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ATYPICAL AMERICAN BEECH TREE USED BY INDIANA BAT MATERNITY COLONY

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ABSTRACT. Encountered in Clermont County in southwest Ohio during the summer of 2013, an American beech (*Fagus grandifolia* Ehrh.) snag was being used as a roost by two juvenile male Indiana bats (*Myotis sodalis*) for six days with at least 25 other bats (presumably Indiana bats). More bats were seen emerging from this tree than any of five roost trees at our study site and suggests that it may have been a primary maternity roost tree. Beech trees are rarely observed in use as Indiana bat maternity roosts.

Keywords: Indiana bat, *Myotis*, roost, American beech

INTRODUCTION

The Indiana Bat Draft Recovery Plan (USFWS 2007) states that one American beech tree (*Fagus grandifolia* Ehrh.) was used as a roost by one Indiana bat prior to 2004; it also mentions that beech are rarely used as primary roosts and unlikely maternity roosts. Britzke et al. (2006) describes a female Indiana bat that used a dead American beech for eight days during spring migration. Indiana bats typically use tree species as roosts that provide certain characteristics, such as slabs of exfoliating bark among other criteria (Kurta 2005), which American beech trees do not typically exhibit (USFWS 2007). Trees most commonly used by Indiana bat as roosts include ashes (*Fraxinus* spp.), elms (*Ulmus* spp.), cottonwoods and poplars (*Populus* spp.), hickories (*Carya* spp.), maples (*Acer* spp.), and oaks (*Quercus* spp.) (Callahan et al. 1997; Kurta 2005; Sparks et al. 2005; USFWS 2007; Whitaker & Sparks 2008).

METHODS

Two juvenile male Indiana bats were captured in 2013 during a mist net survey, following federal guidelines (USFWS 2013), in Clermont County, Ohio, southeast of the town of Bethel. A 0.31 g radio transmitter (model no. LB-2N Holohil Systems Ltd., Ontario, Canada) was placed on each bat between their scapula using nontoxic medical glue (Torbot Liquid Bonding Cement, Torbot Ostomy and Medical Supplies, RI). The bats were tracked to day roosts with TRX 2000 radio receivers (Wildlife Materials, Inc.) with either a three-element directional Yagi antenna or an omnidirectional whip antenna. Emergence counts were conducted at each roost for two nights.

RESULTS AND DISCUSSION

Bats were tracked for seven days each to five roost trees; a dead American beech, two dead pin oaks (*Quercus palustris* Münchh.), and two live shagbark hickories (*Carya ovata* (Mill.) K. Koch). Both bats were found in the beech-roost more frequently than other roosts. Other roosts were used only once for a single night when occupied by either bat. Indiana bats are known to switch roosts for a variety of reasons throughout the maternity season (Barclay & Kurta 2007).

Overall the beech-roost appeared to have suitable Indiana bat maternity roost characteristics such as solar exposure and exfoliating bark, even though American beech trees typically do not usually retain slabs of exfoliating bark. The beech-roost had a DBH of 58 cm with approximately 80% exfoliating bark present. The beech-roost was completely broken approximately 4 m from the ground, located in an opening without canopy, and adjacent to many toppled or broken trees, suggesting a weather event may have damaged these trees in the past. The bats were roosting 3 m from the ground, exiting from under a slab of bark on the western portion of the roost.

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A total of 110 bats were seen to emerge from the five roost trees occupied by Indiana bats: 45 from the beech and between 3 and 30 from the other four roosts. The beech-roost had the highest bats emerge over the two consecutive nights of sampling. It also had maternity roost characteristics, thus suggesting that the beech is a primary maternity roost.

Biologists that conduct bat surveys may ignore beech trees and many other tight/smooth barked tree species because they usually lack the characteristics of potential roost trees. This use of a beech could be a rare event, as exfoliating bark is very rare for beech trees. However, this roost tree should demonstrate that biologists should not ignore tree species because they are not considered to be typical.

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