MADAGASCAR DISSERTATION/THESIS PROJECT

MA56 - Acoustic techniques for monitoring forest birds

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It is important to develop efficient methods for monitoring forest bird communities in Madagascar in order to know whether conservation measures are working to conserve important biodiversity features. Acoustic methods can be an effective monitoring approach to monitor organisms which produce vocalisations, such as birds. In this project sound recordings made simultaneously with standard bird point counts across the Mariarano forest will be treated as a representation of a whole bird community rather than trying to classify individual species. It will then be possible to derive monitoring indices based on the acoustic dissimilarity between pairs of recordings made at a network of sites across a landscape and through time. This approach will allow comparison of the power of automatic acoustic methods and standard monitoring to estimate alpha and beta diversity. It will also be possible to explore whether environmental covariates from satellite remote sensing such as Landsat data can allow estimated acoustic dissimilarity to be modelled across whole landscapes using generalised dissimilarity modelling. Sound recordings from previous years can be used to test whether temporal differences in bird communities can be detected between years and whether any differences are associated with forest disturbance.

Suggested reading

* indicates particularly useful sources.

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Buxton, Rachel T, et al. (2018), 'Pairing camera traps and acoustic recorders to monitor the ecological impact of human disturbance', Glob. Ecol. Conserv., 16

Castro, Isabel, et al. (2019), 'Experimental test of birdcall detection by autonomous recorder units and by human observers using broadcast', Ecol. Evol., 9 (5), 2376-97.

Darras, Kevin, et al. (2019), 'Autonomous sound recording outperforms human observation for sampling birds: a systematic map and user guide', Ecol. Appl.,

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Murphy, Asia J, et al. (2018), 'Using camera traps to examine distribution and occupancy trends of ground-dwelling rainforest birds in north-eastern Madagascar', Bird Conserv. Int., 28 (4), 567-80.

O'Dea, N, JEM Watson, and RJ Whittaker (2004), 'Rapid assessment in conservation research: a critique of avifaunal assessment techniques illustrated by Ecuadorian and Madagascan case study data', Divers. Distrib., 10 (1), 55-63.

Orben, Rachael A, et al. (2019), 'Comparing imaging, acoustics, and radar to monitor Leach's storm-petrel colonies', PeerJ, 7