Avian Population Responses to Anthropogenic Landscape Changes in Pohnpei, Federated States of Micronesia

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ABSTRACT

We used historic and current avian surveys to investigate changes in bird populations in the last 3 decades. Detections for 13 bird species were compared between 1994 and 2012, showing fewer and larger numbers of sightings for several species. *Rukia longirostra* and *Ducula oceanica* showed the largest overall increase (respectively 359% and 220%). The largest overall declines were observed for *Anous* species and *Myzomela rubratra* (respectively -51% and -22%). Additionally we used density (\( \lambda \)) and occupancy (\( \Psi \)) analysis for 10 and 13 terrestrial bird species, respectively. Density and occupancy models showed positive and negative relationships to habitat composition and patch configuration. Endemic *Rhipidura kubaryi* occupancy was positively affected by increases in forest edge associated with forest fragmentation. *Ducula oceanica* was negatively affected by reductions in forest canopy height from agricultural incursions. Density and occupancy of endemics *Rukia longirostra*, *Toridamphus reichenbachii*, and *Trichoglossus rubiginosus* were related to low amounts of forest edge, high canopy height and crown closure, which all are characteristics of island climax forest. Pohnpei birds evolved under very stable conditions making anthropogenic landscape changes the major population driver. Future conservation strategies should be based on Pohnpei’s unique forest protection.