

Hunting Restraint by Creoles at the Community Baboon Sanctuary, Belize: A Preliminary Survey

Clara B. Jones

*Department of Psychology
Livingstone College*

Jessie Young

*Community Baboon Sanctuary
Belize City, Belize*

This study surveyed 33 male hunters between the ages of 17 and 54 at the Community Baboon Sanctuary (CBS), Belize, to evaluate attitudes and behaviors in relation to hunting black howler monkeys (*Alouatta pigra*). The study defined hunting restraint as a learned predisposition not to hunt 1 or more species of nonhuman animal. Consistent with Belizean folklore, Creoles at the CBS exhibited hunting restraint with respect to black howlers, preferring to kill bushmeat other than monkeys. The most cited reasons for the observed hunting restraint were utilitarian. Historical and cultural factors also appeared significant. The study results are interpreted in terms of economic theory and suggest that disinhibition of hunting restraint might depend on changes in opportunity costs of hunting these primates. Nonetheless, a change in hunting attitudes and behaviors by Belizean Creoles seems unlikely in the near future because the local and national government and the benefits of ecotourism economically and legally protect howlers. The Creoles' culturally transmitted hunting restraint also culturally protects *A. pigra*, and the species is not a preferred source of food.

Anthropogenic factors have caused a worldwide biodiversity crisis leading to the extinction or endangerment of nonhuman animal populations (Ceballos &

Ehrlich, 2002) and species (Myers, Mittermeier, Mittermeier, da Fonseca, & Kent, 2000). Ceballos and Ehrlich (2002) showed that extinctions of mammal populations are most likely to occur in association with high human population density, intensive agriculture, grazing, desertification, and hunting. Redford (1992) concluded that deforestation is the major cause of population and species extinction in rainforests of the Neotropics, although where forest remains standing, hunting presents the greatest threat to wildlife. Wilkie and Godoy (2001) argued that bushmeat hunting is important to household economies in many areas of the Neotropics and argued that decreasing demand for bushmeat may require increasing its price, increasing the direct and opportunity costs of hunting, and raising household income.

The threat to primates from bushmeat hunting has been well documented for African species (Cowlshaw & Dunbar, 2000; Wilkie, Curran, Tshombe, & Morelli, 1998), especially the charismatic great apes (Bakarr, da Fonseca, Mittermeier, Rylands, & Painemilla, 2001; Wilkie & Carpenter, 1999). Much less attention has been focused on the causes and consequences of hunting for primate populations and species in the Neotropics (Agoramoorthy & Lohmann, 1999; Alvard, Robinson, Redford, & Kaplan, 1997; Auricchio, 1997; Cowlshaw & Dunbar; Crockett, 1998; Defler, 2001; de Thoisy, Massemin, & Dewynter, 2000; Hill et al., 1997), especially Mesoamerica.

This article has two goals. First, we report the results of a survey of hunting attitudes and behaviors among Creoles (Belizeans descended from African slaves) at the Community Baboon Sanctuary (CBS) in Belize. We attempted to assess the reputed absence of primate hunting in this community to identify factors associated with hunting restraint, which we define as a learned predisposition not to hunt one or more species of animal. In particular, we discuss hunting restraint in relation to the aesthetic, moral, ethical, social, legal, and utilitarian concerns of our respondents to evaluate the likelihood of continued primate hunting restraint in the face of encroaching habitat destruction and ongoing economic uncertainty. The second goal of this article is to update information on the CBS as a model for participatory ecotourism development presented by Alexander (2000). We hope to provide evidence for a constructive and continuing process of local management not fully revealed in the earlier report.

METHOD

Study Site and Animals

Belize is a biologically rich nation with original forest cover still remaining estimated from 31% in riparian habitat (DiFiore, 2002) to approximately 60% for the whole country (Forest Resources Assessment Programme, 2000). Population

density is among the lowest in the world, with approximately 250,000 inhabitants occupying 22,960 square kilometers (Horwich & Lyon, 1990). This study was conducted at the CBS, 17°33'N, 88°35'W (Alexander, 2000), a managed reserve of 47 square kilometers formed in 1985 by cooperative agreement among private landowners in nine villages (Horwich, 1990). The human population of the CBS is approximately 1,500 individuals (≈ 106.38 individuals/km²). Not all residents of the villages belong to the CBS. However, in this article, *the CBS* is used to refer to all villages and their residents, unless noted otherwise, because the CBS directors manage the whole sanctuary.

Before 1993, the Belize Audubon Society managed the CBS. From 1993 to 1998, the CBS was managed locally by committees of residents. Since August 1998, the reserve—still under local control—has been managed by the Women's Conservation Group, with input and assistance from the United Nations Development Programme, the Protected Areas Conservation Trust, and the Programme For Belize.

The CBS is a mosaic of small farms, pastures, and secondary tropical moist semideciduous forest fragments, including riparian habitat along the Belize River (Horwich & Lyon, 1990; Lyon & Horwich, 1996). The landscape of the CBS changes continuously due to farming, including "milpa" (slash and burn) agricultural practices, and clearing for other reasons (Lyon & Horwich, 1996). Nonetheless, large areas of the CBS are revegetating, providing secondary habitat for numerous species of plants and animals (Horwich & Lyon, 1990). The flora and fauna of the CBS are described in Horwich and Lyon (1990), Silver (1998), and Silver, Ostro, Yeager, Koontz, and Horwich (1998).

Black howler monkeys (*Alouatta pigra*) and Central American spider monkeys (*Ateles geoffroyi*) are the only nonhuman primates inhabiting the forests of Belize (Groves, 2001; Rylands, Mittermeier, & Rodriguez-Luna, 1995). Black howlers are classified at a low risk of extinction according to the Mace-Lande system (Rylands et al., 1995), although populations may be endangered locally or extinct (Horwich, Koontz, Saqui, Saqui, & Glander, 1993). Black howlers, called "baboons" in Belize, are the only primate species found at the CBS, having been studied there since 1979 (Bolin, 1981), with systematic longitudinal research beginning in 1983 (Horwich & Gebhard, 1983). Although black howlers may be found in multimale-multifemale groups, they generally are polygynous, with groups composed of a single male and up to four females and their offspring (Horwich, Brockett, James, & Jones, 2001a, 2001b).

In reports from the CBS for a 10-year period, population densities were among the highest documented in the literature for *A. pigra*, with a population density of 178.19 individuals per square kilometer in 1999 (Horwich et al., 2001a, 2001b). However, populations of these monkeys may be decimated by violent storms (Bolin, 1981; Pavelka, Brusselers, Nowak, & Behie, 2003) and yellow fever epidemics (Crockett, 1998). Similar to other species of the genus,

black howlers are wholly herbivorous and relatively sedentary (Crockett & Eisenberg, 1987).

Survey of Human Participants

Previously, Hartup (1994), Bruner (1993), and Alexander (2000) studied hunting attitudes of CBS residents. However, the research reported here, unlike these prior investigations, was based exclusively on interviews with hunters rather than the general population of the sanctuary. Hartup's findings, collected in 1988, and Bruner's, collected in 1992, showed that intrinsic factors (black howlers are "harmless") dominated residents' views of *A. pigra*. Bruner also found a significant increase in the tourism and economic (utilitarian) benefit from 1988 to 1992, indicating the increased importance of howlers as ecotourism attractions and revenue boosts.

Our survey (available on request) of attitudes and behaviors in relation to hunting was developed by the first author and administered to a convenience sample of 33 male hunters at the CBS by the second author, a community resident. It was designed to verify and then identify factors influencing the reputed hunting restraint of Creoles. Participants were surveyed during single sessions at their residences between July 18, 2000 and August 1, 2000, and their verbal responses to the 12 survey questions were recorded by the second author. To avoid biasing responses, the recorder did not prompt participants. However, in some cases, particularly for the completion of a five-interval Likert scale (Question 12 of the survey) measuring the frequency of hunting ranging from 1 (*very often*) to 5 (*almost never*), it was necessary to explain the measurement tool. Participants were at liberty to refrain from answering any question. All but one participant was 18 years of age or older, and verbal approval was obtained from parents of the single 17-year-old participant.

RESULTS

Results of the survey were analyzed with the nonparametric chi-square (χ^2) test (test of proportions, two-tailed), and significance level was set at 5%. In our analyses, N is sometimes greater than or less than 33, indicating that not all participants responded to a particular question or that some respondents provided more than one answer.

Participants ranged in age from 17 to 54 years ($N = 33$). Mean age of the sample was 35.5 years ($SD = 10.98$).

Bushmeat Hunted

Table 1 presents the findings of the question, "What is your favorite bushmeat to eat?" One respondent listed two favorites. All favorites are nonflying terrestrial

TABLE 1
Species Chosen by Hunters As Their Favorite Bushmeat, Including Scientific Name,
Common Name, Local Name, and Frequency

<i>Scientific Name</i>	<i>Common Name</i>	<i>Local Name</i>	<i>Frequency</i>
<i>Agouti paca</i> ^a	Paca	Gibnut	10
<i>Odocoileus virginianus</i> ^a	White-tailed deer	Deer	9
<i>Pecari tajacu</i> ^a	Collared peccary		
<i>Tayassu pecari</i> ^a	White-lipped peccary	Wari	6
<i>Cabassous centralis</i> ^a	Armadillo		5
<i>Nasua narica</i> ^a	Coatimundi	Quash	2
<i>Mazama americana</i> ^a	Red brocket	Antelope	1
<i>Dermatemys mawii</i> ^b	Central American river turtle	Chicatee	1

Note. $N = 34$. Frequency = number of times chosen as favorite.

^aMcCarthy, 1998. ^bR. Horwich (personal communication, May 2002).

or semiterrestrial species (primarily mammals) active during the day or during crepuscular hours. "Gibnut" (paca) and deer are preferred over other types of bushmeat, $\chi^2(6) = 17.06$, $p < .01$. Opossum (*Didelphis marsupialis* and/or *D. virginiana*) and rabbit (*Sylvilagus brasiliensis*) also were listed as bushmeat hunted; however, these species were not selected as favorites by any respondent.

Frequency of Hunting

Ten participants responded that they hunted very often; 7 responded often; 6 responded sometimes; 6 responded not very often; and 4 responded almost never, $\chi^2(4) = 2.89$, $p > .05$. Two participants who claimed to hunt very often mentioned, parenthetically, to the second author that they hunted one to three times per week. The second author estimated that approximately 55 male residents of the CBS were hunters at the time of the survey.

Predisposition to Hunt Black Howlers

Results in this section are summarized in Table 2. Thirty-one participants responded that they had never killed a black howler monkey. One respondent admitted to killing a "baboon" to capture an immature monkey as a pet, and one respondent admitted to killing a spider monkey. Participants were also asked whether they knew anyone who hunts black howlers. Thirteen of 33 respondents (39%) answered yes, $\chi^2(1) = 4.84$, $p < .05$. When asked if those claimed to hunt black howlers were Creoles, only 1 respondent answered yes, $\chi^2(1) = 88.36$, $p < .001$, although this respondent stated that the individual was a Belize-American who hunted the monkeys "just for fun."

TABLE 2
Summary of Responses to Five Questions in the Present Hunting Survey

Question	Yes	No
1. Have you ever killed a "baboon" (i.e., a black howler monkey)?	1	32
4. Do you know anyone who hunts the "baboons?"	13	20
5. If yes, are they Creoles?	1	15
8. If all the bushmeat disappeared from the forest, would you hunt the "baboons?"	0	33
10. Would you hunt monkeys other than "baboons?"	2	31

Most of our respondents claimed to know no one who hunted *A. pigra*, and almost all those claiming to know someone who hunts black howlers failed to implicate Creoles. The Chinese population and British soldiers were cited as non-Creoles in Belize who hunt black howlers. When asked whether they would hunt black howlers if all the bushmeat disappeared from the forest, all participants responded no ($n = 33$). Two respondents stated that they would hunt monkeys other than "baboons."

Reasons Cited for Hunting Restraint in Relation to Primates

In a preliminary attempt to identify causes of hunting restraint by Creoles at the CBS, respondents were asked to cite reasons for their hunting behavior. Fourteen respondents cited utilitarian reasons such as economic benefit from ecotourism (Bruner, 1993), 6 cited historical or cultural reasons ("They're just like humans."), 6 cited legal reasons, 4 cited personal reasons or reasons that were not easily classified ("They're cute."), and 2 cited moral or ethical reasons ("I never thought it was a good thing to do."), $\chi^2(4) = 13, p < .02$. The most common utilitarian reasons for hunting restraint cited by our respondents were (a) howlers are not eaten ($n = 3$), (b) self or parents have cooperative agreement with CBS ($n = 4$), and (c) have no reason to ($n = 4$).

We further asked participants to report who taught them not to hunt black howlers. Eighteen respondents cited parents or grandparents, 11 cited the CBS (implying educational programs sponsored by the management of the reserve), and 9 cited no one (implying that these hunters taught themselves, probably through social and observational learning). The comparison is not significant, $\chi^2(2) = 3.52, p > .05$.

As reported earlier, each of our participants claimed that he would not hunt black howlers even if all other bushmeat disappeared from the forest. Respondents were asked to explain their answers with an open-ended question. Twelve hunters responded that they do not eat black howlers, 12 that black howlers should be protected for their economic benefit, 11 that black howlers are like human beings, and

1 that *A. pigra* should be protected for future generations, $\chi^2(3) = 9.55$, $p < .05$. Again, utilitarian reasons (that *A. pigra* is not eaten and that these monkeys provide economic benefits) are a dominant category of response (24 of 36 responses, 67%), although the response that black howlers are not eaten is ambiguous because it does not clearly indicate the respondents' rationales.

We asked participants why they would or would not hunt primates other than black howlers. Twelve participants responded that other primates are the same as "baboons," just a different type; 6 respondents claimed that monkeys are not eaten (again, possibly ambiguous); 6 responded that all monkeys contribute to the CBS and to ecotourism; 6 responded that all monkeys are like humans; 1 respondent answered that it is cruel to kill monkeys; and 1 respondent stated that he would not hunt any primate species because it is against the law. The resulting comparison is highly significant, $\chi^2(5) = 15.63$, $p < .01$, and our respondents appeared to exhibit hunting restraint in relation to all primate species through a process of generalization from their views about black howlers.

DISCUSSION

Men in our sample were in the prime of life, a period when hunting should be at its peak for individuals undertaking this activity, increasing our confidence in the reliability and validity of our findings. The characteristics of the animals chosen as prey by these hunters (predominantly medium-sized crepuscular or diurnal terrestrial prey) suggest that energetic factors may influence hunting behavior by Creoles at the CBS, possibly constrained by their gustatory preferences.

The results displayed in Table 1 indicate that black howlers are not preferred food for hunters at the CBS. Bodmer's (1995a) studies of hunting in the Peruvian Amazon showed that hunters preferred large-bodied mammals (de Thoisy et al., 2000) and mammals with high economic value and that actual harvests did not reflect hunters' preferences but correlated, instead, with life historical characteristics of particular bushmeat species, especially r_{max} , intrinsic rate of increase (Cowlshaw & Dunbar, 2000). Furthermore, differential reproductive productivities of game species correlated with their susceptibility to overhunting (Bodmer, 1995b). Studies comparing a range of traditional societies are required to determine the causes and consequences of different patterns of prey choice by hunters.

Our results not only indicate that *A. pigra* yields economic benefits from ecotourism for Creoles at the CBS and that the species is not a preferred food for this population, but also that Creoles as a group demonstrate hunting restraint in relation to black howler monkeys because of cultural taboos. Each of these forces would be expected to minimize the likelihood that howlers will be hunted. Hunters in our sample also reported a taboo against hunting primates other than black howlers, possibly an indirect measure of the strength of the Creoles' taboo.

Hunting taboos represent learned behavior and, therefore, can be disinhibited, possibly as a result of market forces (Rose, 2001).

Anecdotal personal communication from several of our colleagues throughout the world (Mexico: G. Ramos-Fernandez; West Africa: L. Gadsby; North Vietnam: B. Martin; India: A. D. Roy) and also Rose (2001) indicated that taboos against hunting primates by some local people are disappearing. To evaluate the potential importance of these factors in the maintenance of hunting restraint by Belizean Creoles and other human groups, research is needed on the relative trade-offs and significance of market forces determined by food preferences, ecotourism, and cultural and legal prohibitions.

Topics for Further Investigation

On the other hand, it is clear that hunting primates and taboos against hunting primates are not mutually exclusive. These cultural traits, characteristic of Creoles and some other traditional groups, generally are expressed by way of the anthropomorphization of monkeys and apes. Indeed, it is possible that primate hunting restraint exhibited by Creoles might, in part, be explained by cultural diffusion from the Maya who deified monkeys. Cormier (2000), however, found primate hunting coexisting with "a nearly human status" (p. 144) extended to monkeys by the Guaja Indians on the Caru Indigenous Reserve in Maranhao, Brazil. These topics require further investigation, and it is interesting to note that no respondent in this study mentioned religious or spiritual beliefs explicitly and that only one respondent's answer was based clearly on moral or ethical principles with the claim that black howlers should be protected for posterity.

Assessment

Our assessment of reasons cited for primate hunting restraint indicates that utilitarian reasons were most commonly cited (that howlers are not a source of food). This finding is contrary to Rose's (2002) model predicting that utilitarian wildlife values are associated with urban environments. It was clear from our survey that cooperative agreements facilitate hunting restraint, if only by making hunters aware of the differential costs and benefits associated with killing *A. pigra*.

Some of our respondents cited the economic benefit obtained through ecotourism as one reason for not killing black howlers. One hunter stated that he refrained from hunting "baboons" because their vocalizations alerted other animals in the forest that he did hunt. In this clear case of utilitarian values underlying hunting restraint, we are curious to know what the hunter's response to black howlers might be if this benefit disappeared, possibly due to depletion of favored

bushmeat in the forests. Hunting restraint in relation to black howlers is related, also, to historical and cultural folkways emphasizing the similarities between human and nonhuman primates. It is of note that few respondents cited legal reasons for not hunting *A. pigra*.

Future questionnaires on hunting attitudes and behaviors should be designed to force mutually exclusive categories of response and to minimize the likelihood that answers are influenced by the investigators' affiliation with the CBS (Alexander, 2000; Bruner, 1993; Hartup, 1994).

CONCLUSIONS AND RECOMMENDATIONS

Our findings suggest that a few hunters at the CBS demonstrate hunting restraint in relation to primates because they have internalized a conservation ethic (Alexander, 2000; Bruner, 1993; Hartup, 1994; Rose, 2002). The dominant pattern of results, however, indicates that hunting restraint and, perhaps, hunting behavior in general are governed by utilitarian and cultural factors, learned behaviors that can be disinhibited. As Metrick and Weitzman's (1998) paper made clear, utilitarian factors can be employed to promote the preservation of biodiversity, and it is possible that one central role of the management of the CBS is to foster—by persuasion and, if necessary, coercion—those factors that have been shown empirically to advance hunting restraint (Wilkie & Godoy, 2001).

Hunting Restraint

With respect to the future of *A. pigra* at the CBS, hunting restraint by Creoles is likely to be a primary function of the direct utility of not hunting these monkeys (gains from ecotourism) and the opportunity costs of hunting restraint (costs incurred by not hunting black howlers). Currently in Belize, little or no market exists for *A. pigra* as a source of food; thus, opportunity costs from this factor are expected to be low. Furthermore, howlers are perceived as "harmless," not destructive to crops or people. Direct utility from not hunting black howlers, however, might be compromised because residents of the CBS have realized few economic or other benefits from their cooperative agreements (Alexander, 2000).

We are concerned that the rise of a commercial market for black howlers in Belize due to depletion of favored bushmeat, by members of the logging trade or other human groups who eat monkeys, or by the pet trade might negatively impact the cost-benefit function presently favoring hunting restraint. *A. pigra* would receive unsustainable pressures on their populations (Alvard, 1993; Redford & Robinson, 1991; Wilkie, 2002; Wilkie et al., 1998). Available evidence suggests, however, that such a scenario is unlikely in the near future.

One of the major concerns of the CBS's current local management is the increasing of economic incentives, including health and human services, to residents of the reserve. The second author is directly facilitating the enterprise. This objective implies a certain degree of development. The original cooperative agreements among landowners to preserve habitat on their properties included no long-range set of goals and objectives—other than the hope of ecotourism—for providing direct incentives to members.

Certainly, there have been some additional successes since 1998, such as the CBS's bed and breakfast program, the Belize River Valley Pre-School managed by the Women's Conservation Group, and a restaurant with profits that provide scholarships to children of landowners. However, every success brings increased expectations. Hunting restraint is likely to be maintained as long as the economic cost-benefit ratio from not hunting howlers outweighs the economic cost-benefit ratio of hunting them. This study supports the view that no economic benefit presently exists from hunting howlers at the CBS and that the cost-benefit ratio of not hunting howlers is so high at this site that it is unlikely to be overturned in the near future. The challenge is to maintain this trade-off by successful exploitation of the benefits of ecotourism.

Integrated conservation and development projects (ICDPs) sometimes have promoted wildlife conservation in African countries such as Tanzania, where natural resources, economy (including the tourist trade), politics, demography, and culture differ in significant ways from Belize (Newmark & Hough, 2000). These initiatives began in the 1980s at about the same time as Horwich's efforts with community conservation in Belize (Horwich, 1990). Case studies and other empirical assessments of ICDPs have shown that their success has been limited (Newmark & Hough, 2000). Several of Newmark and Hough's observations provide important considerations for the management of the CBS.

1. Like protected areas in South Africa, Namibia, and West Africa, the CBS is a small sanctuary. Research from the African continent and from South America indicates that intensive management is required in these conditions to save wildlife (Bodmer, Penn, Puertas, Moya, & Fang, 1997; Newmark & Hough, 2000). The current directors of the CBS (the Women's Conservation Group), with the assistance of the Programme For Belize and other agencies, are attempting to increase awareness of the potential for unsustainable hunting with a consequent decrease in hunting activity in recent years. As noted previously, however, no ongoing quantitative data are available, with the exception of annual surveys of *A. pigra* (Horwich et al., 2001a, 2001b).

2. Rural poverty and external markets encourage poaching. Management of the CBS should continue to investigate ways to increase the standard of living for residents of the sanctuary.

3. The creation of networks and linkages of protected areas, fostering cooperative relationships among adjacent communities, has increased the success of conservation projects in Africa. The management of the CBS might benefit in the long term by increasing its interactions with villages outside the sanctuary, a potential reflected in efforts by the Women's Conservation Group to comanage forest north of the CBS (toward the area of intense selective logging) with the Rancho Dolores Environmental Group.

4. In Zambia, Zimbabwe, and Namibia, the community-based natural resources management (CBNRM) approach has achieved significant success. In these initiatives, according to Newmark and Hough (2000), "instead of offering development services in exchange for conservation, it devolves management responsibility for natural resources—wildlife—to local communities" (p. 585). The relative advantages of CBNRMs compared to community conservation or ICDPs is that wildlife is managed over a long-term, sustainable basis. Research on CBNRMs and ICDPs in Africa, however, indicates that complete control of these projects by local residents might not be indicated (Newmark & Hough). It is, therefore, probably to the advantage of the CBS to accept the assistance of the Programme for Belize and other agencies after early years (1993 to 1998) of local and relatively unsuccessful control by residents.

Finally, we propose that it would be a productive exercise to view the ongoing status of *A. pigra* at the CBS and other Creole communities in Belize, with models of optimal foraging and other economic models (Stephens & Krebs, 1986), in particular, models that weigh present and expected future costs and benefits from hunting restraint.

If the benefits of past and present hunting restraint by Creoles are weighed against potential future benefits, hunting behavior might be predicted relative to the opportunity costs associated with hunting restraint or disinhibition of hunting restraint. If hunting restraint provides benefits in the present (benefits from ecotourism), opportunity costs (the value of black howlers in the marketplace or the time that might be invested in activities other than ecotourism) presumably are less than present and expected future gains. This analysis views hunting restraint as a form of saving whereby resources (black howlers) are conserved for future use.

In the face of uncertainty (uncertain gains from ecotourism), primate hunting restraint represents a decision about what the future holds. Such behavioral decisions are made—consciously or otherwise—in relation to the costs of hunting restraint, the hunter's projected gains through time, and the hunter's projected life span.

It is interesting to note that both of our respondents who stated that they would kill primates other than black howlers claimed that they would do so to earn money

in the pet trade. The potential for changed attitudes and behaviors, therefore, clearly exists at the CBS (and, by extension, in other Creole communities in Belize).

At present, the management of the CBS is utilizing *A. pigra* as a capital good (to produce other goods and services such as health clinics) and as a consumer good (to provide immediate and expendable economic benefits from ecotourism). However, progress has been slow and frustrating. Although hunters at the CBS appear to be banking on the success of ecotourism, it is of critical importance for the future of black howlers in Belize for this community conservation project to begin to yield tangible results for its members and for other residents and stakeholders impacted by decisions affecting the sanctuary (Bodmer et al., 1997).

Despite these caveats, our study justifies optimism about the future of black howlers at the CBS because of their importance to ecotourism, legal constraints against hunting *A. pigra*, culturally transmitted taboos against hunting this species, and the increased conservation ethic documented over time at this site (Bruner, 1993; Hartup, 1994; Horwich, 1998; G. Lash, personal communication, May 2002).

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