

basis for the pubescence hairs (Fig. 4). Median area of clypeus, frontal and occipital parts of head, upper pronotum, mesonotum, scutellum, gaster, and tibiae usually blackish. Genae, underside of head, coxae, femora, lower pronotum, lateral sclerites of mesosoma, and petiole yellowish red. For morphometric data and differences to *lugubris* and *aquilonia* see Tab. 3.

- Worker (Tabs. 1 and 2): Whole surface of head (except of genae), mesosoma, gaster, coxae, femora, and tibiae with numerous erect setae which are on average shorter than in *lugubris*. Dorsal plane of scape frequently with several short and semierect hairs. Eyes with numerous erect hairs the longest of which measure 22–40 µm. Frons of head less matt than in *pratensis*, comparable to situation in *rufa*. Scape shorter and thicker than in *pratensis*: the ratio scape length/maximum midpoint scape diameter is <9.60. Median area of clypeus, frons and back of head, antennae, coxae, femora, tibiae and gaster more or less blackish. Dorsum of promesonotum with a dark patch, which is less well defined than in *pratensis*. Remaining parts of head and mesosoma yellowish red. For morphometric data and distinction from *F. lugubris* see tables 1 and 2.

4. Discussion

There have been described 6 wood ant taxa from the region of the Alps, which should be checked and discussed for a possible synonymy with *Formica paralugubris*:

- a) *Formica santschii* WHEELER, 1913: It is a replacement name for invalid name *Formica rufa* var. *alpina* SANTSCHI, 1911, which is a junior homonym of *Formica adamsii* subsp. *alpina* WHEELER, 1909. There are no type specimens available in the WHEELER collection of the Museum of Comparative Zoology in Harvard (STEFAN COVER pers. comm. October 1994). *Formica rufa* var. *alpina* SANTSCHI has been described from the mountains north of Sondrio (Valtellina) in the Alps of N Italy. The only two type workers, which are still available in the collection of the Basel museum, belong to *F. lugubris*. Both have a strongly developed pilosity on the propodeum and metapleuron. The the upper extreme of $nMET_{cor}$ found within all the 184 investigated workers of *F. paralugubris* was 1.319; the type workers of *alpina* had values of 1.284 and 1.624. This should exclude a synonymy with *paralugubris* even if the pronotal and metapleural seta length data of the *alpina* types are less clear. A further indication for a synonymy with *lugubris* is the large CL/CW_{1750} of the type workers: in one specimen it is 1.141 and thus outside the known range of *F. paralugubris*.
- b) *Formica rufa* var. *grouvellei* BONDROIT, 1918: An investigation of the type queen (collection of R.I.N.S.B. Brussels) showed that *grouvellei* has nothing to do with the *lugubris-aquilonia* species complex. This type queen shows all structural and morphometric characters which are typical for the hairy morph of *Formica pratensis* RETZIUS, 1783 (= *nigricans* EMERY, 1909, see also SEIFERT, 1992b).
- c) *Formica rufa* var. *nylanderi* BONDROIT, 1919: Both existing type queens from the Col de Lautaret/ France and from Grindelwald/Switzerland were investigated. They definitely belong to the *lugubris-aquilonia* species complex and show a character combination which is typical for *Formica lugubris* but is strongly deviating from the condition in *paralugubris* nov. spec.: MESHL 339 and 350, METHL 323 and 316, PNHL 283 and 290, nPE 20 and 28 (first number for the type from Grindelwald and the second for the type from Col de Lautaret). The synonymy with *F. lugubris* is obvious.
- d) *Formica gaullei* BONDROIT, 1917 and
- e) *Formica rufa* var. *rufopratensis* FOREL, 1874. According to the original descriptions (reduction of setae on the eyes) both taxa can not belong to either *lugubris* or *paralugubris* and should be members of the *rufa-polyctena* species complex.

The arguments presented above show that it is a reasonable decision to describe a new species *Formica paralugubris* nov. spec. The external morphology provides no indication that *Formica paralugubris* is more closely related to *Formica aquilonia* than to *Formica lugubris* as suggested by the genetic studies of PAMILO et al. (1992). It is well separable from *Formica lugubris* by external morphology –