questions: 1) What is the nature of the daughter's reaction if the intruder is a female? Since it is possible that the daughter might inherit the reproductive position (Baker and Dietz, 1996) then daughters should show high levels of aggression toward potential female competitors: 2) What is the nature of the son's reaction if the intruder is a female? 3)Does the son also react aggressively in this context?

The majority of research on aggression has dealt principally with aspects of the relationships that deal with mating systems and pair-bond formation (e.g., Anzenberger, 1985; Araújo and Yamamoto, 1994; Epple, 1978; French and Snowdon, 1981). However, the behavioral responses described here indicate the need for further research in this area, especially as regards the influence of group size and composition, reproductive state of the female, and the participation of the sons and daughters in agonistic encounters with intruders.

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A Study of the Black Uakari, *Cacajao melanocephalus melanocephalus*, in the Pico da Neblina National Park, Brazil

Following preliminary surveys in 1991 (Boubli, 1994), from June 1994 to October 1995, I conducted the first long-term field study of the ecology of the black uakari monkey, *Cacajao melanocephalus melanocephalus*, in the Pico da Neblina National Park (PNNP), Brazil (01°10'N to 00°26'S, 65°03'W to 66°52'W) (Boubli, 1997). Pico da Neblina is the second largest National Park in Brazil, with an area of 2,200,000 ha, and is located on the left bank of the Rio Negro, in the extreme north-western part

of Brazilian Amazonia, on the border of Brazil and Venezuela. Annual rainfall is around 3,000 mm (RADAM, 1978), evenly distributed throughout the year, and there is practically no temperature fluctuation from month to month. Altitudes ranges from 100 to 3,014 m above sea level. The biological diversity protected in Pico da Neblina is believed to be the highest of any of Brazil's National Parks (Gentry, 1986; see also, for example, Brewer-Carias, 1988).

Most of the area of the Park overlaps with the Yanomami Indigenous Reservation which is managed by the Brazilian National Indian Foundation (FUNAI). Inside the reservation, the Yanomami carry out their subsistence activities which include hunting, fishing and clear-cutting of forest for cultivation. More recently, the Yanomamis have begun gold-mining.

For the study of the black uakaris, I established a permanent site on the right bank of the Rio Cauaburi, the main river in the Park, where I opened up a trail system through an area of 483 ha and carried out a detailed botanical inventory. Four forest types were represented in the study site: *chavascal* (swamp forest), terra firma (upland forest), *yuacanã* and *cunuri caatinga* (two forest types on white sand soils). There was no seasonally flooded forest (*igapó*) at the site. Two tree species dominated the forest: *Eperua leucantha* (Caesalpinoideae) and *Hevea* cf. *brasiliensis* (Euphorbiaceae).

The black uakaris traveled fast and ranged over a very large area, often going beyond the limits of the trail system. For this reason, it was difficult to locate them and, when found, to follow them for more than a few hours. The study group consisted of an estimated 70 individuals which traveled together but were generally widely dispersed. They lived in multi-male/multi-female social groups with approximately the same numbers of males and females. Fission-fusion, as observed in the white uakari *C. calvus* (Ayres, 1986), was never seen in the study group. Individual monkeys carried out their daily activities quite independently from one another, but would keep track of the whereabouts of other group members by constant contact calls. In fact, one of the most remarkable features of black uakaris in the wild is their non-stop contact calling in the form of "keeks" and "chirps". Another peculiar feature of black uakaris is that they wag their tails constantly while moving and feeding. This also occurs in *Chiropotes* but the meaning of this behavior is unclear.

During the entire study period, black uakaris were seen to use 120 different tree species for food, the most important being *Micrandra spruceana* (Euphorbiaceae), *Eperua leucantha* (Caesalpinoideae), *Eperua purpurea* (Caesalpinoideae) and *Hevea* cf. *brasiliensis* (Euphorbiaceae). Young seeds were the single most important food eaten by the monkeys (Boubli, 1997). The study group used all four forest types (*yuacanã* and *cunuri caatingas*, *chavascal* and terra firma).

Black uakaris are found throughout the Park, including the mountains at altitudes of up to 1,500 m (altitude measured with a GPS handheld device). Apart from *C. melanocephalus,* the following primate species are also present: *Ateles belzebuth, Aotus* sp., *Alouatta seniculus, Callicebus torquatus, Cebus albifrons* and *Chiropotes* sp. These species are not under any threat from hunting or habitat destruction in this part of Amazonia, except in the vicinity of the Yanomami village of Maturaca, where all primates have been hunted to near extinction.

With the advent of gold mining by non-indigenous people (*garimpeiros*), serious habitat disturbance is underway on the highlands of the Park (altitudes above 2,000m). Though such activities do not affect the black uakaris directly, the gold miners have recently begun hiring Yanomamis to hunt game animals, including all monkey species, as well as pacas, peccaries, tapir, deer, anteaters, and armadillos. If not halted in the near future, this may represent a serious threat to not only uakaris but all of the game species.

The Pico da Neblina National Park was created in 1979 by the Brazilian Institute for the Environment (formerly IBDF, now Ibama) in order to preserve Brazil's highest mountain (Pico da Neblina, 3,014 m) and its endemic vegetation. Eighteen years after its creation, it remains largely unprotected. The Park still lacks a management plan. Placer gold-mining is rudimentary and destructive. The gold-miners wash off the top soil from the high altitude plateaus, destroying the streams and small rivers, and

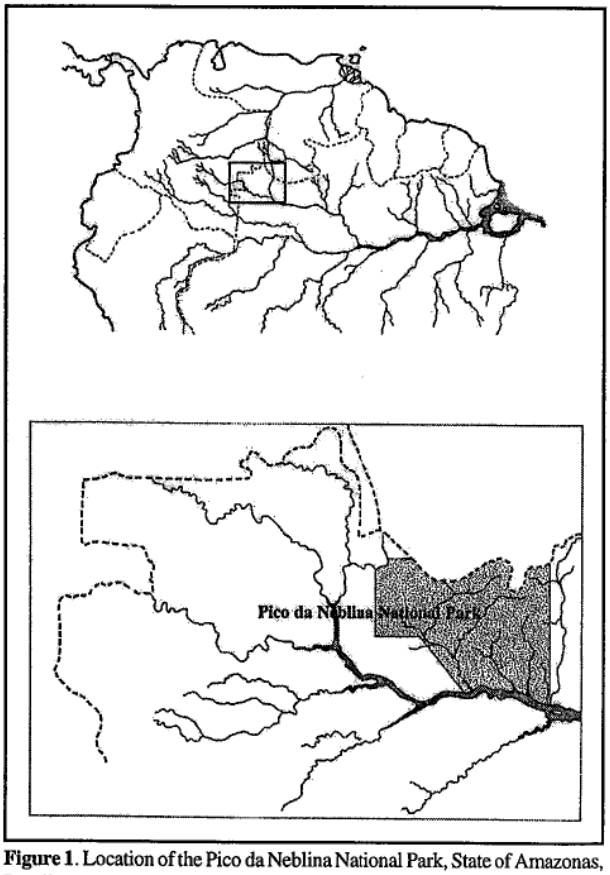

Figure 1. Location of the Pico da Neblina National Park, State of Amazonas, Brazil.

sometimes set fire to the vegetation to facilitate prospecting.

The high altitude ecosystem of Pico da Neblina is very fragile and cannot recover after the thin layer of soil has been removed (such topsoil was formed over a very long period of time and is solely the result of the decomposition of dead vegetation that accumulates year after year). Many plants and animals present on the tops of these plateaus are endemic and still unknown to science (Gentry 1986); their disappearance will represent a great loss to biodiversity.

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News

Monkey Fossils Unearthed in Jamaica

A team of scientists from the American Museum of Natural History, New York, and Claremont Mckenna College, California, announced the discovery of the only monkey known to have gone extinct in the past 500 years. The fossils, known as *Xenothrix mcgregori*, were recovered during a paleontological expedition to Jamaica led by Donald A. McFarlane, Associate Professor of Biology at Claremont, and Ross D. E. MacPhee, Chairman and Curator of the Department of Mammalogy at the Museum.

The discovery is important for several reasons. It was only recently suspected that Jamaica once supported a native population of primates. (Monkey species living in the West Indies today are descendants of African or South American monkeys introduced in the 18th century or later). A small group of primate fossils had been discovered in Jamaica in the 1920s, but was not identified as belonging to a new, native species until the 1950s. The researchers discovered a partial skull with several teeth preserved, a piece of an upper jaw and one of the bones of an arm in a cave shaft named Mantrap Hole.

Xenothrix, related to *Cebus*, was an unusual primate. Its limb bones suggest that it was a slow-moving animal with very mobile joints. A startling aspect of the discovery was the age of the fossils. Other fragments of the monkey were found sandwiched between strata bearing jaw bones of the European black rat, first brought to the New World aboard Columbus's ships. *Xenothrix* evidently became extinct after European contact.

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Vocalizations in Atlantic Forest Marmosets, *Callithrix*

In October 1997, Sérgio Lucena Mendes successfully defended his doctoral thesis "Biogeographic and vocal patterns of eastern Brazilian marmosets, *Callithrix jacchus* group (Primates: Callitrichidae)", at the Campinas State University (UNICAMP), Campinas, São Paulo, Brazil. The thesis was supervised by Dr. Jacques Viellard and Anthony B. Rylands, and financed and supported by the Museu de Biologia Mello Leitão, Santa Teresa, Espírito Santo, the Fundação MB/FUNCAMP, Campinas, and the Brazilian Higher Education Authority (CAPES), Brasília. The following is an abstract of the thesis.

The study presents a revision of the taxonomic data for marmosets of the *Callithrix jacchus* group based on publications over the last 20 years, and discusses the validity and phylogeny of the following taxa: *aurita*, *flaviceps*, *geoffroyi*, *jacchus*, *kuhli*, and *penicillata*. A revised list of localities where these taxa occur is provided on the basis of information derived from the literature along with new field data. The distribution of each taxon, its affinity to different vegetation formations, and the distribution patterns were examined by plotting all localities on a map of Brazilian vegetation types. The available data indicate that the six *Callithrix* taxa studied are valid because they are discrete entities with identifiable morphologies and distinct geographic distributions. The variability within each taxon appears to be related to population polymorphism. On the basis of morphological, genetic, biogeographic, and vocal characters, the *jacchus* group can be separated into two monophyletic subgroups, *aurita* (*aurita* and *flaviceps*) and *jacchus* (*geoffroyi*, *jacchus*, *kuhli*, and *penicillata*). The taxa of the *jacchus* group are typically parapatric, generally replacing each other geographically in zones of ecological transition, where hybridization occurs. The hybridization zones appear to be narrow, sug-