HELSINGIN YLIOPISTO — HELSINGFORS UNIVERSITET

Tiedekunta – Fakultet	Laitos – Institution
Matematisk - Naturvetenskapliga	Institutionen för Ekologi och Systematik, avd för svenskspråkig undervisning

Tekijä – Författare
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Työn nimi – Arbetets titel
A case study of a patchy population of the Apollo butterfly (*Parnassius apollo*); the importance of nectar sources.

Oppiaine – Läroämne
Morfologisk-ekologisk zoologi

Työn laji – Arbetets art	Aika – Datum	Sivumäärä – Sidoantal
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Tiivistelmä – Referat
The Apollo *(Parnassius apollo)* has severely declined since the 1930s all over Europe and Scandinavia. Currently in Finland the species occurs in the SW archipelago and on Åland. The Apollo is an arctic butterfly, whose hostplant *Sedum telephium* is patchily distributed, only occurring on rocky outcrops. Typically nectar resources do not occur on the rocky outcrops. There are no discrete habitat patches consisting of both hostplant and nectar resources.
I studied an Apollo population in an area of 5 km^2 on Stortervolandet in the inner archipelago zone. 43 of the 67 surveyed rocky outcrops were suitable for the species, but larvae occupied only 27. In addition I included 14 nectar patches consisting of the species main nectar plants *Cirsium* spp and *Centaurea jacea*. In the Mark Release Recapture (MRR) study where both patch types were surveyed using a constant search time per unit area, 187 adults were marked and 105 recaptures were made on 70 individuals. Although the longest distance moved between captures was 1840 m, most individuals (71%) did not move more than 400 m. Males and females did not differ in the distances moved between captures. Furthermore, movement between patches was common since 75% of the recorded movements were between patches. Moreover, movement between hostplant patches is as common as movement between a hostplant and a nectar patch. There is the same amount of movement from the biggest patches as from the smallest patches, which indicates that there are no local populations. I therefore conclude that this population forms a patchy population where the adults mix over the whole area, but successful reproduction can only take place on discrete hostplant patches. A logistic regression showed that the occurrence of adults on a hostplant patch was higher for patches less isolated from nectar patches. Even though the adults in a patchy population move over vast areas, an effect of patch isolation can be found.
The Apollo is constrained by the isolation of the hostplant patch from surrounding nectar patches, conservation of the species should therefore regard both patch types. Natural meadows are scarce in the agricultural landscape today. Therefore, butterflies are confined to abandoned fields and roadsides rich on nectar plants. Due to changes in the spatial location of the nectar resources, the population may have to redistribute itself over the available hostplant patches. The redistribution is hardly a problem for a mobile species such as the Apollo, but it is crucial that suitable rocky outcrops are available. It is therefore important for the conservation of the species to protect all suitable habitat patches, both occupied and unoccupied. Any further study on the population biology of this and other butterfly species should consider both the habitat configuration as well as the population dynamics of the species.

Avainsanat – Nyckelord
Apollo, butterfly, patchy population, isolation, conservation

Säilytyspaikka – Förvaringställe
Biblioteket för populationsbiologi

Muita tietoja – Övriga uppgifter