DAVIS EXPEDITION FUND

REPORT ON EXPEDITION / PROJECT

Expedition/Project Title:	Project Angavo, Madagascar 2010
Travel Dates:	8/7/2010 - 20/9/2010
Location:	Angavo, southeastern Madagascar
Group Members:	Ninette Dawn Rowland, Sarah Dowling, Laura Coulier, Holly McKnight, Euan Innes
Aims:	To conduct a systematic botanical, avifaunal, lemur and relative disturbance survey across the core conservation zone of the Angavo Protected Area. The study will collect data on the species richness, population densities and levels of disturbance across the area.

Outcome (not less than 300 words):-

The island of Madagascar is internationally reknown for its ecological riches. It exhibits some of the highest levels of endemism in the world across a diverse range of taxa groups. However these same species and their habitats are threatened by increasingly destructive human activities and there is a growing concern that this will cause the habitats to become irrepairably degraded and that species diversity will decline. The majority of forest habitats have not been well studied, in fact much is still being learned about the precise levels of endemism and biodiversity in Madagascar. This is especially true in the the southern regions of the island where the landscape is drier and arguably less favourable for research. This is the context in which this multidisciplinary study of botanical, avifaunal and lemur biodiversity was undertaken.

The forest of Angavo is located at the border between the communes of Antanimora (to the North) and Ambohimalaza (to the South). The habitats include dry deciduous forests, mountain scrub and xerophytic scrub which survive in the harsh conditions. The elevation levels range between 200m and 380m. The forest has a surface area of about 65 192 ha. The sacred forest covers 3700 ha and constitute the nucleus, or Priority Conservation Zone (ZPC). The remaining 61 492 ha (the buffer zone in the projected New Protected Area (NPA)) are among the sites to be transferred for sustainable management of natural resources. The mountain is widely used for grazing and collection of forest resources so existing trails were present and used by most of the survey teams most of the time.

The research was undertaken with permission and assistance from the WWF Madagascar who manage sites undergoing forest management changes. The

research was very fruitful and it has been requested that the raw data be passed on to the WWF Madagascar to support their promotion of the area as a NPA and to facilitate future ecological monitoring.

The botanical research team completed a total of 90 transects across 6 sites that spanned an area ~1 ha. A total of 307 plant species were found in the transects many of which are endemic to the south of Madagascar. This includes one species previously only thought to be found in a National Park elsewhere in the south: *Ichnolepis graminifolia (vn.* Salotse). During the course of the study 7 species of Aloe were found of which 4 are endemic to the Androy region. These include *Aloe helenae* (Critically Endangered), *Aloe tandroy, Aloe antanimorensis* and *Aloe sp*. A species of *Albizia* (*vn.* Tsikatakatake) was found and is likely to be endemic to the Antanimora region of southeastern Madagascar. Two species of palm were found: *Ravenea xerophilla,* which is endemic to the Antanimora region. This palm is a conservation priortiy target for conservation initiatives in the area and is currently undergoing assessment by the IUCN. The other palm encountered was *Dypsis onilahensis* (Vulnerable) which is endemic to Madagascar. Although some of the above species are not listed on the IUCN Redlist they may nonetheless be a high conservation priority due to their limited distribution and numbers, and the disturbance pressures exerted on their habitat. 5 fresh water plant species were found in rock pools and had to have travelled considerable distances to take purchase there. More analysis is required to establish species abundance, richness and density figures; and vegetation structure and composition classifications.

The Mckinnon list method and the Timed Species Count method was utilised to carry out the project. Each list consisted of 10 different bird species and at least 10 lists were produced for each transect. A total of 69 bird species were recorded, 79% of which are endemic to Madagascar. Amongst the 15 endemic species of Vanga well known in Madagascar (all of which are Endangered) 6 are present in Angavo whereas there are only 4 species in Vaudohahila National park and just 3 in Tsimanapipestse National park.

The lemur research consisted of 6 point counts and 6 transects all of which were repeated at least five times, and more where possible. The lemurs, both diurnal and nocturnal were found to have associations with over 75 different species of vegetation. Five species of lemur (two diurnal and three nocturnal) were repeatedly identified throughout the 6 week survey which totalled 200 observation hours, *Prothicus verreauxi, Lemmur Catta, Microcebus griseorufus, Microcebus Murinis* and *Lepilemur leucopus*. According to the ICUN Redlist 2010 *Lemur catta* has a status of Near Threatened, *Propithecus verreauxi* has a status of Vulnerable and *Lepilemur leucopus* has a Data Deficient status. Selective logging and illegal cutting was observed throughout the majority of transects and point counts of the lemur study.

Disturbance from human activities in the forest included illegal logging and hunting, collection of leaves of the possibly endangered species *Ravenea xerophilla* for weaving, and cattle and goat grazing across the mountain. Human activities on the mountain are restricted due to the sacred nature of the

mountain, which the local inhabitants take very seriously, along with their responsibilities as guardians. It is for this reason that the forest is protected from more destructive activities such as slash and burn agriculture. There are many pressures that increase the local populations reliance on forest resources such as the demographic expansion and the reduction in rainfall levels that make it harder to survive on agriculture alone. This has lead to an increase in goat and cattle grazing on the mountain, an activity which is particularly harmful to ground shrubs and young plants. What's more, the taboos that protect many animal species on this site does not extend to the birds, bees and hedgehogs. These and certain other species are the object of many hunts by the local population. Selective logging of *Alluaudia procera* and *Alluaudia ascendens* was observed in pockets across the mountain. The trees are endemic to Madagascar and the flagship species of the spiny forests being both important to the flagship species of Madagascar, the lemurs, and the spiny forest ecosystem. They reach maturity within 20-30 years and heights of up to 12 meters. *Alluaudia ascendens* is the rarest of the six endemic species from the Didieraceae family and has been highlighted by numerous conservation initiatives as being a conservation priority target. The trees are used to make planks for housing or to build fences. A house is rebuilt on average every 5 years.

In the course of this study, we found most of the bird, plant and lemur species described for Southern Madagascar. This mountain proved to be extremely wealthy in biodiversity and for the levels of biodiversity to be comparable and perhaps greater than the special reserve of Cap Sainte Marie, the dry forest of the Andohahela national park and also the forest of Ifotaka Mahavelona (pers comm; S Mahazotahy, WWF regional specialist).

A meeting was held at the end of the field work by the expedition team with the villagers of Mitsoriake, the Chef Fokontany of Mitsoriake and the President of Angavo Forest. It was our recommendation that this sacred and unique mountain be protected in the strictest terms. We also held a series of formal meetings and presentations to communicate our findings to the Chef of the Region Androy, Mayor of Ambovombe, Director of Regional Direction of the Environment Forests and Tourism (DREFT), Centre Ecologique Libanona (CEL), SIT Study Abroad and the Forestry and Agriculture department (ESSA) of the University of Antananarivo.

We would like to thank the rural communities of Ambohimalaza and Antanimora Sud who welcomed us and facilitated our research. Extra special thanks must go to Barry Ferguson, Dr Richard Ennos and Dr Catherine Kidner for their unfaltering support and facilitation during the planning process, notwithstanding last minute deadlines. Special thanks also to the funding bodies, Davis Fund, James Rennie Bequest, British Association Travel Fund and the Weir Fund, without whose financial support this expedition could never have reached fruition. We would also like to give a hearty thanks to the WWF Madagascar and all the other organisations, public and private, national and international, that worked with the researchers by either lending their financial support or their knowledge. In particular we would like to thank all of our guides for their assistance along the course of the expedition: Mr.

REMASINAE, TOLISOA chef of the Mitsoriake fokotany, TOROSOA and TSAVOLILY. Our most sincere thanks also to the population of Mitsoriake and the President of the Angavo Union. And finally we would like to thank the WWF regional specialist Mr Sylvain Mahazotahy for always smiling and whose facilitation of this expedition knew no bounds and will forever be remembered with exceptional pleasure...REMASINAE!!!!