

Data Papers

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Distributions, life-history specialization, and phylogeny of the rain forest vertebrates in the Australian Wet Tropics

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Abstract. The purpose of this data set was to compile distributional, general life-history characteristics and phylogenies for Australian tropical rain forest vertebrates to inform a wide range of comparative studies on the determinants of biodiversity patterns and to assess the impacts of global climate change. We provide three distinct data sets: (1) a table of species-specific distributional and life-history traits for 242 vertebrate species found in the rain forests of the Australian Wet Tropics; (2) species distribution maps (GIS raster files) for 202 of the species displaying both the realized and potential distributions; and (3) phylogenies for these species. These species represent 93 birds, 31 amphibians, 31 mammals (including one monotreme), and 47 reptiles. Where information exists, the distributional and life-history data compiled here present information on: indices of environmental specialization (ENFA), habitat specialization, average body mass and size, sexual dimorphism, reproductive characteristics such as age at first reproduction, clutch/litter size, number of reproductive bouts per year and breeding seasonality, longevity, time of day when most active, and dispersal ability; distributional characteristics such as range size (potential and realized for both total and core ranges) and observed ranges in temperature, precipitation, and elevation; and niche attributes such as environmental marginality and specialization. The distribution maps provided represent a combination of presence-only ecological niche modeling (using MaxEnt) to estimate the potential distribution of a species followed by biogeographic clipping by expert opinion based on extensive field data and a subregional classification relevant to the topography and biogeographic history of the region to produce best-possible estimates of the realized distribution. Our assemblage contains many species with a shared evolutionary history, and thus many analyses of these data will need to account for phylogeny. Although a comprehensive phylogeny with branch length information does not exist for this diverse group of species, we present a best-estimate composite phylogeny constructed primarily from recently published molecular phylogenies of included groups.

Key words: *Australia Wet Tropics; distribution; life history; rain forest vertebrates.*

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