DIVERSITY OF BIRDS ALONG AN ELEVATIONAL GRADIENT IN THE CORDILLERA CENTRAL, COSTA RICA

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ABSTRACT.—Species diversity and community composition of birds change rapidly along elevational gradients in Costa Rica. Such changes are of interest ecologically and illustrate the value of protecting continuous gradients of forest. We used mist nets and point counts to sample birds along an elevational gradient on the northeastern Caribbean slope of the Cordillera Central in Costa Rica. Sites included mature tropical wet forest (50 m); tropical wet, cool transition forest (500 m); tropical premontane rain forest (1,000 m); and tropical lower montane rain forest (1,500 and 2,000 m). We recorded 261 species from 40 families, including 168 species captured in mist nets (7,312 captures) and 226 detected during point counts (17,071 observations). The sample included 40 threatened species, 56 elevational migrants, and 22 latitudinal migrants. Species richness (based on rarefaction analyses) changed little from 50 to 1,000 m but was lower at 1,500 and 2,000 m. Mist nets and point counts often provided similar views of community structure among sites based on relative importance of difference categories of species (e.g. migrant status, trophic status). Nonetheless, important differences existed in numbers and types of species represented by the two methods. Ninety-three species were detected on point counts only and 35 were captured only. Ten families, including ecologically important ones such as Psittacidae and Cotingidae, were not represented by captures. Elevational migrants and threatened species occurred throughout the gradient, illustrating the need to protect forest at all elevations. A comparable study from the Cordillera de Tilarán (Young et al. 1998) demonstrated similar patterns of species change along an elevational gradient. Comparisons with that study illustrated that point counts are a valuable complement to mist-net studies. Both studies indicated the diverse nature of the avifauna along elevational gradients in Costa Rica. Received 8 December 1998, accepted 7 December 1999.