Preference in Bat House Design by the Evening Bat (*Nycticeius humeralis*)

KRISTEN M. LEAR¹, ELIZABETH C. BRAUN DE TORREZ², THOMAS H. KUNZ²

¹Department of Zoology, Ohio Wesleyan University, Delaware, OH, 43015, USA
²Department of Biology, Boston University, Boston, MA, 02215, USA

**Introduction**

Bat houses used to attract bats

Little research on species-specific preferences

Evening bats (*Nycticeius humeralis*) may be especially beneficial in pest suppression because they:
- ♦ are site faithful
- ♦ forage within canopy of pecan orchards
- ♦ have small foraging ranges
- ♦ prefer orchards with old pecan trees
- ♦ consume pecan nut casebearer (*Acrobasis nuxvorella*) moth pest

Evening bats declining due to loss of old growth forest

What is the most effective bat house design for attracting Evening bats?

**Methods**

Standard medium three-chamber house

Two-chamber rocket box

Nine pairs in three pecan orchards

Thermal camera observations of exploratory behavior

**Results**

Guano collection:
- Positive Evening Bat* (PEB) pellets and “Unidentifiable” pellets

<table>
<thead>
<tr>
<th>Exploratory behavior:</th>
<th>Mean Number Half Circles</th>
<th>Mean Number Roof Touch &amp; Go</th>
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<tbody>
<tr>
<td>Pole touch and go</td>
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<tr>
<td>Roof touch and go</td>
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<tr>
<td>House touch and go</td>
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<tr>
<td>Pole land</td>
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<tr>
<td>Land</td>
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Mann-Whitney U (95% CI):
- Half circle: W = 6200.00, n = 164, P = 0.032
- Roof touch & go: W = 6431.00, n = 164, P = 0.033

No other significant differences in exploratory behavior.

**Discussion**

- Some exploratory behavior preference for rocket box
- Preliminary guano analysis indicates Evening bats prefer rocket box
- Rocket box resembles old tree hollow
- Attract Evening bats to conventional pecan orchards, areas with no large, old trees
- Reduce pests and provide roosts

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