ISSN 1211-8788 *Acta Musei Moraviae, Scientiae biologicae* (Brno)
90: 185–194, 2005

Three interesting species of the genus *Philodromus* Walckenaer, 1825 (Araneae: Philodromidae) in the Czech Republic

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Bryja V., Řezáč M., Kubcová L., & Kůrka A. 2005: Three interesting species of the genus *Philodromus* Walckenaer, 1825 (Araneae: Philodromidae) in the Czech Republic. *Acta Musei Moraviae, Scientiae biologicae* (Brno) **90:** 185–194. – In the study presented we report the occurrence of *Philodromus histrio* (Latreille, 1819) for the first time in the Czech Republic and also provide further details of the finding of *Philodromus marmoratus* Kulczyński, 1981. The number of *Philodromus* Walckenaer, 1825 species known from the Czech Republic is thus increased to 14. The recent occurrence of *Philodromus poecilus* (Thorell, 1872) in the Czech Republic after 25 years is confirmed and some taxonomical confusions regarding *P. poecilus* and *P. corticinus* (C.L. Koch, 1837) are clarified. Colour photographs of the general appearance of *Philodromus* species found to date are presented and the usefulness of coloration in their determination is discussed.

Keywords. Araneae, *Philodromus*, distribution, colour photographs, Czech Republic

Introduction

In the Czech Republic, the *Philodromidae*, with 3 genera and 20 species, is one of the smaller families of spiders (Buchar & Růžička 2002). In 2002, the genus *Philodromus* Walckenaer, 1825 was represented by 11 species in the Czech Republic (Buchar & Růžička 2002), namely: *P. albidus* Kulczyński, 1911, *P. aureolus* (Clerck, 1757), *P. cespitum* (Walckenaer, 1802), *P. collinus* C. L. Koch, 1835, *P. dispar* Walckenaer, 1826, *P. emarginatus* (Schrank, 1803), *P. fuscomarginatus* (De Geer, 1778), *P. margaritatus* (Clerck, 1757), *P. poecilus* (Thorell, 1872), *P. praedatus* O. P.-Cambridge, 1871 and *P. rufus* Walckenaer, 1826. Another two species from the *P. aureolus* group were reported very recently (Kubcová 2004): *P. buchari* Kubcová, 2004 was described as a new species for Central Europe and *P. marmoratus* Kulczyński, 1981 was proposed as a new synonym of *P. buddenbrocki* Braun, 1965 and also mentioned as a part of material studied from the territory of the Czech Republic.

The distribution of some species of the *P. aureolus* group (*P. praedatus*, *P. aureolus*, *P. cespitum*, *P. buchari, P. marmoratus*) and the sibling species *P. albidus* and *P. rufus* was established in the territory of the Czech republic just recently, during the redetermination that preceded the publication of the Catalogue of Spiders of the Czech Republic (Buchar & Růžička 2002) and also by a taxonomical study by Kubcová (2004). *P. praedatus* and *P. rufus* appear to be rare spiders restricted to warmer parts of the Czech Republic. Three species, *P. emarginatus*, *P. fuscomarginatus* and *P. margaritatus*, are found mainly on coniferous tree trunks and because of this way of life are not often collected, although

they are probably widely distributed. Two further species are also quite frequent: *P. dispar* occurs mainly in the warmer parts of the Czech Republic and *P. collinus* in coniferous forests. *P. poecilus* is very rare and is known in the Czech Republic only from a single specimen found in the collection of Prof. F. Miller (KŮRKA 1997).

In a this study we report the occurrence of some new and interesting species of the genus *Philodromus* in the Czech Republic: *P. histrio* (Latreille, 1819), *P. marmoratus* and *P. poecilus*. Some taxonomical anomalies regarding *P. poecilus* and *P. corticinus* (C. L. Koch, 1837) are clarified. We also present colour photographs of *Philodromus* species found to date and discuss the potential of their coloration for determination.

The numbers in brackets (in the Material section) denote squares of the grid mapping of the Czech Republic (PRUNER & MÍKA 1996).

Abbreviations

NR . . . . . Nature Reserve
NNR . . . . . National Nature Reserve
BR . . . . . Biosphere Reserve
PLA . . . . . Protected Landscape Area

Results and Discussion

Philodromus histrio (Latreille, 1819)

Material. Blíževedly – Hvězda (**5352**), Vlhošť NR – Malý Vlhošť, Kokořínsko PLA – 1♀, 26.4.2002, lgt. Petr Kment, det. et coll. M. Řezáč. Litice (**5252**), Vlhošť NR, Kokořínsko PLA – V.–X. 2003, 1♂, lgt. Luboš Beran, det. et coll. A. Kůrka. Moravská Nová Ves (**7168**) – abandoned old wineries on southern slopes exposed to Morava river – 2♀, 29.5.2002, lgt., det. et coll. V. Bryja. Sedlec (**7266**), Slanisko near Nesyt NNR, Lower Morava BR – 19.7.2003, 5 juv., leg. Josef Chytil, det. V. Bryja. Mikulov (**7266**), Mušlov – sand pit, Lower Morava BR – 21.5.2003, 1♀, lgt., det. et coll. Pavel Kasal; 1.8.2003, 1 juv., lgt., det. et coll. V. Bryja; 2.4.2004, 1♂+1 juv., lgt. Slavomil Vinkler, det. et coll. V. Bryja; 2.4.2004, 1♂+1♀, lgt., det. et coll. Jan Dolanský. Hlohovec (**7266**), Výtopa, Lower Morava BR – 10.5.2003, 2♀, lgt. J. Chytil, det. et coll. V. Bryja.

Comments. *P. histrio* was found in xerothermic localities and seems to inhabit the warmer biotopes of the Czech Republic. Three of five known localities are on sandy soils and may suggest a tight relationship between this species and this type of habitat. In Kokořínsko PLA, *P. histrio* was found on xerothermic tops of sandstone rocks which are exposed to the sun and only partly covered with relict pine forest. One female was obtained by sweeping heath and bilberry and one female was captured using yellow dishes in heath. Some other rare spiders are found syntopically here, with *P. histrio*, with *Alopecosa fabrilis* and *Dipoena torva* among the most important from a faunistic point of view. Whereas Vlhošť is a protected and relict stand, the Moravská Nová Ves locality is part of a village and consists of a south-exposed ruderal habitat made up of abandoned wineries and gardens in the warmest part of the Czech Republic. Some very rare spiders were also found with *P. histrio* in Moravská Nová Ves, namely *Euryopis saukea*, *Haplodrassus dalmatensis*, *Steatoda albomaculata* and *Zelotes gracilis* (for details see BRYJA et al., this issue). The specimens of *P. histrio* in Moravská Nová Ves were obtained

by sweeping/beating of low shrubs and trees. The other finding of *P. histrio* comes from the Lower Morava BR where the most abundant population was found in an abandoned sandpit near Mikulov. This locality is also characterized by the occurrence of some very rare spiders, e.g. *Arctosa perita*, *Cheiracanthium campestre*, *Scotina celans* and *Xysticus lineatus*. The remaining specimens from the Lower Morava BR were obtained by sweeping in the meadows close to the Nesyt and Výtopa fishponds and, especially in Nesyt, may represent aeronautic occurrence of juveniles.

P. histrio is a rather common species in all the surrounding countries (Blick et al. 2002, Starega 2004, Gajdoš et al. 1999) and in the Czech Republic has probably been overlooked despite the fact that both the genital organs (see Fig. 1A) and general appearance (Fig. 2) are highly characteristic. The occurrence of this species in the Czech Republic is simply not surprising; the question is why this species was not reported earlier. Possible explanations could be the appearance of the adults early in the spring or their common occurrence in partially synantropic habitats (not in Vlhošť) that had not been studied before. It is also intriguing that some other very rare spiders were found in all habitats of *P. histrio* that were studied more carefully. We cannot therefore rule out the possibility that we have been unable to define some other biotic or abiotic factor that determines the specificity of the *P. histrio* habitat.

Philodromus marmoratus Kulczynski 1891

syn. *P. buddenbrocki* Braun, 1965

Material. Lednice (**7166**) – 1♂, 25.6.1959, lgt. Jan Žďárek et Eva Valešová-Žďárková, det. et coll. M. Řezáč. Lednice (**7266**), Mlýnský rybník fishpond – 29.6.1994, 1♂, lgt. T. Grim, det. L. Kubcová, coll. V. Bryja.

Comments. *P. marmoratus* is a very rare species known previously only from Dněpropetrovsk in Ukraine (Braun 1965) and from the Slovakian (Kubcová 2004), Bulgarian and Austrian lowland forests (Jäger 1995). Based on the fact that the arachnofauna of lowland forests in eastern Austria and Southern Moravia is very similar (compare e.g. Thaler et al. 1984 and Miller & Obrtel 1975), the occurrence of this species in Southern Moravia is not surprising. Both specimens of *P. marmoratus* were determined long after the spiders had been collected in the field. One specimen was redetermined 43 years after collection; the second was obtained from craw contents in the course of a study of the feeding behaviour of the reed warbler *Acrocephalus scirpaceus* (Grim 1997, *sub P. aureolus*). We are thus unable to confirm that *P. marmoratus* also lives in lowland forests in the Czech Republic . However, Lednice lies in the centre of the most important lowland forest area in the Czech Republic and we therefore suggest that Moravian population of *P. marmoratus* lives in lowland forests as has been demonstrated for Austrian population (Jäger 1995).

Philodromus poecilus (Thorell, 1872)

Material. Mikulčice (7168) – 3♀, 29.5.2002, lgt. Jan Erhart, det. et coll. V. Bryja; 2♂, 21.5.2005, lgt. Jiří Pacherník, det. et coll. Vladimír Hula.

Comments. All specimens of *P. poecilus* were found on one solitary willow growing in the middle of a flooded meadow. The individuals were observed only on the area of the trunk where the bark was stripped. The cryptic coloration allowed the spiders to be almost invisible on such places (see Fig. 3). All specimens of *P. poecilus* were collected by hand. The discovery of *P. poecilus* in Mikulčice represents the second finding of this species in the Czech Republic. It was first found by F. Miller in Žebětín, which is currently part of Brno (KŮRKA 1997) in 1976, without closer specification of the biotope (BUCHAR & RŮŽIČKA 2002).

P. corticinus (C. L. Koch, 1837), which is closely related to *P. poecilus* (and probably often confused with it) has been found in all surrounding countries (GAJDOŠ et al. 1999, BLICK et al. 2002, STAREGA 2004). *P. corticinus* was figured only a few times in the 20th century, by SCHENKEL (1927), SIMON (1932, only female), MILLER (1971), and by THALER (1981). HEIMER & NENTWIG (1991) took over the drawings of MILLER (1971, female) and THALER (1981, male). Thaler, however, noticed that Miller's form deviates from his specimens both in the shape and proportions of the tibiae of the male palp as well as in the shape of the embolus. Moreover, MILLER (1971) claims that *P. corticinus* as illustrated by him is identical with Tullgren's *P. poecilus* (TULLGREN 1944), which is, moreover, identical with other drawings of *P .poecilus* by other authors (VILBASTE 1969, LOGUNOV 1992, ROBERTS 1995). It is worthy of note that MILLER (1971) claims that *P. poecillus* does not occur in Czechoslovakia, although he published its occurrence on Slovakian oaks a few years earlier (MILLER 1962). This suggests that he changed his mind regarding the identity of *P. poecilus* before the publication of his key (MILLER 1971). Miller's *P. corticinus* (Simon, 1932, not C. L. Koch, 1837) is thus undoubtedly *P. poecilus*. Misleading drawings by MILLER (1971), which are taken over as females by HEIMER & NENTWIG (1991) and also into the electronic key to European spiders (NENTWIG et al. 2003) could thus give rise to erroneous faunistic records. *P. corticinus* is very probably a stenotopic alpine species, as suggested by THALER (1981), which is probably correctly illustrated only by himself – SCHENKEL (1927) and C. L. KOCH (1837). All of this leads us to suggest that all *P. corticinus* material from Central Europe should be redetermined. From this point of view, the occurrence of *P. corticinus* in the Czech Republic is not probable.

The given figure of 14 species for the genus *Philodromus* still need not to be the final number of species occurring in the Czech Republic. Two other species of *P. aureolus* group, *P. buxi* Simon, 1884 and *P. longipalpis* Simon, 1870, may potentially be found in Czech material of *P. aureolus* or *P. cespitum*. The geographical distribution of these potentially overlooked species suggests that their area may also include the territory of the Czech Republic. *P. buxi* is known from France, Spain, Germany, Russia, Switzerland and the Balkan Peninsula (BRAUN 1965), from Poland (STAREGA 2004) and, according to PLATNICK (2005), it occurs from Europe to Kazakhstan. *P. longipalpis* is reported from neighbouring Germany and Slovakia (BLICK et al. 2002, GAJDOŠ et al. 1999); according to SEGERS (1992), it has also been collected in France, Spain, Crete, Turkey and Hungary (in Chyzer's collection, probably from the territory of Slovakia, because *P. longipalpis* is not on the Hungarian checklist). However, a recent study by MUSTER & THALER (2004)

suggests that the occurrence of *P. longipalpis* may be restricted only to the Mediterranean region and records of *P. longipalpis* from Central Europe belong to *P. buchari* instead. Another species, the alpine *P. vagulus*, distributed in the Alps and Carpathians, could also be found in the Czech Republic. In the mountains of Slovakia and Poland it occurs quite often (GAJDOŠ et al. 1999, PRÓSZYŃSKI & STAREGA 1971) and its presence cannot be excluded in the higher altitudes of the Beskydy, Jeseníky or Bílé Karpaty mountains. *P. pulchellus* Lucas, 1846 is a Mediterranean species, reaching its northernmost at Neusiedler Lake in Austria on salt marshes (JÄGER 1995). It could potentially be found on some of the salt marshes of South Moravia, of which the most probable is Slanisko u Nesytu NNR, about 150 kilometres from Neusiedler Lake.

Our findings have increased the number of *Philodromus* species in the Czech Republic to 14. Because some species of this genus are of highly characteristic appearance we present colour photographs in a later part of the manuscript (Figs. 2 and 3) together with comments on the general appearance of females of *P. vagulus* and of all *Philodromus* species found to date in the Czech Republic [with the exception of *P. buchari*, which is well illustrated elsewhere (KUBCOVÁ 2004)].

Females of the species from the *P. aureolus* group (*P. aureolus*, *P. cespitum*, *P. collinus*, *P. praedatus, P. marmoratus)*, despite significant variability, exhibit a typical pattern in their appearance that allows us to place them in the *P. aureolus* group. Typically, *P. aureolus* group species have two dark longitudinal bands on the cephalothorax with one light band in the middle, on which cephalic and thoracic parts can clearly be distinguished. In the abdominal pattern, three bands are also usually visible; the middle one is the broadest with a dark cardiac mark in the central part. No species of this group has such typical coloration, allowing its determination to be based on general appearance only. However, some patterns typical of individual species still occur: *P. praedatus* is often very pale, with the legs often darkly ringed and dotted, especially on the tibiae and femora and the lateral bands on the cephalothorax are typically mottled. Rings on the legs are also quite common in *P. cespitum*, in contrast to *P. aureolus* which has legs uniformly yellow or brown and also the lateral bands on the cephalothorax are often homogenously brown (without any patterning). *P. collinus* is usually the darkest, with the most dappled coloration, in many specimens with pronounced dark-brown spots and rings on the legs. It is important to note that in ethanol-stored material only pattern, not colour, could be evaluated because the specimens in collections tend to fade during extended preservation.

P. albidus and *P. rufus* are the smallest species of the genus in the Czech Republic, with a very distinctive pale appearance. Red dots on the abdomen are also typical but usually visible only at higher magnifications. These species (although not immediately distinguishable from one another) can easily be separated from other species in the area. *P. dispar* resembles species of the *P. aureolus* group in size and coloration but it is usually clearly distinguishable by the brown edging of the abdomen, which is often clearly visible in juveniles as well. *P. histrio* is a species of very distinctive appearance (see Fig. 2), clearly coloured with a very contrasting brown or reddish abdominal cardiac mark and two pairs of white lateral marks. *P. margaritatus* is usually found on tree bark and has a

very cryptic appearance with legs with dark dots and rings. There is another colour form, f. *laevipes* (syn. *tigrinus*, colour photograph e.g. in BELLMANN 1997) described for *P. margaritatus*; however we failed to find specimens of this form in Czech collections, although some intermediate variants appeared and one example is shown in Fig. 3. *P. emarginatus* is another bark-dweller and can be distinguished from other similar species by the pattern on the cephalothorax. *P. poecilus* is typically coloured and on both cephalothorax and the abdomen has very distinct pattern. *P. fuscomarginatus* is the largest species occurring in the Czech Republic and is usually uniformly coloured with two predominating colour types: grey and orange, resembling the colour of the pine bark, from the base (grey) or top (orange) of the trunk.

Acknowledgements

The authors would like to extend their thanks to P. Kment, L. Beran, J. Chytil, S. Vinkler, J. Dolanský, J. Erhart, P. Kasal, J. Pacherník, V. Hula, T. Grim and E. Žďárková for collecting or providing of the material, and F. Marmigère and G. Schulte for help in translation from French and Swedish.

Souhrn

V předkládané práci je poprvé z území České republiky hlášen nález druhu *Philodromus histrio* (Latreille, 1819) a jsou popsány detaily nálezu *Philodromus marmoratus* Kulczyński, 1981, jehož výskyt v České republice byl zmíněn již dříve. Počet druhů v rodu *Philodromus* Walckenaer, 1825, které jsou známy z území České republiky tak dosáhl čísla 14. Potvrzujeme také výskyt druhu *P. poecilus* (Thorell, 1872), který byl doposud z České republiky znám pouze z jediného nálezu před 25 lety a vyjasňujeme některé taxomické nejasnosti a mylné literární údaje týkající se dvojice druhů *P. poecilus* a P. *corticinus* (C. L. Koch, 1837). Jelikož většina druhů rodu *Philodromus* v České republice má výrazné zbarvení, předkládáme tabule z barevnými fotografiemi našich druhů a diskutujeme význam zbarvení pro determinaci v rámci tohoto rodu.

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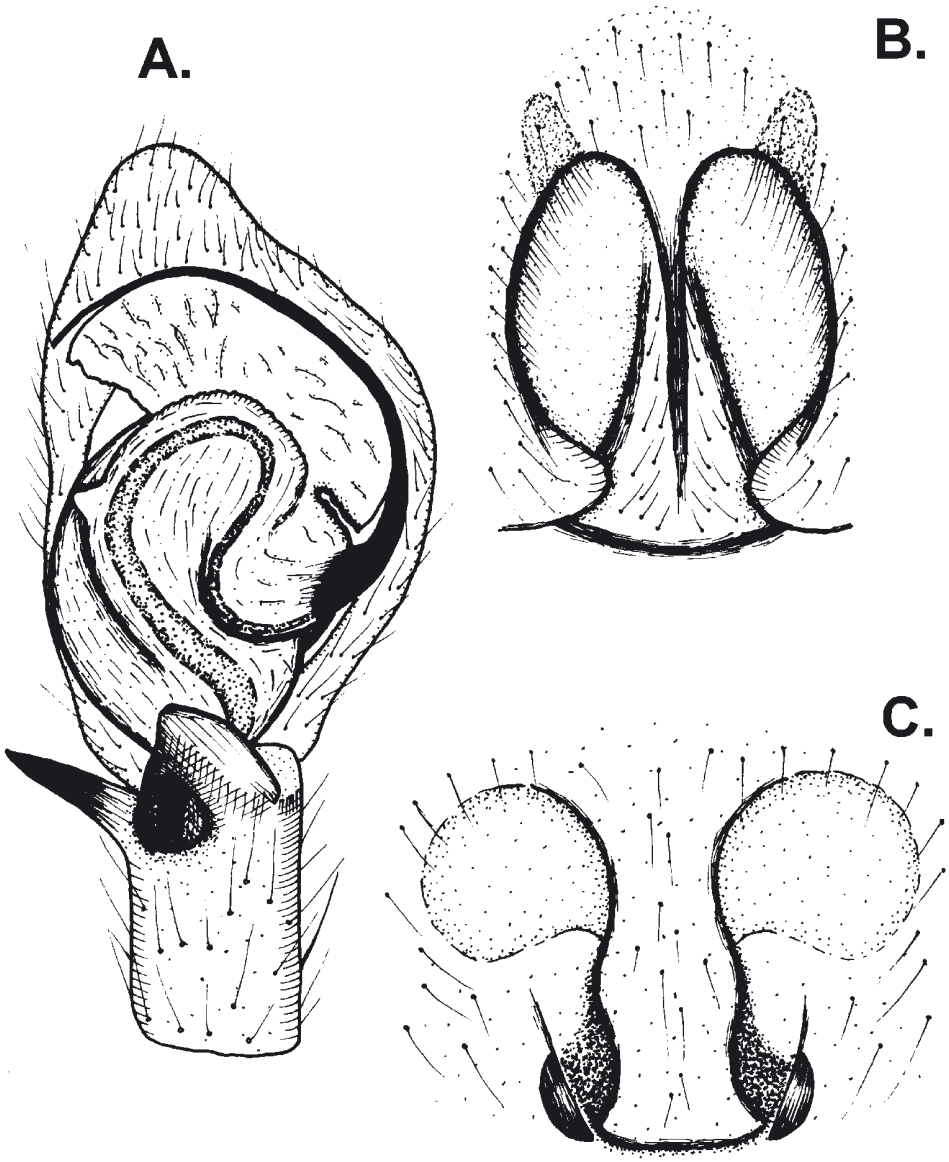

Fig. 1. A – *Philodromus marmoratus* (male palp, ventral view). B – *Philodromus poecilus* (epigyne). C – *Philodromus histrio* (epigyne).

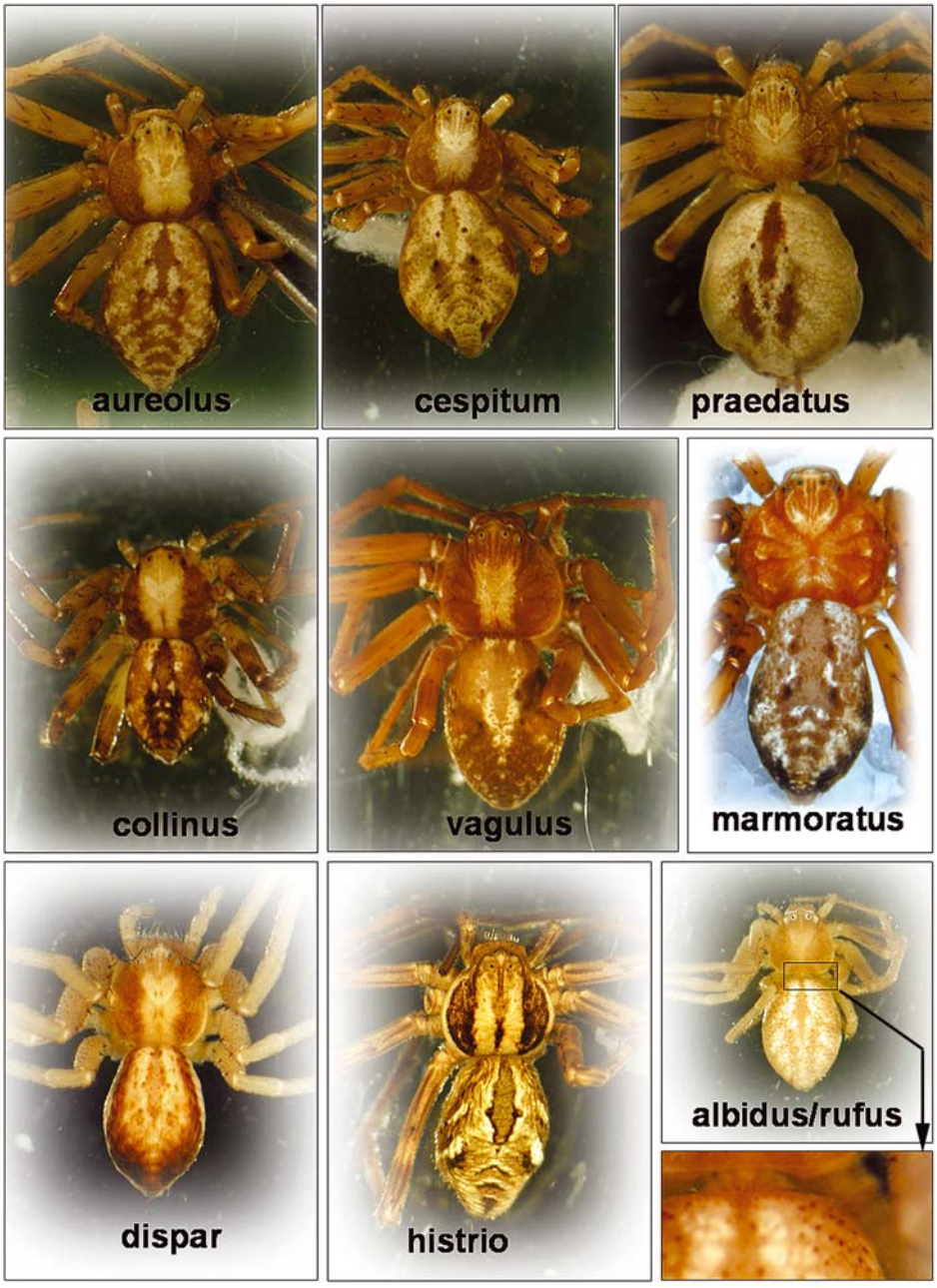

Fig. 2. General appearance of *Philodromus* species, part I. Specimens were stored in ethanol. Relative size ratios are proportional among individual species and also between Figs 2 and 3.

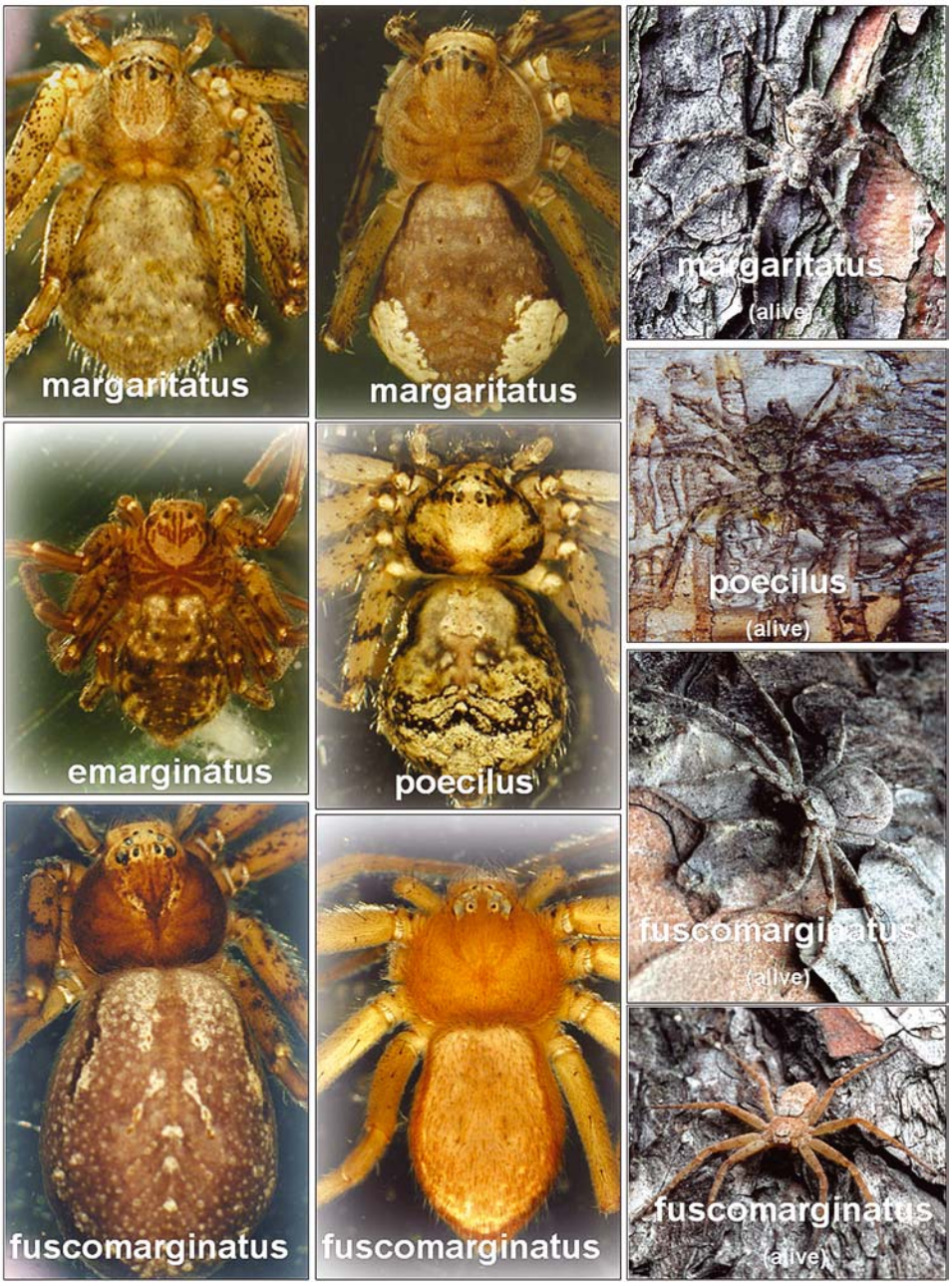

Fig. 3. General appearance of *Philodromus* species, part II. Relative size ratios are relative only to specimens stored in ethanol.