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Tapinoma pygmaeum (Dufour, 1857) (Hymenoptera, Formicidae), not a rare species

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Abstract

Tapinoma pygmaeum is an ant known from seven localities. Five of them are in the province of Girona (Spain). The apparent rarity and skewed distribution of this species is probably an artifact due to the confussion, in field samplings, with a similar species, *Plagiolepis pygmaea*.

Key words: ant, distribution, pseudo-rarity.

Resumen. Tapinoma pygmaeum *(Dufour, 1857) (Hymenoptera, Formicidae), especie no rara*

Tapinoma pygmaeum es una hormiga conocida en siete localidades. Cinco de ellas se encuentran en la provincia de Girona (España). La aparente rareza y esta distribución sesgada de las localidades puede ser un artefacto debido a que haya sido confundida, en el campo, con *Plagiolepis pygmaea*, similar, a primera vista, en aspecto.

Palabras clave: distribución, hormiga, pseudo-rareza.

This species has suffered a rather confusing taxonomical and nomenclatural history (Shattuck, 1994): considered as a distinct genus (*Micromyrma pygmaeum* Dufour, 1857), as a synonym of *Plagiolepis pygmaea* (Latreille, 1798), or with other different specific names (*Tapinoma dufouri* Donisthorpe, 1943, *Tapinoma confusum* M.R. Smith, 1951). We believe that it still has strong recognition problems. The present status of poor knowledge may be mediated by the abscence of expectations in finding it, probably because of ignoring the possibility to find it. Cabinet identification should not be a question; discrimination from *Plagiolepis* species in the field is facilitated by the abundant pubescence of *T. pygmaeum*, which gives a dull aspect instead of a shining appearance; behaviour is also diffe-

rent, this species being more rapid and aggressive. Presently known records of *Tapinoma pygmaeum* are the following:

1. Saint Sever (Landes, F) (Dufour, 1857).
2. Cuceglio Canavese (Piemonte, I) Menozzi, 1925).
3. Setcases (Girona, E), 3.07.1976 and 2.07.1977, (Espadaler, 1977)
4. L'Estartit (Girona, E), Abbot & Elmes leg. (Espadaler, 1979).
5. Queralbs (Girona, E), 15.11.1975, Escolà leg. (Espadaler, 1979).
6. Can Roca Roja, La Salut, Sant Feliu de Pallarols (Girona, E), 8.11.1981, Escolà leg.
7. Banyoles (Girona, E), 27.07.1990, García-Berthou leg.

The last sample (no. 7) is of unusual origin. A single worker was identified in the gut contents of mosquitofish, *Gambusia holbrooki* (Pisces, Poeciliidae). The fish was captured with dip nets in the littoral zone of Lake Banyoles, namely in the channel connecting the main lake with the adjacent Lake Vilar. This fish individual was part of an intensive dietary study of Lake Banyoles fish (García-Berthou, 1994). As observed in many lakes, the habitat of mosquitofish is strictly limited to vegetated littoral zone (les than 1 m deep) because of predation risk by other fish especies. Mosquitofish diet is also, as usual, typified by water surface prey, namely of terrestrial origin (e.g., ants) or aquatic neustonic (cladocera and adults of Diptera Nematocera). Similar feeding habits of mosquitofish have been reported in the Camargue wetlands (France), where ants were also detected (Crivelli & Boy, 1987), and Australiann rivers, where ants were dominant (Arthington, 1989). Other ants —mainly sexuals— present in gut contents of several fish species were *Aphaenogaster subterranea* (Latreille). *Crematogaster scutellaris* (Olivier), *Hypoponera eduardi* (Forel), *Lasius niger* (Linné), *Leptothorax* sp., and *Tetramorium semilaeve* André.

According to the geographical distribution pattern (figure 1) and circumstances of collection we can point out the following comments:

1. The distribution of *T. pygmaeum* does not seem to be limited by its dispersal ability. Sexuals are winged and wing length is similar, in proportion to body size, to that of other congeneric European species (*T. nigerrimum* (Nylander), *T. erraticum* (Latreille), *T. ambiguum* Emery, *T. simrothi* Krausse).
2. Habitat degradation through human activities does not seem to be a main distribution factor; in fact, four localities belong to rather strongly human modified habitats.
3. It is unlikely that the province of Girona presents particular climatic, geographical, or biological features limiting there the presence of *T. pygmaeum*.
4. Given the similitude in size and colour with *P. pygmaea* and *P. schmitzii*, this species has been probably obviated in field collections in Europe.
5. Environmental attributes of the Iberian localities of this species show a certain degree of humidity: a river wood at 1500 m altitude (locality 3), a mixed wood at > 1200 m (locality 5), a mountain meadow at 1110 m (locality 6) and at the

border of a lake (locality 7). No data are available for locality 4. The Italian sample was obtained from inside an empty shoot of *Rubus* and the type material was collected in an orchard.

6. We do not believe in any bias in Spanish collectors. A useful indication may be the capture frequency by a non-myrmecologist: 21 samples corresponded to *Plagiolepis* and 2 to *T. pygmaeum*, out of 527 ant samples (i.e., identified species) collected by O. Escolà (Museum of Zoology, Barcelona) from northwest Spain.

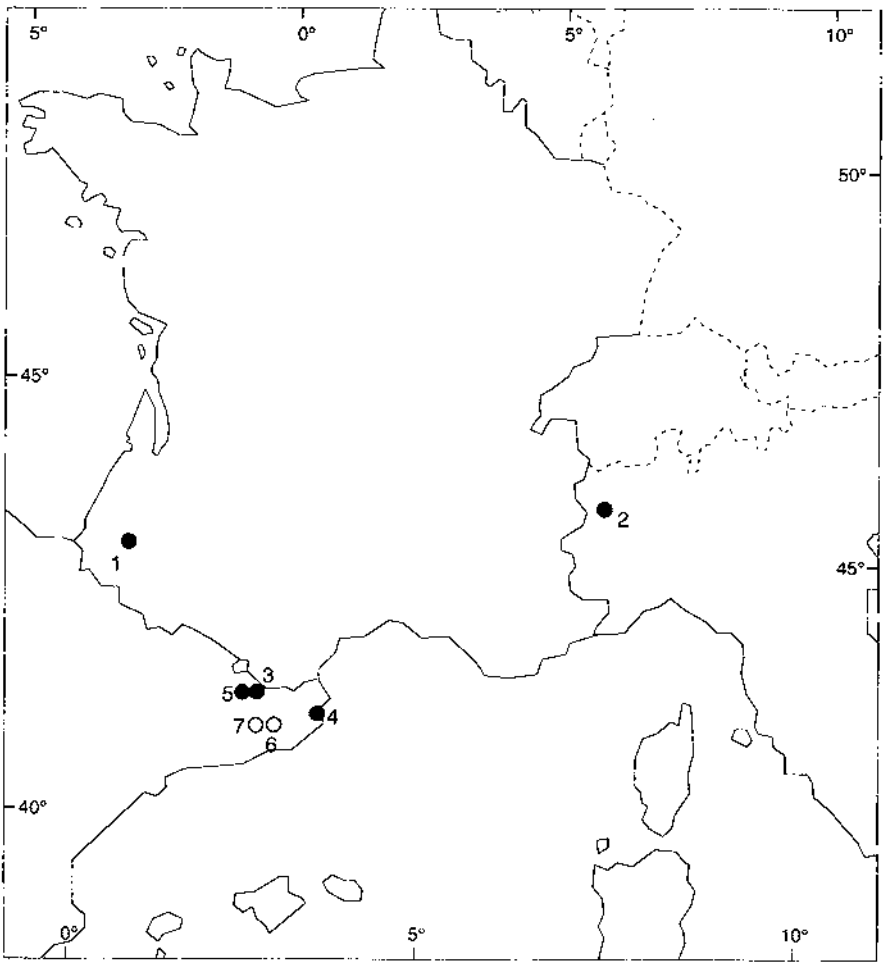

Figure 1. Geographical distribution of *Tapinoma pygmaeum* (Dufour). Solid circles: previous records; open circles: new records. Number refers to locality (see text).

We suggest that the actual abundance and range of this species are broader than presently known. It will be necessary, therefore, to carefully check for its presence in field collections, specially in humid biotopes, avoiding the confusion with the much abundant *P. pygmaea*, one of the most common ant species in the western Mediterranean. This is a good example of pseudo-rarity (Gaston, 1994), generated as an artifact —in the present case, by the failure to discriminate the specific identity— in which a species may be regarded as rare (geographically restricted, locally sparse, low abundance) when it is not.

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References

Arthington, A.H. 1989. Diet of *Gambusia affinis holbrooki, Xiphophorus helleri, X. maculatus* and *Poecilia reticulata* (Pisces: Poeciliidae) in streams of southeastern Queensland, Australia. Asian Fisheries Science 2: 193-212.

Crivelli, A.J.; Boy, V. 1987. The diet of mosquitofish *Gambusia affinis* (Baird & Girard) (Poeciliidae) in Mediterranean France. Rev. Ecol. 42: 421-435.

Dufour, L. 1857. Mélanges entomologiques. Ann. Soc. ent. Fr. 5: 39-70.

Espadaler, X. 1977. Descripción de los sexuados de *Tapinoma pygmaeum* (Dufour, 1857) (Hymenoptera, Formicidae). Vie Milieu 27: 119-128.

— 1979. Citas nuevas o interesantes de hormigas (Hym. Formicidae) para España. Bol. Asoc. esp. Entom. 3: 95-101.

García-Berthou, E. 1994. Ecologia alimentària de la comunitat de peixos de l'Estany de Banyoles. Ph.D. dissertation. University of Girona.

Gaston, K.J. 1994. Rarity. Chapman & Hall. London.

Menozzi, C. 1925. Note staccate di mirmecologia. Boll. Soc. ent. Ital. 57: 17-22.

Shattuck, S. 1994. Taxonomic catalog of the ant subfamilies Aneuretinae and Dolichoderinae (Hymenoptera: Formicidae). University of California. Publications in Entomology 112: 1-241 + xix.