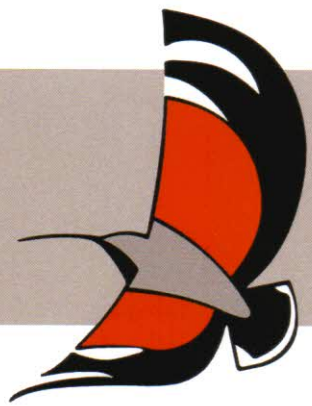
TICHODROMA
monografie del Gruppo Piemontese Studi Ornitologici "F.A. Bonelli"- Onlus

ISSN 2421-261X

XIX CIO
TORINO 2017
XIX CONVEGNO ITALIANO DI ORNITOLOGIA



Riassunti del XIX Convegno Italiano di Ornitologia
Torino, 27 settembre - 1 ottobre 2017

A cura di: Sergio G. Fasano & Diego Rubolini

Settembre 2017. Numero 6

The contribution of broadscale and finescale habitat structure to the distribution and diversity of birds in an Alpine forest-shrub ecotone

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In a mountain context, the forest-shrub ecotone is an area of high biodiversity. Relatively little is known about the habitat requirements of birds in this habitat, yet it is facing potential threats from changes in grazing practices and climate change. Further information on key habitat components affecting bird communities of the ecotone are needed in order to inform management strategies to counteract potential habitat loss, and to better inform predictions of how bird communities may be affected by future environmental change. Data on bird occurrence and broadscale (land cover) and finescale (vegetation structure and shrub species composition) habitat variables were collected in an Alpine forest-shrub ecotone in Val Troncea (northwestern Italian Alps) in order to address two objectives: to identify the key habitat variables associated with the occurrence of individual species and with the diversity of the bird community; and, to assess which scale of habitat measurement (broadscale, finescale or both combined) is needed to model bird occurrence. Shrub cover was important for several species, and for species diversity and richness, although relationships were often non-linear and in some cases, shrub species identity was important. Furthermore, some species preferred more open areas dominated by grassland. Vegetation structure was of relatively little importance for individual bird species, but was more important for modelling species richness and diversity. Broadscale variables, or combinations of broad- and finescale variables, tended to have the best performing models. These findings suggest that the management should strive to maintain a mosaic of habitats whilst minimizing forest encroachment, which could be achieved through targeted grazing. Broadscale habitat data and data on shrub species composition should provide a sufficient basis for identifying relevant species-specific habitat parameters in a mountain environment in order to model future scenarios of effects of habitat change on the bird community of the alpine forest-shrub ecotone.