

# The male of *Priocnemis diversa* Yunco y Reyes, 1946 is a true *Priocnemis propinqua* (Lepeletier, 1845) (Hymenoptera, Pompilidae)

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## Zusammenfassung

Christian Schmid-Egger, Frédéric Durand, Wolf Harald Liebig: Das beschriebene Männchen von *Priocnemis diversa* Yunco y Reyes, 1946 erweist sich als *Priocnemis propinqua* (Lepeletier, 1845) zugehörig (Hymenoptera, Pompilidae). *Priocnemis diversa* Yunco y Reyes, 1946, nach einem Weibchen beschrieben, ist ein jüngeres Synonym von *P. pusilla* Schioedte, 1837. Das von Wolf (1963) als zu *P. diversa* gehörende beschriebene Männchen stellt in Wirklichkeit das bisher unbekannte Männchen von *P. propinqua* dar. Aus diesem Grund hat *P. propinqua* auch keinen partogenetischen Lebenszyklus, wie bisher angenommen, sondern pflanzt sich normal sexuell fort. Neue Funde in Bayern zeigen, dass die Weibchen sehr früh im Jahr (März) erscheinen und daher entweder überwintern oder frisch schlüpfen. Die problematische Taxonomie von *P. pogonioides* Costa, 1883 wird ebenfalls diskutiert.

## Summary

*Priocnemis diversa* Yunco y Reyes, 1946, described by a female, is a junior synonym of *P. pusilla* Schioedte, 1837. The male described as corresponding male of *P. diversa* by Wolf (1963), represents the previously unknown male of *P. propinqua*. For that reason, *P. propinqua* has no partogenetic life cycle, as previously assumed, but a normal sexual reproductive system. New finds in Bavaria show that the females appear very early in the year (March) and therefore either hibernate or hatch freshly. The problematic taxonomy of *P. pogonioides* Costa, 1883 is also discussed.

## Introduction

Recently, Liebig et al. (2021) found *Priocnemis diversa* Yunco y Reyes, 1946 and *Priocnemis propinqua* (Lepeletier, 1845) new for the fauna of Germany. Both taxa were found on the same location, a large sandy area in southeastern Brandenburg, Lieberose. *Priocnemis propinqua* was represented by females only, and *Priocnemis diversa* by males only. Although this fact seemed strange to us, we maintained the status of valid species for both taxa, also because Wahis & Durand (2004) allegedly proved in a detailed publication that *Priocnemis propinqua* is a parthogentic species. In the meantime, F. Durand also was in doubt about the state of the *Priocnemis diversa* males because of new findings of both taxa together in a Malaise trap in Girauds-Faure in Central France. He also found only females of *Priocnemis propinqua* and males of *Priocnemis diversa* (Durand 2021). Further research has now brought us to the conclusion that both taxa must be conspecific.

## Results

A. The distribution pattern of both taxa is nearly the same. *Priocnemis propinqua* was described from southern France based on a female and is widespread in the mediterranean area, including north Africa. It reaches Syria and Turkey in the east (Schmid-Egger, unpub. catalogue of Pompilidae). It is rare north of the Alpes and recently only known from two place in Germany, Lieberose and near Nürnberg (see below). *Priocnemis diversa* was descri-

bed from Spain (Aranjuez, Prov. Madrid) based on a female, the male was later described by Wolf (1962) based on specimens from southern France (Gard). Distribution of it is more or less the same as in *P. propinqua* and includes southern Europe and Turkey in the east (Schmid-Egger, catalogue of Pompilidae).

- B. Both taxa were regularly found together, in Germany (Liebig et al. 2021) as well as in different places in southern and central France, and every time without corresponding females of *P. diversa* (Durand 2021).
- C. The female of *P. diversa* cannot be distinguished reliable from *C. pusilla*. The characters given in literature „...*P. diversa* ist ... an dem mitten und hinten halbmatten, fast matten Mittelfeld (propodeal dorsum) erkennbar.“ (Wolf 1963: 133) or by Wahis, in litt. (he mainly mentioned the finer striation on propodeal declivity as a recognition character for *P. diversa* females, together with some details in wing venation) cannot be confirmed by examining several specimens from southern and central Europe. Both C. Schmid-Egger and F. Durand (2021) reached this conclusion independently.
- D. Finally, we could examine both taxa by molecular barcoding. DNA of a female from Spain and two males from Germany (Lieberose) show an almost complete agreement in the values of the COI gene (Schmid-Egger et. al. under preparation).

These facts only allow the conclusion that the male of *P. diversa* is the corresponding sex to the female of *P. propinqua*, and the species is not parthogenetic as stated by Wahis & Durand (2004). It also leads to the conclusion that *P. diversa* is not a valid species but a junior synonym of *P. pusilla*.

Recently, *P. diversa* was also found in Bavaria in southern Germany (Nürnberg, Sebalder Reichswald, 49.52N 11.11E, 20.3.2022, leg. D. Schanz, several females, a female examined by C. Schmid-Egger). Males could not be observed. This early appearance of fresh females, already in March suggests that the species overwinters as an imago or hatch out of the nest very early (fig. 1).



Abb. 1: *Priocnemis propinqua*-♀ from Nürnberg/Bavaria, found on March 20, 2022 (Foto: C. Schmid-Egger)

### Other related species: *Priocnemis pogonioides* Costa, 1883

*Priocnemis propinqua* was earlier (Wolf 1963; 1972, Wahis 1986) or related or confused with *Priocnemis wolffi* Wahis, 1986 (nom. nov. for *Priocnemis simulans* Wolf, 1972). In fact there is a second *Priocnemis* species with an apically white spot and two dark bands in the forewing of females in southern Europe. The male has always a black abdomen, whereas the female occur in two colour forms. The form with black abdomen is now *Priocnemis pogonioides*, and the form with red abdominal base was formerly described as *Priocnemis rufocincta* Costa, 1887 and is now seen as synonym or subspecies of *Priocnemis pogonioides*. Taxonomic and nomenclature information bases on information of Wahis (in litt.).

The distribution of both female colour forms is not clear yet. We could examine females with red abdominal base (red are tergites 1, 2 and basal half of 3) from central Italy (Pisa, Liguria/Montegrossa), from Croatia (Porec) and from southern France. Females with an all black abdomen occur in Corsica (France, F. Durand vid.), Tunisia and Mallorca (Spain) (C. Schmid-Egger vid.) Wolf (1972) also mentions all black females as *P. simulans* from southern Switzerland, but these may be wrong.

*Priocnemis propinqua* female differ from the black form of *Priocnemis pogonioides* by a strong and distinct striation of propodeal declivity, the whole propodeum is also distinctly shiny, similar to that of *Dipogon variegatus* (Linnaeus, 1758). Propodeal declivity is very finely striate in *Priocnemis pogonioides*, the whole propodeum is dull and with a fine grainlike sculpture. Tergites are also distinctly shiny in *Priocnemis propinqua* and dull with very fine and dense micropunctuation in *Priocnemis pogonioides*. Males of *Priocnemis pogonioides* are unique among related species by a row of long bristles along underside of gonostylus. Anal sternite (sternite 8) is apically truncate with erect setae, and emarginated in *Priocnemis propinqua*. See Liebig et al. (2021) for description of *Priocnemis propinqua* (male as *P. diversa*).

Both species can also be confused with small blackened females of *Priocnemis bellieri*, which occur e. g. in Ardèche region in southern France (F. Durand vid.). This species will not be dealt with further here.

## Taxonomy

### *Priocnemis propinqua* (Lepeletier, 1845)

*Calicurgus propinquus* Lepeletier, 1845:410, ♀. France (Musée Carcel), **valid**.

*Priocnemis diversus* Junco y Reyes, 1946: Wolf (1962): description of ♂, France, Gard, Rochefort (Mus. Lausanne). Male description refer to *P. propinqua*, **stat. nov.**

### *Priocnemis pogonioides* Costa, 1883

*Priocnemis pogonioides* Costa, 1883, ♀, Italy, **valid**.

*Priocnemis pogonioides* Costa, 1883: Wolf (1962): description of ♂, Mezzé near Damascus, Syria (Mus. Lausanne).

*Priocnemis rufocinctus* Costa, 1887:41, ♂, Italy. Synonym, also used as subspecies name for the form with red abdominal base (Wahis in litt.).

*Priocnemis simulans* Wolf, 1972. Wahis (1986): preoccupied by *Priocnemis simulans* Thomson, 1874, was replaced with *Priocnemis wolffi*.

*Priocnemis wolffi* Wahis, 1986, was erected as replacement name for *Priocnemis simulans*. **Syn. nov.**

*Priocnemis propinquus* auct. The name was used for *Priocnemis pogonioides* in older publications, e. g. in Wolf (1963).

### *Priocnemis pusilla* Schioedte, 1837

*Priocnemis pusillus* Schioedte, 1837:327, ♀ ♂ (Kjøbenhavn), **valid**.

*Priocnemis diversus* Junco y Reyes, 1946:275, ♀. Prov. de Madrid, Aranjuez, 17.vi.1906 (Col. A. Cabrera, Madrid). **Syn. nov.**

**Remark:** *Priocnemis pusilla* (including *P. diversa*) is mentioned from a large distribution area, comprising Europe except the extreme north, northwest Africa and Central Asia (Schmid-Egger, unpub. catalogue of Pompilidae). However, it is not clear whether the records from northwest Africa are true *P. pusilla*, because they may base on males of *P. diversa* (now *P. propinqua*) only. For that reason, the occurrence of *Priocnemis pusilla* in northwest Africa has to be confirmed.

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