



Use of Artificial Roosting Structures by Indiana Bats at Fort Knox, KY

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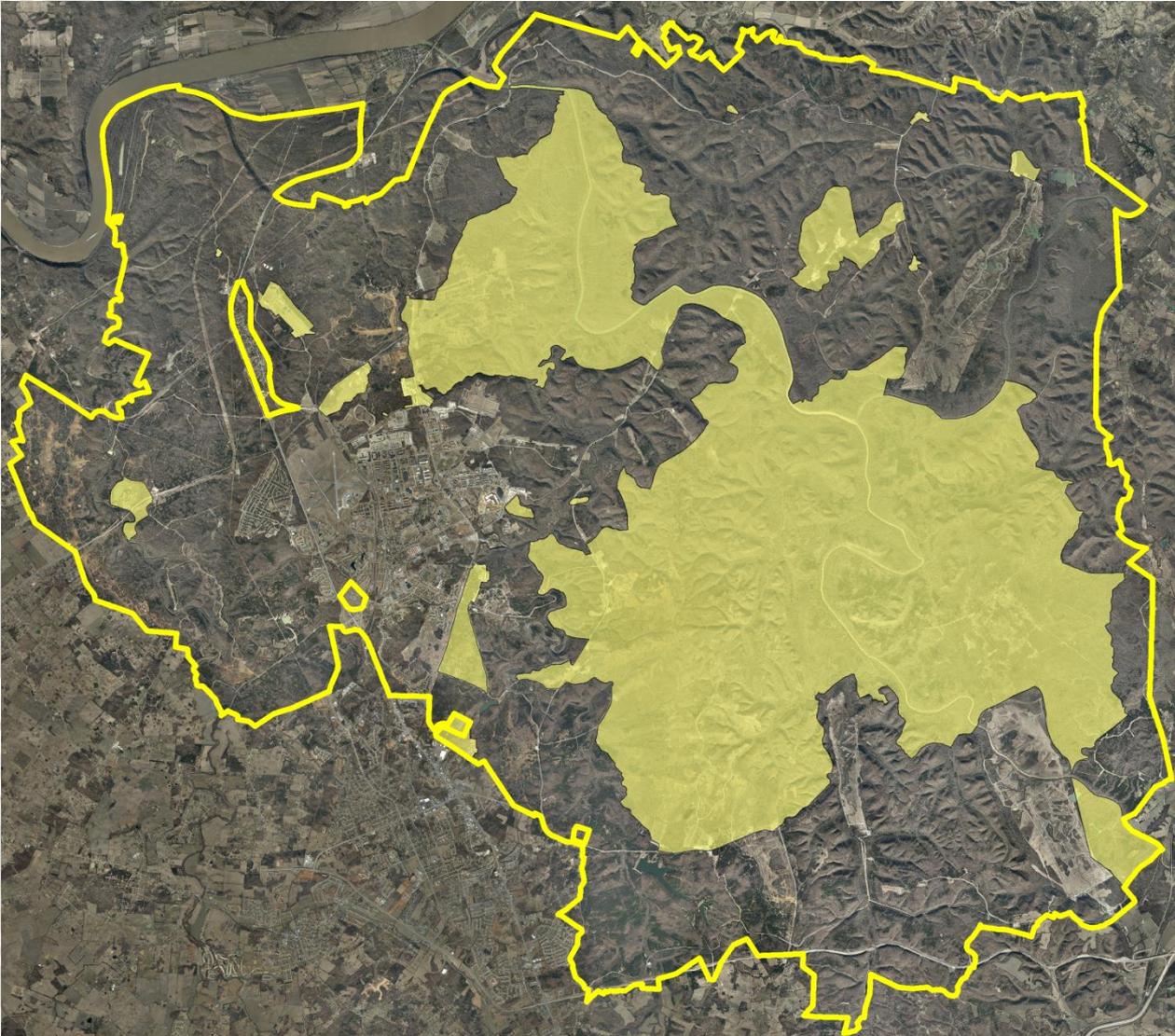




Fort Knox



- Bullitt, Hardin, and Meade Counties
- 108,715 acres (170 sq. miles)
- 81,000 forested acres
- 37,000 manageable forested acres
- 35,000 acres off limits
- Mixed Upland Hardwoods most prevalent forest type
- Oak-Hickory forest type is management priority





Endangered Species



Gray Bat



Indiana Bat



Northern Long-eared Bat

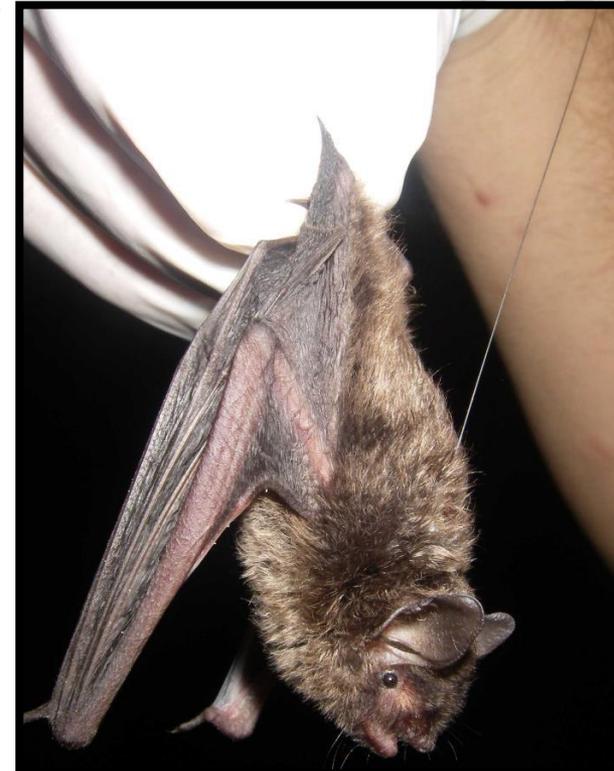


Endangered Species



Indiana Bat:

- Listed as endangered in 1967
- Weighs only ¼ ounce (three pennies)
- Dark-brown to black fur
- Wingspan of 9 - 11 inches
- Mates in fall, stores sperm until spring, gives birth to one pup
- Hibernates in caves or, occasionally, abandoned mines
- Summers in woodlands under loose bark
- 2015 population estimate = 523,000
- Almost half hibernate in caves in southern Indiana





Fort Knox





Endangered Species

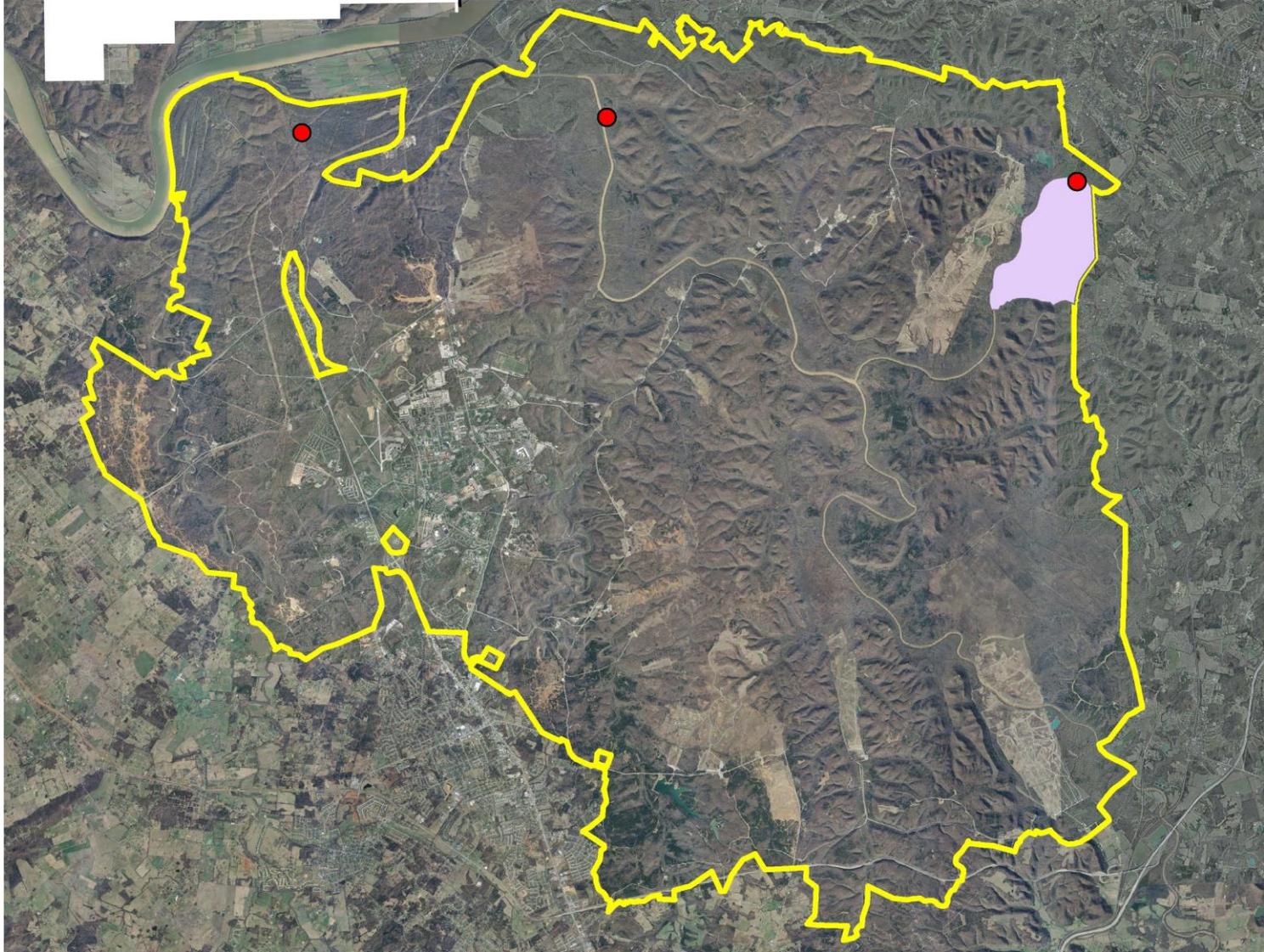


History of Indiana Bats on Fort Knox:

- First documented in March 1982 - single juvenile male in cave, most likely in migration
- First maternity colony found in 1999 at what is now the Wilcox DMPTR
 - 150 Indiana bats emerged from single roost tree
- Indiana Bat Management Area (1,450 acres) established in 2002 as mitigation for the Wilcox DMPTR
 - Maternity colony documented in 2005
 - Roost trees and foraging habitat mapped
 - 282 individuals emerged from natural roost tree in May 2007 (largest in KY at that time)
- 2013 - Maternity colony discovered on western side of installation
 - 435 Indiana bats emerged from artificial structure in 2014 (record for species)
- 2014 - Maternity colony discovered near Salt River in central portion on installation
 - 475 Indiana bats emerged from natural roost tree (record for species)



Fort Knox



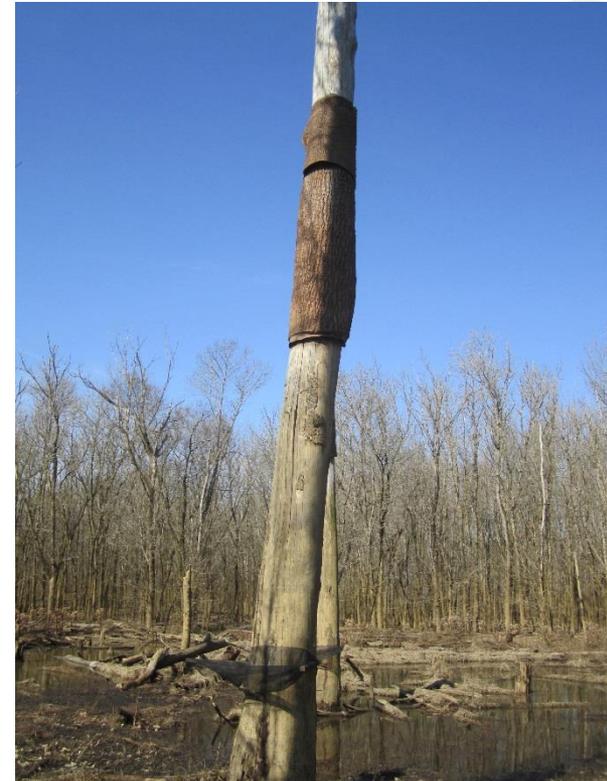


Endangered Species



Roosting Structures:

- Artificial bark installed in 2007 in IBMA
 - 3 different types of bark
 - Documented bat use that year





Endangered Species



Roosting Structures:

- 2012 - completely artificial roost structures installed in IBMA
 - Power poles treated only on bottom, artificial bark on top
 - Documented Indiana bat use that year
- 2013 - artificial roost structures installed in HA6
 - Maternity colony documented August 2013, ~300 individuals
 - 451 bats emerged from artificial roost tree in July 2014





Endangered Species



- Partnered with USFWS, Copperhead Environmental Consulting, and LG&E



Endangered Species



- Artificial roost structures
 - 30 on the landscape at Fort Knox
 - Most have shown evidence of bat use
 - Approved by USFWS as mitigation tool
 - Relatively inexpensive, require little maintenance, and provides immediate roost site
 - Allows flexibility to reduce military training conflicts
 - Will be used for northern long-eared bat





Endangered Species



Questions?

