

The Nesting Ecology of Social Wasps (Hymenoptera: Vespidae: Vespinae and Polistinae) in Northern Mongolia

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Abstract

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Observations on the nesting characteristics and colony life of Mongolian social wasps are essential to the field due to the peripheral locations of species distribution ranges and critical lack of such information. We found 35 nests of seven social wasp species, including three vespine species (*Dolichovespula saxonica*, *D. media* and *Vespula vulgaris*) and four polistine species (*Polistes snelleni*, *P. riparius*, *P. nimpha* and *P. biglumis*). Riparian woodland was the habitat where the most species (five out of seven) nests were found. Nests of *P. snelleni*, Baikal-Far Eastern species, were found only in river cut banks, in holes probably originally excavated by passerine birds most likely sand martin (*Riparia riparia*). Nesting sites of *D. saxonica* were the most diverse (bank hole, underground, aerial and birch stump/logs). Colony size of vespine wasps in northern Mongolia was relatively small (36-60 individuals). Nests of *Polistes* species (except *P. snelleni*) were found frequently on the branches of willow (*Salix sp.*) and wild rose (*Rosa acicularis*). Other characteristics associated with each species nest were considered separately.

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Introduction

All Mongolian social wasps are included in the family Vespidae (Hymenoptera), and are divided in two subfamilies, Polistinae and Vespinae. These two subfamilies comprise nearly one-fifth of the total vespidae fauna of Mongolia, consisting of 11 species of Vespinae and 8 species of Polistinae.

Polistine and vespine wasps are eusocial insects. Eusociality is defined by overlapping adult generations, cooperative brood care and a division of labor into reproductive (queen/foundress) and non-reproductive (workers) groups (Carpenter, 1991). The colony cycle of

the social wasps in temperate regions is generally similar. After overwintering as an adult, the queen establishes her nest in late spring and rears the first workers. After workers emerge, the queen concentrates on intensive oviposition, while the workers carry out other duties such as brood care, nest extension, protection of the nest, and foraging for food. Males and future queens are produced and copulate through mid to late summer. In late autumn, only future founder queens remain to overwinter, while the workers and males die. The nest of a vespine wasp mainly consists of multiple combs (layers of cells for