

Summer Research Internship Project Proposal

Project Topic	Occurrence and species diversity of wild and semi-wild orangutan parasites		
Name	Assoc. Prof. MVDr. Ivona Foitová Ph.D.	Field	parasitology
Department	Department of Botany and Zoology, Faculty of Science	Keywords	orangutan, parasites

Description of the Project (overview, expected outcomes, reason for research, proposed outcomes for student(s))

There is still limited information available on orangutan parasites in general. Studies focusing on the parasites of orangutans in their natural habitat are even rarer, making any new information especially valuable. Today, orangutans survive only on two different islands: Borneo and Sumatra, part of the Sunda shelf formation. Each island has different habitats (dry lowland, peat swamp and hilly dipterocarp forests) representing a range of ecological conditions, with varying levels of human pressure. To date there is only scant information available on the variations in parasite species richness and prevalence in orangutans across these different habitats. Orangutans are found at different densities (Rijksen and Meijaard 1999, Husson *et al.* 2008), maintain different home range sizes (Singleton and van Schaik 2001) and have different diets (Russon *et al.* 2008) across this range of habitats. All of these factors are expected to affect parasite prevalence and species diversity within and between the two islands

Our investigation of orangutan parasite infection dynamics with respect to geographic variations is gaining ever greater interest. With a growing interest in health monitoring systems for wild orangutans comes the need to establish standard field sample collection guidelines including a standardized methodology to allow comparability of samples and data collected at different research sites. These data can then be used to compare the same populations over time, geographically separate populations, and to determine and limit the impacts of various disturbances of the habitat. Our analyses will include areas consist of populations living at different densities in a variety of different natural habitats, under different intensities of pressure from humans. Wild and semi-wild (rescued, reintroduced) orangutans will be investigated in this project

The detailed knowledge we will built up of parasite prevalence, species richness and penetrance in different populations will allow us to establish models for baseline and impacted populations. In particular the long-term longitudinal data built up over the years that the project has run will allow us to correct for seasonal and microclimatic variations in parasite infection and discern any trends brought about by various external and internal factors such as human encroachment, deforestation, habitat degradation and long term climate change (e.g. changes in rainfall patterns, temperature, humidity, etc.). It will also allow the use of parasitology as a non-invasive tool to monitor the health of particular populations, as an early warning system for detecting threats to particular populations and as a metric to monitor the success or failure of particular conservation efforts.

Student will be involved in a long-term international project that deals with the study of parasites and self-medication of orangutan, will gain experience working in a foreign team. Also will gain practical experience with coprological identification of orangutan parasites and deepen their experience with molecular methods.

Student Requirements (prerequisites, experience, acceptable fields of study, etc.)

- experience with coprological and molecular analyses
- hardworking, enthusiastic student interested in parasitology

Proposed responsibilities of the student(s)

- work with sample database
- sample preparation for future analyses
- perform coprological and basic molecular analyses

Additional important information (max. number of students, additional staff/faculty involved, etc.)

- maximum of 2 students