

On the genus *Nomada* Scopoli, 1770 (Hymenoptera, Apoidae) in Norway

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Stenløkk, J. A. 2011. On the genus *Nomada* Scopoli, 1770 (Hymenoptera, Apoidae) in Norway *Norwegian Journal of Entomology* 58, 44–72.

A faunistical survey of the Norwegian *Nomada* Scopoli, 1770 based on all known publications, museum material and private collections. A total of 2049 specimens have been examined, comprising 19 species. *Nomada argentata* Herrich-Schäffer, 1839, *N. goodeniana* (Kirby, 1802) and *N. integra* Brulle, 1832 are reported for the first time from Norway. Only half of the species are considered common, based on specimens and distribution. Four species; *N. panzeri* Lepeletier, 1841, *N. flavoguttata* (Kirby, 1802), *N. marshamella* (Kirby, 1802) and *N. ruficornis* (L. 1758), constitute 64% of the total Norwegian records. Of doubtful affinity to the Norwegian fauna are species with very few and old records; *N. argentata* Herrich-Schäffer, 1839, *N. armata* Herrich-Schäffer, 1839 and *N. integra* Brulle, 1832, while *N. villosa* Thomson, 1870 has recently been rediscovered. The Norwegian fauna seems to have less species compared to Sweden and Denmark.

Key words: Hymenoptera, Apoidae, *Nomada*, solitary bees, distribution in Norway.

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Introduction

The Norwegian Hymenoptera fauna is poorly known, with 3500 species recorded of an estimated total of 8000 species (Ottesen 1993, SABIMA 1998). Publications on Norwegian bees during the last century have mainly been restricted to the family Apidae. However, recent interest among a few Norwegian entomologists has been concentrated on solitary bees (Hansen 1995, Hansen & Olmi 1996, Berg 2000, 2008). The aim of the present paper has been to validate all Norwegian specimens of *Nomada* Scopoli, 1770 from museum material and private collections, in order to give a revised and updated taxonomy and to extract biogeographic information.

The cleptoparasitic *Nomada* Scopoli 1770 is a very diverse genus, representing an estimated half of the species in Nomadinae. This subfamily contains of 33 genera and more than 1200 species worldwide. Although *Nomada* occur on all continents except Antarctica, most of them are

Holarctic, and are best known from the Western Palaearctic (Alexander 1994, Alexander & Schwarz 1994).

The cleptoparasitic nature of *Nomada* implies dependence on host bees, often a sole species. As some of these hosts have a specific habitat requirement, a decrease of available habitats has a detrimental effect on the abundance of solitary bees, including *Nomada*.

Records of *Nomada* from Norway are mentioned in several papers, but almost exclusively as minor parts of general lists. The first part of this paper give an overview of all published records, while the second part deals with more specific details on the faunistic records and species verifications

Published records

The first reference to Norwegian *Nomada* was given by Siebke (1880), with his contribution to