



classifications proposed for this taxon. Our analyses identified five clades with recent divergence times (1.7 to 0.7 Mya) within *Ateles geoffroyi*. Some previously recognized taxa were found to be paraphyletic (e.g., *A. vellerosus*, *A. yucatanensis*), while one clade we identified had never been recognized (*Ateles sp. indet.* from El Salvador). Our results challenge current ideas about the taxonomy and phylogenetic relationships of Mesoamerican spider monkey and highlight the need for a revised classification for this group.

ABSTRACT # 45

PRIMATES, TIKUNAS AND PROTECTED AREAS: LESSONS AND CHALLENGES IN COMMUNITY RESOURCES MANAGEMENTA. M. Maldonado^{1,2}¹Fundacion Entropika, Apartado Aereo No. 20, Leticia, Amazonas, Colombia, ²Asociacion Primatologica Colombiana

The primate community in the Amazon contains more primate species than any other tropical rainforest. However, its primate assemblage is characterized by low densities and biomasses associated with poor nutrient soils and nowadays they are highly restricted by selective hunting. I report primate population densities and biomasses in overlapping areas between two Tikuna indigenous communities and the Amacayacu National Park, in the southern Colombian Amazon, where one of the communities applies a hunting ban on woolly monkeys and develops a primate-tourism programme. Data were collected during 33 months using line-transect census techniques at four sites, each exposed to different levels of hunting pressure, with a census effort of 2.067 km. The total density of large sized primates at the site with high hunting pressure was of 0.9 ind/km², while at the site with low hunting pressure the density was of 21.8 ind/km². In addition, in Mocagua, the community where the hunting ban is applied, the aggregated primate biomass was of 398 kg/km² while the other community, San Martin, presented an aggregated biomass of 199 kg/km². These differences might be explained by the depletion of the large-bodied primates. Transformations in people's attitudes towards primates and the benefits they can bring to the community influence the propensity for sustainable wildlife management. By exploring the impact of such variables, recommendations for realistic, long-term conservation strategies can be made.

ABSTRACT # 46

DOES RESOURCE MIXING EXPLAIN WHY HOWLER MONKEYS LEAVE A FEEDING PATCH?

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Recent models of nutritional ecology suggest that macro- and micronutrient balancing represent important factors in evaluating dietary patterns and foraging strategies in primates. During a 15-month field study of black howler monkeys (*Alouatta pigra*) in Campeche, Mexico, we investigated diet, bout duration, and sequential use of feeding sites to determine if patch choice was consistent with nutrient balancing and resource mixing hypotheses. Full day focal follows of one individual/day were conducted to record all feeding activities and social interactions. The number and type of feeding patches visited in a day and the total time spent feeding in each patch were recorded. Results indicate that mean bout length differed according to patch type: individuals fed significantly longer in unripe (17.5±3.9 min) and ripe (13.5±1.5 min) fruit patches than in mature leaf (4.9±0.6 min), young leaf (7.4±0.9 min), and flower (9.3±1.6 min) patches (n=327 feeding bouts). However, in the majority of the cases (65%) howlers did not leave patches due to satiation. Rather, we found that resource mixing (switching between different food types) accounted for 32.6% of cases. Social factors (e.g. aggression, displacements, intergroup encounters) accounted for only 3.4% of the patch-leaving cases. Phytochemical analyses of foods consumed by the howlers lend support that resource mixing is a significant factor in interpreting diet selection in primates and the strategies adopted to meet their nutritional requirements.

ABSTRACT # 47

VOCAL CUES TO BODY SIZE AND INDIVIDUALITY IN LEMURSM. Gamba¹, C. Colombo¹, O. Friard² and C. Giacoma¹¹Dept. of Life Sciences and Systems Biology, Via Acc. Albertina 13, Torino, TO, 10123, Italy, ²Molecular Systems Biology Inter-Department Center

The source-filter theory has been successfully applied to the study of animal vocal signals since the 1990s. As an extension, models reproducing vocal tract resonance can be used to reproduce formant patterns and to understand the



role of vocal tract filtering in non-human vocalizations. We investigated the acoustic structure of grunt vocalizations in red-bellied lemurs (*Eulemur rubriventer*) and we found a potential for individual discrimination. Formants were effective in assigning 80.5% of the vocalizations to the correct emitter. We then built a computational model of the red-bellied lemur nasal tract using morphological measurements and we estimated how the characteristics of the vocal tract might underlie individual-specific formant patterns. We found that individual-level variation is strongly related with the morphology of nasal cavities and that length of the tract potentially provides the most important cue to body size.

ABSTRACT # 48

FACE RECOGNITION IN ORANGUTANS

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As humans, faces provide us with information on the age, sex, individual identity, and emotional state of other individuals. Comparatively less is known about nonhuman primates' ability to process faces. Several nonhuman primate species, all of which are gregarious group living species, are able to recognize individual identities among unfamiliar conspecific faces. In this study, we tested a less gregarious species, the orangutan, to determine if they exhibit similar face recognition skills. Using a match-to-sample paradigm, we first confirmed that orangutans can match two identical photographs of unfamiliar conspecifics. Next, subjects were required to match two different photographs of the same individual from different viewpoints. During testing, probe trials of the experimental question, which were always rewarded, were inserted among training trials. All three subjects successfully transferred to familiar novel stimuli ($Z=3.1$, $P=0.001$) with their first exposure to these individuals, but not unfamiliar novel stimuli ($Z=0.15$, $P=0.878$), despite being trained with the same unfamiliar individuals. Results for all probe trials (not just initial trials) indicated the same pattern (Familiar: $Z=3.16$, $P=0.001$; Unfamiliar: $Z=0.64$, $P=0.520$). Interestingly, orangutans performed significantly above chance when individuating familiar males ($Z=3.19$, $P=0.001$; Familiar flanged males: $Z=2.08$, $P=0.036$; Familiar unflanged males: $Z=2.35$, $P=0.017$), but not females ($Z=0.7$, $P=0.487$). Further examination is needed to understand social organization and other social factors which were important in the evolution of face-processing skills.

ABSTRACT # 49

ISOLATION, INBREEDING, AND THE PERILOUS STATE OF THE CAPE PENINSULA CHACMA BABOONS (*PAPIO HAMADRYAS URSINUS*): A CASE FOR GENETIC RESCUE?

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A small population of chacma baboons, living on a peninsula near Cape Town, South Africa are isolated from other chacma populations by urbanization. In theory, such populations will lose genetic variation through arbitrarily eliminated or fixed alleles. The risks of inbreeding in this case are exacerbated by population subdivision, extreme sex ratios and skewed age distributions. From a conservation and management perspective, it is imperative to assess the genetic structure of the peninsula and to determine appropriate interventions to ameliorate the effects of isolation. Eight microsatellite markers were screened in 62 individuals representing peninsula troops ($n=32$), the southern Western Cape region ($n=24$), and an outgroup from KwaZulu-Natal ($n=6$). Results: 1) peninsula chacmas have significantly less allelic diversity compared to non-peninsula chacmas; 2) peninsula chacmas share all their alleles with non-peninsula chacmas, but the converse is not true; 3) there is little inter-troop structure in the peninsula; 4) estimates of inbreeding within the peninsula are high; and 5) non-peninsula chacmas exhibit sub-structure that may result from non-contiguous populations. These results highlight an urgent need for corrective action: a genetic rescue of the peninsula chacma baboon population. A proposed mechanism is "assisted dispersal" of males from the peninsula to surrounding populations, and reciprocal, purposeful translocation of males into the peninsula.

ABSTRACT # 50

CURRENT POTENTIAL DISTRIBUTION, POPULATION DENSITY AND HABITAT AVAILABLE OF TWO ENDANGERED ENDEMIC PRIMATES, *ATELES HYBRIDUS BRUNNEUS* AND *SAGUINUS LEUCOPUS* OF COLOMBIAN ANDES

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The rarity of a species may be expressed in three ways: small geographic range, low local population density, or habitat specialization. The variegated-spider monkey