GOS SPRING MEETING POSTER ABSTRACTS
20-22 APRIL 2007
BRUNSWICK, GA

NON-MECHANIZED LOGGING MAY INCREASE UNDERSTORY BIRD SPECIES RICHNESS IN LOWLAND TROPICAL FOREST

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Abstract: We examined the effects of non-mechanized selective logging on understory bird communities in the northern Peruvian Amazon through case studies in the Cordillera de Colán (Amazonas department) and Allpahuayo-Mishana National Reserve (Loreto department). Indigenous communities in the Cordillera de Colán harvest the timber species, *Cedrelinga cateniformis*, while residents in Allpahuayo-Mishana log the endemic tree, *Caraipa utilis* for commercial sale. We sampled birds using mist nets (8 x 10 m by 3 m, 36 mm mesh) at 21 lowland forest sites from 100 to 800 m a.s.l. with different logging histories between February and November 2005. Birds in forests logged one, 5, and 9 y previously were compared with those in unlogged forests using a sample effort of 4439 net-hours. We made 1106 captures of 130 species belonging to 21 families. The Thamnophilidae (typical antbirds) and Trochilidae (hummingbirds) were the best-represented families, with 30 and 20 species, respectively. Rare species, which were defined as those comprising less than 2% of total captures, made up the majority (86%) of captures, and included 3 long-distance Nearctic-Neotropical migrant species. We assumed that not all species were detected, and used a jackknife method to estimate species richness for each site based on empirical species abundance distributions from our capture data. Our results show that understory bird species richness increases significantly 5 y after selectively logging 2-3 trees/ha without the use of heavy equipment. Our results stand in stark contrast to the effects of mechanized selective logging on birds, which has been shown to result in the dramatic decline and/or disappearance of many understory species in other Neotropical forests. We discuss the implications of current forest management practices in Peru for bird conservation in the tropics.