Can infrastructure habitats contribute to the preservation of threatened biodiversity?

Tommy Lennartsson (tommy.lennartsson@cbm.slu.se), Sofia Gylje (sofia.gylje@artdata.slu.se), J-O Helldin (j-o.helldin@cbm.slu.se), Anna Dahlström (anna.dahlstrom@cbm.slu.se)

Swedish Biodiversity Centre, Swedish University of Agricultural Sciences, Box 7007, 75007 Uppsala, Sweden, phone +46705868381

Key words: Red-listed species, Habitat ecology, Road verge, Railway, Quarry

Infrastructure creates a number of different types of man-made nature that can serve as habitat for species. Many of these have been acknowledged for their species richness, for example some roadsides, railway stations, and sand quarries. Also threatened species occur in such habitats, but can infrastructure contribute significantly to the preservation of red-listed species and to halt the loss of biodiversity? If so, which infrastructure habitats are most important and which groups of species are in particular affected?

We have studied habitat preference, threats, suggested conservation actions, and distribution of Swedish red-listed species of plants and insects. The results show in short that infrastructure habitats harbour red-listed species to an extent that is well comparable with more traditional habitats such as pastures, hay-meadows, and some forest types. Particularly important are roadsides, railways, sand quarries, and open corridors for electric power lines. Some species occur also in other habitats, mainly habitats in the agricultural landscape, whereas others at present occur only in infrastructure habitats. For the first group, infrastructure complement other habitats and distribution areas, for the second group infrastructure has the main responsibility for the preservation of the species.

Most of the species can be attributed to historical habitats in the agricultural landscape, for example hay-meadows, dry open pastures, sandy forest pastures, traditional arable fields and leys, heaths, river banks, and subalpine forests. Suboptimal management of such traditional habitats contributes to increasing the relative importance of infrastructure habitats. However, also infrastructure habitats need considerable improvements of their management in order to function as sustainable habitats, and in order to use their full potential. We suggest that understanding of the species' original habitats in combination with understanding of the species' ecology is a key factor for developing suitable habitat conditions and management methods for infrastructure habitats.