

Communities and spatio-temporal patterns of epigeic beetles (Coleoptera) in high mountain habitats of the Central Norwegian Scandes, with special emphasis on carabid beetles (Carabidae)

Jürgen Naujok & Oliver-D. Finch

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Within a comprehensive landscape ecological research project in the Central Norwegian high mountains, the beetle fauna (Coleoptera) of different alpine areas was investigated during the snow-free season of the year 2001 (June – October). The two research regions are situated at a latitude of approximately 62°N: one in the oceanic western part and one in the continental eastern part of Central Norway. In each region two small catchments were selected as representative investigation areas, located in the low alpine and in the middle alpine belt, respectively. Additionally, single study plots were examined in the subalpine belt and at the top of the highest mountain peaks. Epigeic beetles were caught using pitfall traps that were emptied fortnightly. 114 sites were investigated with 2 – 4 pitfall traps each. The total number of traps amounted to 300. During the vegetation period 3816 adult beetles of 16 families were caught. Rove beetles (Staphylinidae) were dominant (2770 individuals), followed by ground beetles (786 individuals). The most abundant and widespread phytophagous beetle family was the one of the weevils (Curculionidae) with 122 individuals. All other families appeared with less than 30 specimens. Community analyses were focused on the ground beetles (Carabidae) of which 17 species were recorded. Although the subalpine plots were investigated with the lowest intensity, the species richness of carabids there was highest (7 species in the oceanic west, 9 species in the continental east). The alpine areas had lower species numbers (5 or 6 species). In the investigation areas as well as in single ecotopes one or two species were dominant, the remaining species appearing only in considerably lower abundance. The number of hygrophilous species and their abundance is higher in the western oceanic region. Single species occurring both in low and middle alpine habitats showed differences in phenology and spatial distribution patterns between the two altitudinal levels. Several carabid species were characteristic of some of the investigated habitats. These habitats coincided, in some cases, with the patterns of vegetation classes. The fine-grained mosaic of ecotopes was not reflected on the same scale by the carabid fauna.

Key words: Carabidae, community structure, habitat preference, phenology, mountain habitat, alpine areas, activity patterns, Norway

Jürgen Naujok & Oliver-D. Finch, Carl-von-Ossietzky University of Oldenburg, FK V, Institute of Biology, Geo- and Environmental Sciences, Terrestrial Ecology, D – 26111 Oldenburg, Germany.