

The influence of wood land size and shape on bird species richness and diversity in Karkas protected area

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Abstract:

Determining landscape parameters influencing species richness of habitat patches is one of the most important issues in conservation biology. Many previous studies have investigated the influence of habitat parameters on bird assemblages in forest patches, but studies seeking effects of oasis parameters on bird assemblages are very scarce. Karkas Protected Area is located in semi-arid zone in the central Iran, comprising a number of woodland patches supporting different groups of birds. We studied the influence of patch size and shape on bird species richness and diversity of woodland patches in Karkas Protected Area. Bird census was conducted in spring and summer 2007 within 15 woodland patches using established line transects (TL = 17.1 km). Rarified species richness and Shannon-Wiener diversity index were respectively used as measures of species richness and diversity. Patch parameters (area and circumference) were quantified using satellite images. Linear regression analysis revealed positive effect of patch area and negative effect of patch shape (the ratio of patch perimeter to patch area) on bird species richness and diversity. These results can be applied in management programs for biodiversity conservation, in particular, for maintaining bird species diversity.

Key words: Forest birds, Island biogeography theory, Shannon-Wiener diversity index, Rarified species richness, linear regression