

## PP262 Niche Separation in Peruvian Primates

Dr Kathy Slater, Operation Wallacea

Sympatric primate species are able to coexist in the same habitat because they utilize different niches, either in terms of location in the canopy or the food that they consume. For example, red howler monkeys, *Alouatta seniculus*, are commonly found in sympatric association with other primates such as squirrel monkeys, *Saimiri* spp., and tamarins, *Saguinus* spp., (Peres, 1993). *Alouatta seniculus* are typically found in groups to 10-20 individuals and are found throughout South America (Di Fiore *et al.*, 2010). They are diurnal, folivorous-frugivorous primates that have a specially adapted digestive system which allows them to digest mature leaves (Juliote, 1996). They reside in numerous forest habitats, although they usually prefer areas overlooking river banks. *Alouatta seniculus* are generally found in the upper canopy, only visiting the lower for feeding (Palacios & Rodriguez, 2001). However, when in association with other species, *Alouatta seniculus* prefer even higher strata in the canopy (Peres, 1993).

The South American squirrel monkey, *Saimiri sciureus*, are found throughout South America and can live in large groups of up to 500 individuals although groups of 20-50 are more common (Jack, 2010). They are diurnal, frugivore-insectivores with insects accounting for up to 80% of their diet (Stone, 2007). *Saimiri sciureus* associate closely with Capuchin monkeys, *Cebus* spp., and benefit from this association as that they pick up dropped fruit opened by the capuchins which would not otherwise be available (Peres, 1993).

Saddleback tamarins, *Saguinus fuscicollis*, reside in primary and secondary forests of Bolivia, Brazil, Colombia, Ecuador, and Peru generally in the lower canopy (Digby *et al.*, 2010). They are typically found in groups of 2 to 20 individuals (Digby *et al.*, 2010). *Saguinus fuscicollis* are primarily frugivorous, with trichromatic colour vision that enables them to select ripe fruits (Jack, 2010). Insects, nectar and exudates in the form of gums supplement the diet (Heyman *et al.*, 2000).

The Peruvian Amazon provides many ecological niches and consequently contains multiple primate species. However, anthropogenic disturbance is a widespread problem throughout the Amazon, and as such, the availability of certain habitats is decreasing. Understanding niche separation of Amazonian primates will greatly benefit primate conservation by identifying those species most at risk. The Pacaya Samiria National Reserve is home to 12 different primate species distributed across three major forest habitat types: uplands (terra firma), seasonally-flooded forest (varzea), and palm swamp (aguajale). This site therefore provides an excellent location to investigate niche separation between sympatric primate species.

### Methods

#### **Study Site**

The Pacaya-Samiria National Reserve is the largest protected area in Peru spanning over 20,000 km<sup>2</sup> of tropical rainforest and is a truly exceptional wilderness area. Situated deep in the rainforests of the western Amazon basin, the Pacaya-Samiria reserve teems with aquatic and terrestrial wildlife. The two major rivers that bound the reserve are the Ucayali and Marañon, and they join to form the Amazon River right at the point where the reserve begins. The major habitat type in this forest is the low-lying flooded forests (varzea), but this seasonally flooded forest is interspersed with upland forest (terra firma) and palm swamp (aguajale). Dissertation projects running between June and July are in the middle of the low water season, during which three sites will be used on the Samiria River – the mouth,

Tacshcocha and Huisto (Figure 1). The varzea, terra firma and aguajale habitats are all accessible on foot at this time of year.

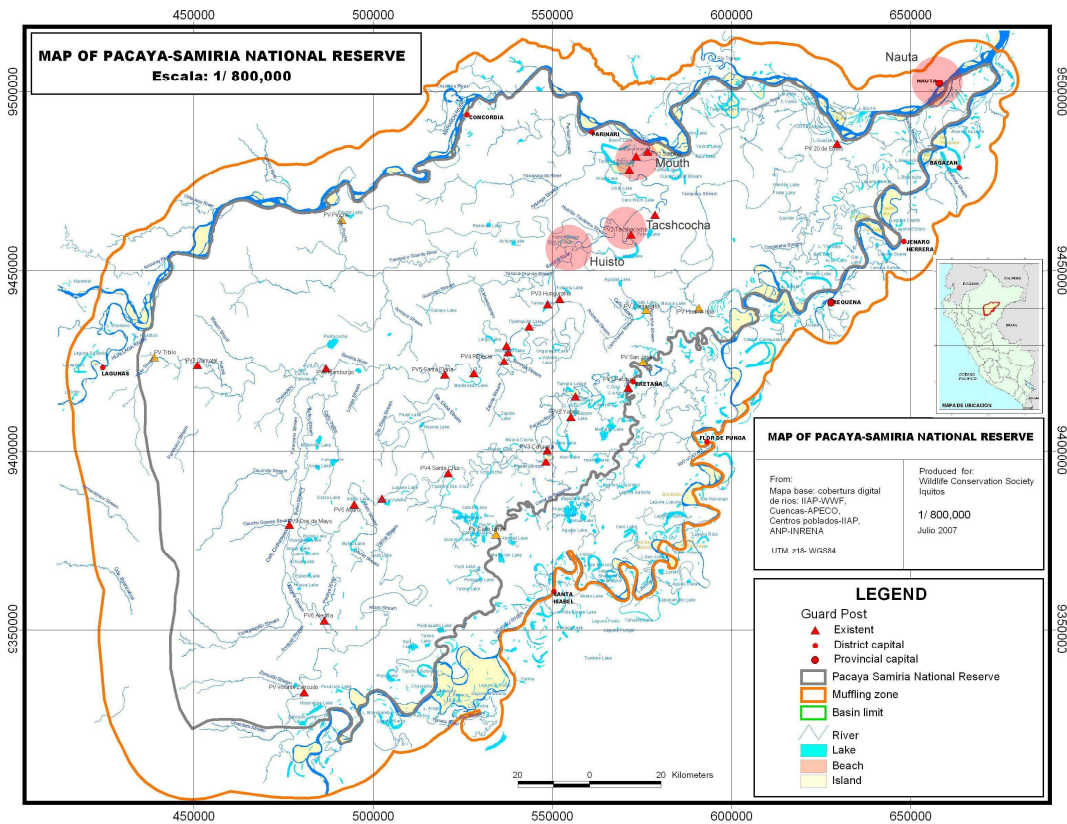


Figure 1 Location of the 2010 survey sites

### Data Collection

Behavioural observations will be conducted daily starting at 6.30am until 3pm. Three teams will enter the forest each day, each one will collect data on a different species, namely red howler monkeys (*Alouatta seniculus*), common squirrel monkeys (*Saimiri sciureus*), and saddleback tamarins (*Saguinus fuscicollis*). Once a group of the target species has been found, efforts will be made to stay with the same group for the duration of the data collection period. The GPS location of the group will be recorded throughout the day in order to assess home and day range. Upon locating a group, the number of individuals and age-sex classification of each will be recorded. The presence of other primates will also be recorded, noting the species present, the number of individuals, and where possible, the age-sex composition of the group.

Activity data will be collected using instantaneous scan samples (Altmann 1974) at 3-minute intervals noting the behaviour (feeding, moving, resting, social and vigilant) of each adult individual in the group. When feeding, the type of food (mature leaves, young leaves, fruit, flowers, seeds, insects and gums), and corresponding plant species will be recorded where known. Where plants can not be identified in the field, photographs and samples will be taken for later identification. For each scan, the habitat type, weather conditions, and habitat type (seasonally flooded forest, upland forest or palm swamp) will be recorded.

To investigate niche separation in terms of how the different primate species use their habitat and how they position themselves in the canopy, the height of the monkeys in the trees will also be recorded during every third scan (9 minute intervals). The height of the highest and lowest monkey in the group will be calculated using a clinometer and tape measure.

## References

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