Examining atypical vocal production of great calls and codas in white-handed gibbons (Hylobates lar)

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Abstract

White-handed gibbons (Hylobates lar) are an endangered species of lesser ape from southeast Asia, and are known for their territorial behavioral displays. As part of these displays, female H. lar will produce a loud, stereotypical vocal sequence called a great call. The great call is followed by a male vocal sequence called a coda. Captive gibbons, similar to wild gibbons, are capable of producing great calls and codas; however, the group dynamics of captive gibbons varies drastically from wild gibbons. Whether atypical group dynamics have any effect on the quality and duration of great calls and codas remains unclear. Our current study focuses on examining the production and usage of great calls and codas in wild and captive H. lar. It is hypothesized that captive gibbons will not produce stereotypical great calls and codas. In this study, vocalizations were recorded at a 44.1 kHz sampling rate using Sony DAT recorders and Sennheiser directional microphones. A total of 13 groups consisting of 2-6 individual gibbons (46 individuals total) were recorded. Data from five of these groups were selected for this research based off of their level of habituation to human observers (See Table 1).

Methods

Data Collection

Wild white-handed gibbons were recorded at the Khoa Yai National Park in Thailand during the 2004-2005 field seasons. All recordings were made at a 44.1 kHz sampling rate using Sony DAT recorders and Sennheiser directional microphones. A total of 13 groups consisting of 2-6 individual gibbons (46 individuals total) were recorded. Data from five of these groups were selected for this research based off of their level of habituation to human observers (See Table 1).

RESULTS AND DISCUSSION

This study found that there was no significant difference in the duration of the coda between the three test groups (p-value = 0.699), but there was a significant difference (p-value=0.0176) in the length of the great calls.

Great Call Summary

The mean length for the captive male gibbon great calls (n = 59) was 13.56 ± 5.16 s. The mean length for the captive female great calls (n = 63) was 18.19 ± 6.29 s. The mean length for the wild female great calls (n = 65) was 18.3 ± 3.21 s. See figures 1 and 2 for representative great calls from each group.

Coda Summary

The mean length for the captive male gibbon coda (n=19) was 3.61 ± 1.16 s. The mean length for the captive female coda (n=24) was 5.20 ± 1.69 s. The mean length for the wild male codas (n=54) was 3.28 ± 1.18 s.

Based upon the results of this study, there is evidence to suggest that H. lar has the ability to learn some aspects of their vocal communication system and that this ability persists into adulthood. These findings will change how we are approaching captive release of gibbons into wild habitats and how we view vocal communication of lesser apes.

Acknowledgements & References

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Table 1: Wild gibbon groups are identified by their territorial boundaries and labeled with letters, B, H, N, R, and T. Abbreviations are as follows: HVZ - Henry Vilas Zoo; AF - adult female; AM - adult male; SAM - subadult male; JM - juvenile male; FM - juvenile female; F - female; M - male; T - infant of unknown sex.

<table>
<thead>
<tr>
<th>Group Name</th>
<th>Captive</th>
<th>Wild</th>
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<tbody>
<tr>
<td>Number of Recording Sessions</td>
<td>14</td>
<td>12</td>
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<tr>
<td>Number of Great Calls</td>
<td>63F:59M</td>
<td>1AF:1AM</td>
</tr>
<tr>
<td>Number of Codas</td>
<td>24F:19M</td>
<td>1AF:1AM</td>
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</tbody>
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References


