoration, habitat management, and monitoring. The SWG is the only federal program with the explicit goal of preventing more species from becoming federally listed.



To be eligible for SWG grant funds, states were required to develop State Wildlife Action Plans (SWAPs). The USFWS outlined basic requirements for

SWAPs. Plans must identify the state's species of greatest concern and conservation need, key habitats and threats, and the actions required to conserve those species and habitats. Federal, State, and local agencies, tribal entities, scientists, recreationalists, and others use these plans to work together as partners in order to conserve species on a statewide scale. These plans act as a blueprint for the conservation of the full spectrum of species.

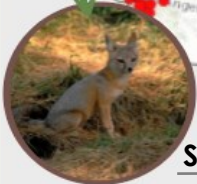
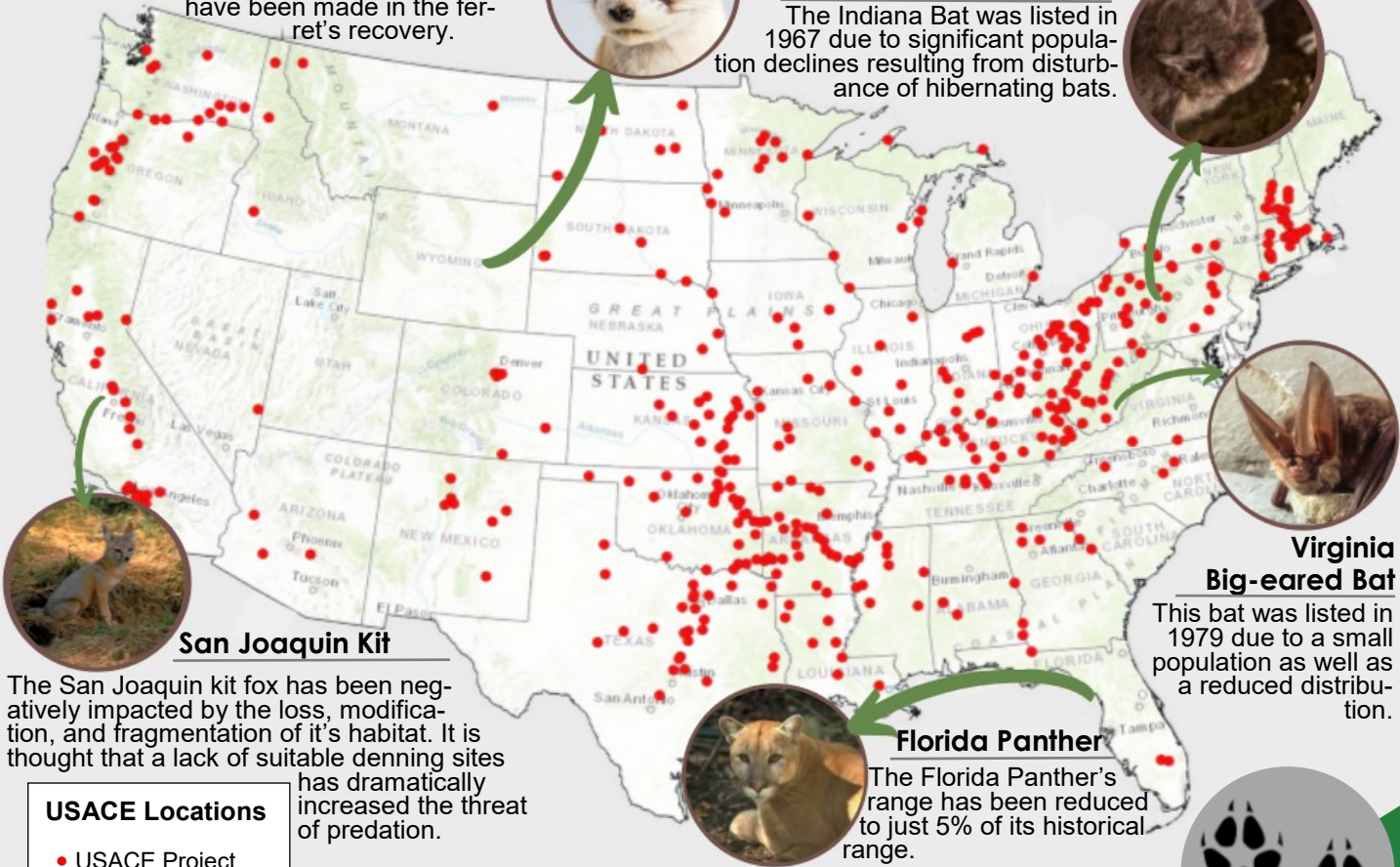
The first SWAPs were completed in 2005 and are required to be updated at least once every ten years. SWG grant funds may be used to update, revise, and modify a state's SWAP. Because the funds are dispensed as an apportionment, the amounts vary based on a formula that considers each State's population and total geographical area. In total, over 12,000 species were listed as having a great conservation need across the 50 states.

Photos: Covers from Idaho and Maryland's State Wildlife Action Plans after the required update in 2015.



Black-footed Ferret

This species' decline was directly linked to the loss of its principal prey species, the prairie dog. Once thought to be extinct, great strides have been made in the ferret's recovery.



San Joaquin Kit

The San Joaquin kit fox has been negatively impacted by the loss, modification, and fragmentation of its habitat. It is thought that a lack of suitable denning sites has dramatically increased the threat of predation.

USACE Locations

- USACE Project

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap

Species Examples

Indiana Bat

The Indiana Bat was listed in 1967 due to significant population declines resulting from disturbance of hibernating bats.



Virginia Big-eared Bat

This bat was listed in 1979 due to a small population as well as a reduced distribution.



Florida Panther

The Florida Panther's range has been reduced to just 5% of its historical range.





Natural Resources Management

In 2016, over 300 unique, federally listed Threatened and Endangered species of concern existed at over 430 USACE projects. (ERDC) Federally listed species account for a small percentage of all species of conservation concern. Management of such a diverse array of special status species, including mammals, is no small task; it requires a multifaceted approach.



Photo, above: This device is an ultrasonic detector. It is able to record the ultrasonic sounds bats use for echolocation. These bat calls are later analyzed by looking at the frequency, shape, and other characteristics of the calls, the species of bat recorded can be determined.

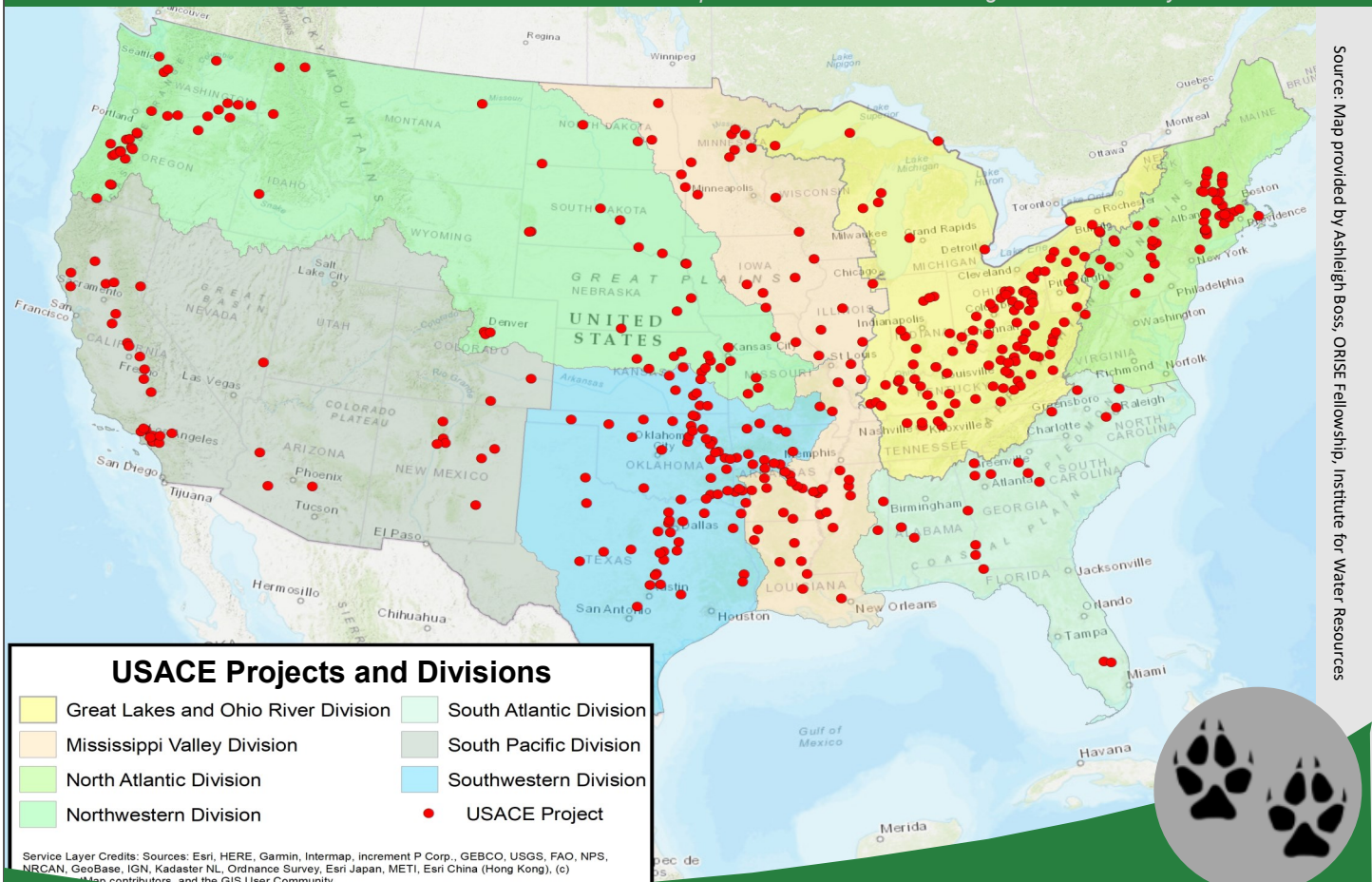
One facet of mammal management that takes place at USACE projects is surveys. Wildlife surveys are performed in order to determine the absence, presence, and abundance of species present on project lands. After initial survey efforts are completed, USACE often engages in species monitoring. Monitoring is the regular observation and recording of a species' population. This is critical for effective conservation as it can allow land managers to notice population declines early. Man-

agers are then able to investigate possible causes of species' decline and coordinate an appropriate course of action to rectify the situation. In 2018 alone, the USACE expended nearly \$17 million dollars on inventory, survey, and monitoring efforts for federally listed species. (USACE Threatened and Endangered Species Costs Estimates Database)

Another important facet of conservation is educating visitors. Many of the federally listed mammalian species have experienced significant population declines resulting from human persecution. For instance, the gray wolf was considered a threat to livestock and consequently shot, trapped, and poisoned at a rapid rate during the 19th and 20th centuries. This was the primary factor in the wolf's listing. Educating visitors on the importance of these species and how to navigate human-wildlife interactions can prevent unnecessary mortality.



Photo, above: The Pennsylvania Game Commission recently gave a program on black bears to visitors at Raystown Lake using a bear captured in the campgrounds. The Game Wardens tagged the bear, discussed monitoring and tracking, explained bear life history and ecological significance, and subsequently released the bear in a nearby state forest. This bear provided a wonderful teaching moment for everyone involved.



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

