

Census of the brown-headed spider monkey (*Ateles geoffroyi fusciceps*) in the Andean cloud forest of the Los Cedros Biological Reserve, Ecuador.

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The research described here was considered as a satellite project contributing to a three year, currently ongoing, Darwin Initiative project (PRIMENET) set up in 2005. PRIMENET's main objective is to develop a sustainable network for primate conservation in the northwest of Ecuador by setting up a long-term database that will incorporate all the census work carried out at the Los Cedros Biological Reserve (LCBR) along with other related research projects currently being undertaken within the reserve.

The brown-headed spider monkey (*Ateles geoffroyi fusciceps*) is critically endangered and currently classed among the world's 25 most endangered primates. Recent estimates on their remaining population have suggested that there are fewer than 250 individuals left in the wild. The main aim of this project was to attempt to estimate the current population density and relative distribution of this elusive primate along with two other resident primate species (*Alouatta palliata aequatorialis* and *Cebus capucinus*) at the LCBR in the northwest of Ecuador. The underlying feature that set this census apart from all previous surveys was the fact that a more scientifically rigorous approach was opted for to estimate accurately the remaining population density of *A. g. fusciceps*. Over a three month period, line transect sampling was carried out in two sites within the reserve. A total of 119hrs survey time covering a distance of 83.5km was achieved in the rugged mountainous terrain of the LCBR. In addition to census work, preliminary analysis was conducted on the alarm calls of *A. g. fusciceps* to ascertain whether various parameters within these calls could be used to (1) show differences between *A. g. fusciceps* and *A. geoffroyi* and (2) demonstrate

distinctions between *A. g. fusciceps* individuals in the anticipation that these calls could be utilized to identify specific individuals within the reserve.

As a result of low encounter rates, estimates of population densities could not be determined for the three resident primates and the examination of alarm calls was restricted to descriptive analysis. Results from alarm calls revealed that there were, in fact, apparent distinctions between (1) *A. g. fusciceps* and *A. geoffroyi* and (2) *A. g. fusciceps* individuals amid certain parameters within these calls. It was concluded that further efforts should be concentrated on the recording and analysis of *A. g. fusciceps* alarm calls due to the simple fact that if individual identification is indeed achievable then it could (1) generate information on life history parameters (2) produce input data for conservation models and (3) highlight certain behavioural traits providing a solid basis for shaping future conservation and management decisions. Copies of all the animal vocalizations recorded during this study including the rare alarm calls of *A. g. fusciceps* have been donated to the British Sound Library where they are readily available to the public.

Although an accurate estimate of population density could not be completed during this investigation, it was possible to create an up to date distribution map of all three resident primates. Using the data collected during this investigation along with the data collected from two other censuses that had taken place prior to this study, it was feasible to create distribution maps spanning a three year period in site 1 of the LCBR. Comparisons among these maps revealed that primate distributions and encounter rates differed between the respective survey periods, which lead to the evaluation of the census design and techniques employed during these surveys. Although it was apparent that line transect sampling methodologies retain limitations in mountainous terrain, they are statistically robust and are likely to yield more accurate estimates of primate population densities over long term investigations especially when survey methods are standardized. While this project failed to achieve its central objective of estimating the population density of *A. g. fusciceps*, it did manage to highlight the irrefutable reality that these primates are becoming extremely rare and that more conservation efforts need to be established if we are to save them from an inevitable fate with extinction.

In an effort to uphold long term high-quality censuses at the LCBR whilst also facilitating the inclusion of local communities in the conservation of these wonderful primates, an up to date map of all the existing trails and transects was created along with a DVD “Guide to Censusing Primates”. Narrated in both Spanish and English, this DVD has since been used to train university students, foreign volunteers and the PRIMENET’s local ‘parabiologists’ (as part of the PRIMENET project’s exit strategy) in the techniques required to carry out standardized surveys of the highest quality.



Mountainous terrain in Los Cedros Biological Reserve, Ecuador