



Case Study of Fort Knox

Keys to Success

-  **Project Description**
-  **Economic Value**
-  **Challenges & Advice**
-  **Benefits**
-  **Stewardship Meaning**



A member of KY EXCEL, the Commonwealth’s voluntary environmental leadership program, Fort Knox, a U.S. military installation located near Louisville and famous for storing the nation’s gold bullion, has one of the largest known maternity colonies of federally endangered Indiana bats within the range of the species and the largest in Kentucky. The first maternity colony of Indiana bats on Fort Knox (approximately 150 individuals) was discovered in 1999. The total number of Indiana bats in existence has declined due to white-nose syndrome, a devastating wildlife disease; a lessening and contamination of their insect food supply due to pesticide usage and disturbances by humans during the bats’ winter hibernation in caves and mines. During hibernation, bats cluster in groups of up to 500 per square foot, which means a single event can destroy a large number of bats.

acre Indiana Bat Management Area (IBMA) to manage and increase the population of Indiana bats, and later used this as one of its projects for KY EXCEL. Management activities in the IBMA include wetland monitoring/management, selective girdling of trees to create roosting sites, invasive species removal and timber stand improvement operations to provide a quality foraging habitat.

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In the summer, Indiana bats roost, give birth and rear their young under slabs of loose bark of primarily dead or dying trees. Weighing only a fourth of an ounce, or about the weight of three pennies, Indiana bats are tiny, but in flight have a wingspan of 9 to 11 inches.

The maternity colony at Fort Knox has been monitored each year since its discovery in 2005 through the use of mist netting, radio telemetry and acoustical surveys. In 2006, Fort Knox initiated a project to augment summer roosting habitat through the use of installing artificial bark on standing

Fort Knox established the 1,458-





dead trees in the IBMA near known maternity trees.

Over the course of the artificial bark project, several roost trees fell due to wind or natural deterioration. In 2012, in an attempt to create longer-lasting roosting structures, six power poles, pressure-treated only at the bottom to eliminate possible negative effects to bats, were placed in the IBMA and outfitted with artificial bark. Of the six structures, five had evidence of bat use within 60 days and all showed use within 85 days.

“The main challenge we encountered in this project was getting equipment to the site to erect the poles,” says Watkins. “Basically, it required the same equipment as power/communication companies use to put up utility poles. Indiana bats occur in wooded areas in summer, so it can be challenging to get the roosting structures where they need to be. I recommend a partnership with a utility/communication company, or at least a cost-share conservation program with them.”



Installing an artificial bat roost

Jimmy Watkins, wildlife biologist at the military base said approximately \$50,000 has been spent on the project. Though Fort Knox will not receive any economic value from the bat roosting project, the benefit to the continuation of the species and the environment is significant.

“Bats began using the artificial bark almost immediately,” says Watkins. “As many as 240 bats were observed emerging from two of the trees. Mist netting confirmed pregnant Indiana bats, indicating use as a maternity site.”

of bats can consume thousands of insects per night.

Fort Knox will continue to monitor the artificial roost structures and plans to install them in other areas of where suitable summer Indiana bat maternity habitat exists.



An Indiana bat that has been tagged

Artificial roost structures will last many years, providing quality roosting sites for Indiana bats and other species of tree-roosting bats. Indiana bats eat a variety of flying insects found along rivers or lakes, benefiting humans by feeding on insects that are considered pests or otherwise harmful to people, such as mosquitoes. Indiana bats eat up to half their body weight in insects each night, while a colony

Joseph Yates, chief of the facility’s Environmental Compliance Branch says, “Fort Knox is grateful to KY EXCEL for opportunities to give back to the environment, making being green a wonderful experience.”

HELPFUL HINT: Protecting species from extinction aids in the environmental balance of the Earth, benefiting humans and all living creatures.