

## **Parasite community structure in sympatric Bornean primates**

### **ABSTRACT**

Parasites are important components of ecosystems, influencing trophic networks, competitive interactions and biodiversity patterns. Nonetheless, we are not nearly close to disentangling their complex roles in natural systems. Southeast Asia falls within global areas targeted as most likely to source parasites with zoonotic potential, where high rates of land conversion and fragmentation have altered the circulation of wildlife species and their parasites, potentially resulting in altered host-parasite systems. Although the overall biodiversity in the region predicts equally high, or even higher, parasite diversity, we know surprisingly little about wild primate parasites, even though this constitutes the first step towards a more comprehensive understanding of parasite transmission processes. Here, we characterise the gastrointestinal helminth parasite assemblages of a community of Bornean primates living along the Kinabatangan floodplain in Sabah (Malaysian Borneo), including two species endemic to the island. Through parasitological analyses, and by using several measures of parasite infection as proxies for parasite diversity and distribution, we show that (i) most parasite taxonomic groups are not limited to a single host, suggesting a greater flexibility for habitat disturbance, (ii) parasite infracommunities of nocturnal primates differ from their diurnal counterparts, reflecting both phylogenetic and ecological constraints, and (iii) soil-transmitted helminths such as whipworm, threadworm and nodule worm are widespread across the primate community. This study also provides new parasite records for southern pig-tailed macaques (*Macaca nemestrina*), silvered langurs (*Trachypithecus cristatus*) and Western tarsiers (*Cephalopachus bancanus*) in the wild, while adding to the limited records for the other primate species in the community. Given the information gap regarding primate-parasite associations in the region, the information presented here should prove relevant for future studies of parasite biodiversity and infectious disease ecology in Asia and elsewhere.