

Selective logging reduces body size in omnivorous and frugivorous tropical forest birds

ABSTRACT

Selective logging is the main anthropogenic disturbance in tropical forests, driving shifts in species abundances. Body size and body condition are important metrics of fitness that may be affected by habitat degradation. We conducted a four-year study to investigate how selective logging impacted the body size and body condition index (BCI) of 55 Bornean bird species and whether changes in body metrics were associated with shifts in relative population abundance. Frugivorous and omnivorous birds had reduced body size in selectively logged versus unlogged forest, but we found no evidence for selective removal of individuals driven by sex differences or post-fledging body size, indicating different developmental conditions for frugivores and omnivores in logged forest. Change in body size between forest types showed no clear patterns for insectivorous birds, and did not differ between IUCN categories. BCI of birds was affected by study year, suggesting an effect of climatic conditions on food availability, but not by logging. At the community level, post-logging change in population abundance was not associated with reduced body size, although between species variation suggests that adverse environmental conditions and different coping strategies underlie body size reductions in logged forest. Our study suggests that body size is a valuable metric to assess how logging impacts forest birds, pointing towards potential functional consequences related to seed dispersal within logged forests and need for improved silvicultural practices.