

# The avifauna of Bosque Fray Jorge National Park and Chile's Norte Chico

Kelt, D. A., Cofré, H., Cornelius, C., Engilis Jr, A., Gutiérrez, J. R., Marquet, P. A., ... & Vásquez, R. A. (2016). The avifauna of Bosque Fray Jorge National Park and Chile's Norte Chico. *Journal of Arid Environments*, 126, 23-36. <10.1016/j.jaridenv.2015.06.018> Accessed 28 Dec 2020.

## Abstract

The avifauna of Chile is relatively depauperate, comprising 469 extant species, of which 213 are terrestrial. However, the Coquimbo Region presents a broad ecological transition from the hyperarid Atacama Desert to the north, and the more mesic Chilean Mediterranean region of central Chile, resulting in relatively high species diversity. Approximately 130 species are found here, 8 of which are endemic to Chile although not to this region. Bosque Fray Jorge National Park is a 9959 ha Biosphere Reserve dominated by matorral habitat and hosting up to 123 bird species. Through avian surveys and banding over nearly a decade we have documented 63 terrestrial species and discerned predictable seasonal and interannual structure to avian assemblages, at least through an extended dry period. Recent studies in the matorral habitats of the park indicate seasonal patterns that fall into 4 patterns: year-round residents, winter visitors, summer breeders, and transients. Short-term banding studies demonstrate co-occurring wintering and breeding cohorts among species of Sierra-finches (*Phrygilus*) in the park; such assemblages and dynamics are reminiscent of North American Mediterranean avian assemblages and pose interesting ecological comparisons. In this period of surveys there appears to have been a gradual transition of the avifauna that may be a response to anthropogenic influence and/or climate change. Research on the foraging behavior of 2 insectivorous species indicate that one of these is convergent on better-known North American taxa while the other clearly is not; these efforts suggest useful avenues for further comparative research. A remarkable coevolutionary association between the Chilean Mockingbird (*Mimus thenca*) and endoparasitic mistletoes (*Tristerix*) provides insight into potential convergent ecologies in desert regions with different evolutionary histories. Less than 1% of the park comprises temperate forest remnants that subsist due to extensive water input from fog. Research in these remnants has emphasized the role of habitat fragmentation on avian assemblage composition and on reproductive ecology by forest-dependent species. The avifauna here comprises a subset of that found in intact Valdivian rainforest to the south, and forest remnant size alone explains over 90% of the variation in species numbers. One species has been particularly well studied; the Thorn-tailed Rayadito (*Aphrastura spinicauda*) is more abundant and has higher nestling survival in larger fragments. We summarize other work on stress responses and variation in song structure in this species. Finally, the role of birds in tree recruitment here has important implications in the face of a recent history of reduction in sizes of forest remnants; numerous birds consume the fruit of the dominant tree, olivillo (*Aextoxicon punctatum*), but they fail to promote successful recruitment because they defecate viable seeds in locations that provide poor survival of seedlings. Ornithological research in Chile is undergoing a modest renaissance, and while dryland avifaunas are characterized more by what is not known and has yet to be studied than by actual ecological understanding, they provide a baseline for many exciting studies ranging from natural history to the role of migration to comparative dynamics of independent lineages in North and South America..

## Keywords

Avian demography, Foraging ecology, Matorral, Migration, Mistletoe, Remnant fog forest.