

Waterbird Assemblages and Habitat Characteristics in Wetlands: Influence of Temporal Variability on Species-Habitat Relationships

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Abstract

Patterns of spatial and temporal variation in species richness, abundance and diversity were evaluated in eight wetlands in Central-South Chile in relation to nine wetland characteristics. Twenty-six bird species were recorded, among the most representative families were Rallidae, Ardeidae and Anatidae with five species each. Stepwise regression analyses identified wetland area and water level fluctuations as the most important variables determining bird abundance. Variations in species richness were explained by wetland area, shoreline length, vegetation cover and water-level fluctuations. Shoreline development, shoreline length and wetland area lower than one-meter depth were especially important in determining species diversity. Cluster analyses showed similar results. Shoreline length was an important feature influencing total species number, but simple regression analysis showed that the species area relationship occurs in wetlands too. This study concludes that species richness, bird abundance and diversity reach higher values in larger and structurally more heterogeneous wetlands, but with important seasonal dynamics in waterbirds. The relationships between habitat characteristics and community structure did not remain unchanged throughout the year, suggesting that the birds respond differently to one or another habitat characteristic depending on the season. These results show the need for wetland conservation in Chile, paying special attention to the largest and most heterogeneous wetlands to conserve the greatest species richness and bird abundance.