ARTIFICIAL ROOST USE BY NORTHERN LONG-EARED BATS IN WEST VIRGINIA FROM 2016-2017

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Introduction
The populations of many bat species have been in decline due to white-nose syndrome (WNS) (Kunz et al. 2011, Grange 2015). Among these bat species, the northern long-eared bat (Myotis septentrionalis) (NLEB) is thought to be most vulnerable to extinction (Silvis et al. 2016). The NLEB was listed as Federally Threatened in April 2015 (USFWS 2018). To offset forest loss, the United States Fish and Wildlife Service (USFWS) West Virginia Field Office (WVFO) has required artificial roosts as conservation measures for Rare, Threatened, and Endangered (RTE) bats.

Objectives
• Determine if artificial roost structures have had a positive impact (i.e. reproduction, roosting networks, etc.) on northern long-eared bat conservation in West Virginia.
• Determine if the Myotine Suitable Habitat Assessment Model (MSHAM) (De La Cruz and Ward 2016) was useful in placement of artificial roosts.

Study Area
West Virginia
• Artificial roosts installed on 59 sites in ten (10) counties throughout West Virginia (WV): Brooke, Boone, Clay, Doddridge, Marshall, Pleasants, Ritchie, Tyler, Webster, & Wetzel.

Materials & Methods
Artificial Roost Design & Construction
• AllStar Ecology, LLC. (ASE) designed and produces three (3) types of artificial roosting structures:
  • Two-chambered rocket box
  • Four-chambered nursery box
  • Artificial bark

Artificial Roost Installation
• Roosts installed using the MSHAM to aid in placement.
• Total of 490 roosts installed (380 two-chambered rocket boxes, 53 four-chambered nursery boxes, and 57 artificial barks).

Artificial Roost Monitoring Surveys
• Bi-annual occupation surveys occurred May-August 2016-2017 using a red LED to determine bat occupancy.

Artificial Roost Bat Capture
• If bats were present in an artificial roost, capture was attempted that evening by a permitted biologist to determine species composition and reproductive status.

Results
• Site occupancy averaged 72.9% for both years.
• Box occupancy rose by 24.64% for roosts in their 2nd year of monitoring.
• 2016 – 8 NLEB maternity colonies found in artificial roosts.
• 2017 – 14 NLEB maternity colonies found in artificial roosts.
• Site fidelity at 5 of 59 sites in 2017.

Fig. 3: From L to R: 2-chambered rocket, 4-chambered nursery, and artificial bark.

Discussion
• Higher artificial roost occupancy and maternity colonies in 2nd year due to longer time period on the landscape.
• Higher bat occupancy seen in higher MSHAM ratings.

Conclusions & Management Implications
• NLEBs use artificial roosts as part of their roosting network and reproduction process in WV.
• Success has shown artificial roosts as viable conservation measures after tree clearing.
• MSHAM was useful in placement as the higher the rating, the more likely a bat would occupy a structure.

Literature Cited
2. Grange, B. 2015. Biological Assessment on the Northern Long-Eared Bat (Myotis septentrionalis) and Indiana Bat (Myotis sodalis) Indian Point Nuclear Generating Units 2 and 3 Proposed License Renewal. U.S. Nuclear Regulatory Commission Rockville, Maryland: Docket Numbers: 50-0247 30-0248.

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