



Fig. 1: Map of Europe and northern Asia including all collecting sites of *Coptoformica* MÜLLER, 1923 evaluated by us. Original map with permission of Microsoft®Encarta®2006©1993-2005 Microsoft Corporation. All rights reserved.

are strongly underrecorded. The seemingly disjunct distributions within the *Formica pressilabris* or *F. forsslundi* populations suggested by our maps are most probably artefacts of differential sampling intensity (Fig. 1).

Describing the distribution of a species requires the most dense net of detections possible. Unfortunately, in many cases there are only isolated findings, especially with regard to insect species. Conclusions can be drawn from the comparison with available zoogeographic and also phyto-geographic systems. A first attempt towards a faunistic description of the Palaearctic Region on an entomological basis was presented by SEMENOV-TJANSHANSKIJ (1936), and a recent zoogeographic system is given by KRZYZHANOVSKY (2002, see also MÜLLER-MOTZFELD 2006). An extensive overview of the zoogeographical classification of faunal elements is given by DE LATIN (1967). We chose this system and the classification of floral zones and regions given by MEUSEL & JÄGER (1992) as a basis for our brief diagnosis of the distribution of the *Coptoformica* species. Ants are not directly dependent on plants, but the floral zones and regions represent certain macro- and micro-climatic conditions which also apply to the ants living there. The classification according to broad floral zones succeeds relatively well in Europe but must be fine-tuned to the situation in Asia; floral regions as subdivisions are used here.

The present paper restricts itself to summarizing the known distribution of the subgenus *Coptoformica* but does not treat taxonomic questions. Research conducted since the revision of SEIFERT (2000) yielded three still unpublished changes which we do not want to establish here nomenclatorically. For this reason we use here the composite name *Formica exsecta* NYLANDER, 1846 et *mesasiatica* DLUSSKY, 1964 to avoid a formal, argumentation-free synonymisation of these two taxa which is strongly suggested by genetic, morphological and chorological evidence (B. Seifert & A. Goropashnaya, unpubl.) and we treat here two new species, one from mountain meadows of the Caucasus and another one from the Tarbagatay Mountains (East Kazakhstan), as *Formica* sp. 11 and *Formica* sp. 12.

## Material and methods

In cooperation with the Academy of Sciences Kyrgyzstan (Bishkek), the Academy of Sciences Kazakhstan (Almaty) and the Xinjiang University Urumqi (P. R. of China), the

University of Greifswald (Germany) has conducted eight scientific expeditions in the mountains of Central Asia since 1998. The aim of these expeditions is to survey selected fauna in this mountain range. Initial results on the ant fauna were published in a checklist of the ants of Kyrgyzstan (SCHULTZ & al. 2006).

Roland Schultz participated in scientific expeditions to Central Asia from 1998 to 2001, in 2004 and 2005, Bernhard Seifert in 2000 and 2001. The expeditions always took place from mid-July to early August. They led to all parts of Kyrgyzstan and bordering areas of Kazakhstan, Uzbekistan, and Tadzhikistan. Each year different geographic areas were visited. In addition, RS participated in an expedition to the Lake Baikal (Russia) in 2001, to Mongolia in 2003, and to the western part of China (Xinjiang) in August-September 2004.

Further material was evaluated by RS from West Siberia (Altai, Russia), Primorsky Krai (Far East, Russia) and Mongolia, and by BS from Tibet (China), the Urals (Russia), and different parts of eastern Russia and Mongolia. Furthermore, both authors collected much material from different parts of Europe, and BS, especially, evaluated *Coptoformica* from all over Europe and Asia (SEIFERT 2000).

This study examines 855 samples of *Coptoformica*. Most of them could be determined to species level. The samples are from the following countries (number of samples from each country in brackets): Austria (31), Azerbaijan (2), Belgium (2), Bulgaria (6), China (31), Czech Republic (3), Denmark (6), Finland (50), France (20), Georgia (10), Germany (326), Italy (10), Japan (5), Kazakhstan (36), Kyrgyzstan (30), Mongolia (135), Netherlands (5), Norway (1), Poland (14), Russia (35), Serbia & Montenegro (2), Slovakia (3), Slovenia (1), Spain (4), Sweden (51), Switzerland (32), Turkey (2), and Ukraine (2) (Fig. 1). In total, more than 4500 specimens were examined.

## Results

### *Formica bruni* KUTTER, 1967

West Palaearctic. – Europe: North submeridional to temperate, planar to montane. Asia: South Siberian.

Due to the confusion of *Formica bruni* with *F. foreli* and *F. pressilabris*, the distribution of this species is probably underestimated. We have examined specimens originating from 28 different locations ranging from northern