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Formica paralugubris nov. spec. – a sympatric sibling species of *Formica lugubris* from the western Alps (Insecta : Hymenoptera : Formicoidea : Formicidae)

With 6 Figures and 3 Tables

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Abstract. *Formica paralugubris* nov. spec., a new sympatric sibling species of *Formica lugubris*, is described from the western Alps. *F. paralugubris* is well separable from *lugubris* in individual queens by means of several pilosity characters and size measures. Workers can be distinguished with a multiple discriminant function on the basis of nest sample means after removal of allometrically caused variance. The most powerful discriminators in workers are the pilosity characters on pronotum, ventrolateral propodeum and metapleuron. The species determination based on external morphology is in agreement with the results of earlier genetic studies and/or pupae carrying tests in nest samples from the Swiss Jura mountains. 11 nests genetically identified as 'type B' clearly belonged to *Formica paralugubris* and 8 nests identified as 'type A' showed the typical morphology of *Formica lugubris*. The external morphology provides no indication that *Formica paralugubris* is more closely related to *Formica aquilonia* than to *Formica lugubris* as suggested by earlier allozyme studies. The wood ant taxa *rufopratensis* FOREL, 1874, *santschii* WHEELER, 1913, *gaullei* BONDROIT, 1917, *grouvellei* BONDROIT, 1918, and *nylanderi* BONDROIT, 1919 were checked for synonymy with *Formica paralugubris* and belong to a different species.

1. Introduction

In 1967 HEINRICH KUTTER already demonstrated the existence of two different pilosity types within a large sample of wood ant queens of *Formica lugubris* ZETTERSTEDT, 1840 (KUTTER, 1967). Later he designated the long-haired queens as 'form I' and the shorter-haired queens as 'form II' of *Formica lugubris* (KUTTER, 1977). According to KUTTER form I was distributed throughout Fennoscandia, the British Isles and the Alps. Form II was restricted to the Western Alps and absent from Fennoscandia and the British Isles. Surprisingly the hot track of KUTTER was not followed by wood ant students and fell into oblivion.

During the last 18 years, a lot of biological investigations were performed on big polycalic colonies of *Formica lugubris* in the Swiss Jura mountains (e.g. GRIS & CHERIX, 1977; CHERIX & ROSENGREN, 1979; ROSENGREN & CHERIX, 1980; ROSENGREN & CHERIX, 1981; CHERIX, 1983; PASSERA et al., 1990; CHERIX et al., 1991; CHERIX et al., 1993; WALTER et al., 1993). Extensive studies on allozyme variation (PAMILO et al., 1992) gave a clear evidence that there were two genetically distinct, sympatric species of '*Formica lugubris*' in the Swiss Jura mountains, where these species occur even syntopically. A clear exchange of genetic material between the two forms named 'type A' and 'type B' could not be demonstrated. In fact they behave like different species and show a clear preference for

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