

AP1.5 ADAPTIVE PHYSIOLOGICAL RESPONSE OF UNDERSTORY BIRDS TO SELECTIVE LOGGING: FEATHER CORTICOSTERONE AS BIOMARKER OF ENVIRONMENTAL CHANGES

WEDNESDAY 3 JULY, 2019 11:30

● SIMONE MESSINA (DEPARTMENT OF BIOLOGY, UNIVERSITY OF ANTWERP, BELGIUM), VALERIA MARASCO (KONRAD LORENZ INSTITUTE OF ETHOLOGY, UNIVERSITY OF VETERINARY MEDICINE VIENNA, AUSTRIA), VIRGINIE CANOINE (DEPARTMENT OF BEHAVIOURAL BIOLOGY, UNIVERSITY OF VIENNA, AUSTRIA), SUZAN BENEDICK (FACULTY OF SUSTAINABLE AGRICULTURE, UNIVERSITI MALAYSIA SABAH, MALAYSIA), SUZANNE TOMASSI (DEPARTMENT OF ANIMAL AND PLANT SCIENCES, UNIVERSITY OF SHEFFIELD, UNITED KINGDOM), MARCEL EENS (DEPARTMENT OF BIOLOGY, UNIVERSITY OF ANTWERP, BELGIUM), DAVID P EDWARDS (DEPARTMENT OF ANIMAL AND PLANT SCIENCES, UNIVERSITY OF SHEFFIELD, UNITED KINGDOM), DAVID COSTANTINI (MUSÉUM NATIONAL D'HISTOIRE NATURELLE, SORBONNE UNIVERSITÉS PARIS, FRANCE)

✉ SIMONE.MESSINA@UANTWERPEN.BE

Most of the intact old-growth (primary) forests in tropical countries have been replaced by selectively logged forests. Although selectively logged forests may retain high avian biodiversity, such anthropogenic disturbance may hide negative effects for long-term population viability. Corticosterone (CORT) is a steroid hormone that plays an important role in regulating body homeostasis in birds. When measured in feathers (fCORT), fCORT may provide an integrated measure of circulating CORT over the time of growth of the feathers. Thus, fCORT is thought to reflect how an individual is responding to prevailing environmental conditions and might be associated to the local abundance of a given species. We conducted a 3-year study to investigate whether understory birds in habitat selectively logged forests exhibit higher CORT in their tail feathers (fCORT) than birds in primary forests. The study took place in Danum Valley, Malaysian Borneo, where primary and selective logged forests form a unique vast contiguous forest. We found that the association between fCORT and forest type varied among species and that the within-species difference in fCORT between primary and logged forest was associated with that in local abundance. This study shows that for some understory birds, fCORT may be a marker of population health linked to environmental conditions. Thus, fCORT might prove useful to estimate the impact of different silvicultural practices on birds to improve forest management.