

SEEWIESEN

LECTURE SERIES

FALL/WINTER 2018/19

Max Planck Institute
for Ornithology

MAX-PLANCK-GESELLSCHAFT

THURSDAY | January 17th, 2019 | 13 P.M. | HOUSE 4 LECTURE ROOM

FRANK RHEINDT

National University of Singapore | Host: Küpper Research Group

Conservation genomics: How genome-wide data can assist in species survival

Our planet finds itself in the sixth extinction crisis, this one being of an anthropogenic nature. In the NGS era, evolutionary biologists now have an opportunity to contribute to conservation with the help of genome wide data. In this presentation, I provide an overview of a number of Southeast Asian case studies in which the application of NGS based methodologies has contributed directly to species conservation and survival, including: (1) population-genomic assistance in ex-situ breeding of terminally endangered vertebrates; (2) detection of introgressive hybridization and genomic infiltration of foreign alleles in depleted populations; (3) inference of origin of traded individuals; and (4) discovery of significant cryptic diversity in an understudied fauna. Southeast Asia is one of the richest and – at the same time – one of the most anthropogenically impacted regions in the world, and shows the strongest beginnings of the impending extinction crisis. Conservation-genomics offers an increasingly affordable remedy for the lack of pertinent information on what to save and how to save it.

WHO IS FRANK RHEINDT?

2008 PhD thesis University of Melbourne (Australia)
2009-2012 Post-doctoral fellowship at Harvard University (USA)
2012- present Assistant Professor at National University of Singapore

SELECTED PUBLICATIONS

- Chattopadhyay B, Garg KM, Soo YJ, Low GWJ, Frechette J, Rheindt FE (in press). Conservation genomics in the fight to help the recovery of the critically endangered Siamese crocodile *Crocodylus siamensis*. *Molecular Ecology*.
- Baveja P, Tang Q, Lee JGH, Rheindt FE (in press). Impact of genomic leakage on the conservation and species integrity of the endangered Milky Stork. *Biological Conservation*.
- Ng NSR, Prawiradilaga DM, Ng EYX, Trainor C, Verbelen P, Rheindt FE. 2018. A striking new species of leaf warbler from the Lesser Sundas as uncovered through morphology and genomics. *Scientific Reports* 8: 15646.
- Symes WS, Edwards DP, Miettinen J, Rheindt FE, Carrasco LR. 2018. Combined impacts of deforestation and wildlife trade on tropical biodiversity are severely underestimated. *Nature Communications* 9: 4052.
- Nash HC, Wirdateti, Low GW, Choo SW, Chong JL, Semiadi G, Hari R, Sulaiman MH, Turvey ST, Evans TA, Rheindt FE. 2018. Conservation genomics reveals possible illegal trade routes and admixture across pangolin lineages in Southeast Asia. *Conservation Genetics* 19: 1083-1095; <https://doi.org/10.1007/s10592-018-1080-9>.
- Tan DJX, Chattopadhyay B, Garg KM, Cros E, Ericson PGP, Irestedt M, Rheindt FE. 2018. Novel genome and genome-wide SNPs reveal early fragmentation effects in an edge-tolerant songbird population across an urbanized tropical metropolis. *Scientific Reports* 8: 12804.
- Garg KM, Chattopadhyay B, Wilton PR, Prawiradilaga DM, Rheindt FE. 2018. Pleistocene land bridges act as semipermeable agents of avian gene flow in Wallacea. *Molecular Phylogenetics and Evolution* 125: 196-203.

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