**Variable density responses of primate communities to hunting pressure in a western Amazonian river basin**

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**Introduction**

- Game hunters are highly selective, targeting large-bodied vertebrates2 and often ignoring smaller ones1.2
- Small vertebrates may exhibit a compensatory response from competitive release in the absence of large vertebrates1,3,4.
- We examine the density responses of hunted and nonhunted primate populations in the Madre de Dios river basin, Peru.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Latin Name</th>
<th>Body Mass (kg)</th>
<th>Hunting Preference*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spider monkey</td>
<td>Ateles chamek</td>
<td>~10</td>
<td>Predominant</td>
</tr>
<tr>
<td>Red howler monkey</td>
<td>Alouatta seniculus</td>
<td>6.5</td>
<td>Moderate</td>
</tr>
<tr>
<td>Howler Capuchin</td>
<td>Cebus albifrons</td>
<td>3.5</td>
<td>Predominant</td>
</tr>
<tr>
<td>White-faced Capuchin</td>
<td>Cebus albifrons</td>
<td>2.7</td>
<td>Moderate</td>
</tr>
<tr>
<td>Squirrel monkey</td>
<td>Saimiri sciureus</td>
<td>0.9</td>
<td>None</td>
</tr>
<tr>
<td>Saddleback tamarin</td>
<td>Saguinus fuscicollis</td>
<td>0.8</td>
<td>Predominant</td>
</tr>
<tr>
<td>Emperor tamarin</td>
<td>Saguinus imperator</td>
<td>0.8</td>
<td>Predominant</td>
</tr>
</tbody>
</table>

- We hypothesize that primate responses to hunting is influenced by reproductive rate, with strong interspecific variability. Inefective extraction and relaxed competitive interactions with extirpated large primates facilitate increasing density of the smallest-bodied species.

**Methods**

- **RA**, La Amazonia Biological Station (RA, low protection), Los Amigos Biological Station (LA, medium protection), and Tambopata Research Center (TRC, high protection). Alien or surrounding field sites is reduced in size to factor in land use change (RA) and estimate mining pools (LA).

- **Results**
  - **Hunting Pressure**
    - Figure 1: Field sites and transects. Reserva Amazónica (RA, low protection), Los Amigos Biological Station (LA, medium protection), and Tambopata Research Center (TRC, high protection). Alien or surrounding field sites is reduced in size to factor in land use change (RA) and estimate mining pools (LA).
  - **Discussion**
    - Reductions of large dominant species such as the spider monkey (Ateles chamek) and howler monkey (Alouatta seniculus) impact the broader faunal assemblage.
    - Exigent population growth of Ateles chamek across a 30 year period in Cocha Cuchi1,3,4 suggests very slow recovery from hunting pressure more than 75 years prior1,2.
    - Smaller primates are normally subordinate to larger ones and subject to frequent agonistic displacement at fruting trees2,5,6, absence of large primates may free up space, time, and resources with relaxed-inter-specific competition.
    - As smaller relative body size is a predictor of higher intrinsic rate of population increase4,6, and shorter interbirth interval may be a function of smaller relative brain weight1,2, smaller primates boost greater resilience to hunting pressure.
    - **Discussion**
    - **Med.-bodied (Cebus albifrons, *C. apella*)
      - **Large-bodied (Saguinus seniculus, Saimiri fuscicollis)**

**Acknowledgments**

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**References**


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**Figure 1:** Densities of focal species by body size and hunting pressure at three sites. CV values are as follows: large primates 58.8 (TRC), 38.7 (LA), mid-sized primates 18.6 (TRC), 42.6 (LA), small bodied primates 26.8 (TRC), 31.1 (LA), 30.5 (RA).

**Figure 2:** Densities of focal species by body size and hunting pressure at three sites. CV values are as follows: large primates 58.8 (TRC), 38.7 (LA), mid-sized primates 18.6 (TRC), 42.6 (LA), small bodied primates 26.8 (TRC), 31.1 (LA), 30.5 (RA).

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**Table 1:** Common Names, Latin Names, Body Mass, and Hunting Preference of the Primate Species in Study.

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**Table 2:** Common Names, Latin Names, Body Mass, and Hunting Preference of the Primate Species in Study.