11 • Predation risk and antipredator adaptations in white-faced sakis, *Pithecia pithecia*

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**Introduction**

The risk of predation poses a constant threat to the lives of primates living in natural habitats, and the study of its influence on many aspects of primate life has a long legacy in the history of primatology (Crook and Gartlan 1967, Eisenberg et al. 1972, Hart 2000, Kummer 1967, Terborgh 1983, Terborgh and Janson 1986). While these studies have been largely theoretical in nature, it seems clear that a number of different biological, ecological, and behavioral variables interact to constitute a given species' response to the threat of predation. Thus, for example, large body size may reduce the number of potential predators, a species may avoid areas where the density of predators (i.e., risk) is high, or small-bodied species may adopt a cryptic strategy in an effort to escape detection. Socially, individuals may give alarm calls to warn other members of the group in the event of danger, and/or manipulate their spatial proximity to other group members under different risk regimes (i.e., area or conditions of high vs. low risk, see Ydenberg 1998).

While problems exist in the interpretation of how these adaptations have evolved in concert with other social characteristics, it is difficult to imagine that the threat of being eaten represents anything but a strong selective force in the lives of nonhuman primates. Indeed, it is difficult to conceive of an ecological variable more closely related to individual fitness than the threat of death. However, predation is rarely observed directly, and this fact has led some to suggest that it may be of little consequence for the evolution of social structure (e.g., Cheney and Wrangham 1987). It is true that primatologists are limited to secondary sources of data (playback experiments, estimates of vigilance, alarm calling) when studying predation, and that there have been very few studies conducted from the predator's point of view (e.g., Emmons 1987, Rettig
the loss of both production and prey.

Owing to these factors, the understanding of the interaction and their influence on
the ecosystem is of great importance. The presence of both production and prey can only occur in an
environment where the species coexist and interact. The balance between these factors is crucial to
the sustainability of the ecosystem. The eradication of either factor can lead to the collapse of
the ecosystem, as one factor may be highly dependent on the other. The importance of
understanding these interactions is highlighted by the fact that the ecosystem is highly
sensitive to changes in the environment.

Table II. Potential and actual production of protein-carrying organisms in the region

Table 2.1: Potential and actual production of protein-carrying organisms in the region

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
<th>Potential Production</th>
<th>Actual Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sardine</td>
<td>Trachurus symmetricus</td>
<td>1,200 kg</td>
<td>1,000 kg</td>
</tr>
<tr>
<td>Herring</td>
<td>Clupea harengus</td>
<td>800 kg</td>
<td>500 kg</td>
</tr>
<tr>
<td>Mackerel</td>
<td>Scomber scombrus</td>
<td>600 kg</td>
<td>400 kg</td>
</tr>
</tbody>
</table>

The table above shows the potential and actual production of protein-carrying organisms in
the region. The potential production is based on the species' natural reproduction rates,
while the actual production is based on the observed abundance in the area. It is clear
from the table that the actual production is significantly lower than the potential production,
indicating the need for conservation efforts to ensure the sustainability of these species.
individuals were fully exposed to human observers.

In this study, the partition between the areas of the lake

was determined by the presence of a physical barrier near the

edges of the lake. This barrier was composed of rocks and

reeds that prevented direct access from the shoreline.

Experimental Design

The experiment was conducted during the

months of April and May. The lake was divided into

two sections: an open section and a closed section.

The open section was fenced with a wire mesh to

prevent any movement of individuals across the

boundary. The closed section, which was located

within the lake, served as a control.

Subjects

The individuals selected for the experiment were

fish, specifically the species A. nigricans. These fish

are known to be highly territorial and

aggressive towards their neighbors.

Results

During the experiment, the fish in the open

section showed a marked increase in their

territorial behavior, while those in the closed

section remained relatively calm. This difference

was statistically significant, as determined by a

t-tests analysis.

Discussion

The findings of this study suggest that

physical barriers can have a substantial impact on

the behavior of territorial animals. This is particularly

true for species that are known to be highly

aggressive towards their neighbors. Further

research is needed to determine the long-term

effects of such barriers on the overall health of the

population.

Acknowledgments

The authors would like to thank the

participants in this study for their cooperation and

support. Special thanks go to [names of

participants].
Results

Data collection

\[ \text{na + nb + nc + nd} = \text{C1} + \text{Z + 4na + 3nb + 2nc + nd} \]
Group size:

Adequate to have an effect on forest fire success for individual white.

Prediction Risk and Attribution Adapтвержден in SAMS

T.M. Givens & M.A. Morgan
Acknowledgements

Conclusion


Eat or be Eaten
Predator Sensitive Foraging Among Primates

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