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ZOOLOGY

An Ergatandromorph *Formica exsecta* Nyl.
(Hymenoptera, Formicidae) from Poland

by

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Presented by T. JACZEWSKI on April 1, 1972

Summary. The author describes lateral ergatandromorph *Formica exsecta* Nyl. from Poland.

In the present paper I am using the terminology of Wheeler [5] according to which a gynandromorph is a specimen having characters of both male and female, whereas an ergatandromorph shows characters of a worker and a male, or of a worker and female. Both ergatandromorphs and gynandromorphs are divided into four groups [4]: lateral, transversal, frontal and mixed. Affiliation to a given group depends on the distribution of elements differing in sexual characters.

So far, four gynandromorphs have been described from Poland. Roger [3] has described the gynandromorphic form of *Tetramorium simillimum* Sm. (*Tetragmus caldarius* Rog.) found in Ruda Śląska, Łomnicki. [2] described three gynandromorphs of *Myrmica rugulosa* Nyl. found between Kartuzy and Kiełpin (Kashubian Region).

The only case of gynandromorphism known so far in *Formica exsecta* Nyl. is a specimen mentioned by Forel [1]. In accordance with Wheeler's terminology, this specimen being a worker whose left side of the thorax had external sexual characters typical for males, should be included into the group of ergatandromorphs.

The present paper discusses the first ergatandromorphs of the species *F. exsecta* Nyl. found in Poland. The specimen was taken in the Bieszczady Mts (near Ustrzyki Górne) in July, 1971.

According to Wheeler's classification, the specimen is a lateral ergatandromorph. Its right side has the characters of a male, while the left side those of a worker. It should be stressed, however, that the external sexual characters of the male are as if slightly displaced frontwards, and the characters of the worker backwards. In this connection, the posterior left side of the head is darker than in a standard worker (domination of male characters). Instead, the epinotum shows a more distinct influence of characters typical for the worker; therefore, constitutional characters typical for the worker can be seen also on the right side. On the gaster, the influence of characters typical for the worker is distinctly stronger so that in spite of the clearcut division into the male and worker side, the external genitalia are not developed.

Description

The specimen in question has the size of a normal worker of *F. exsecta* Nyl.

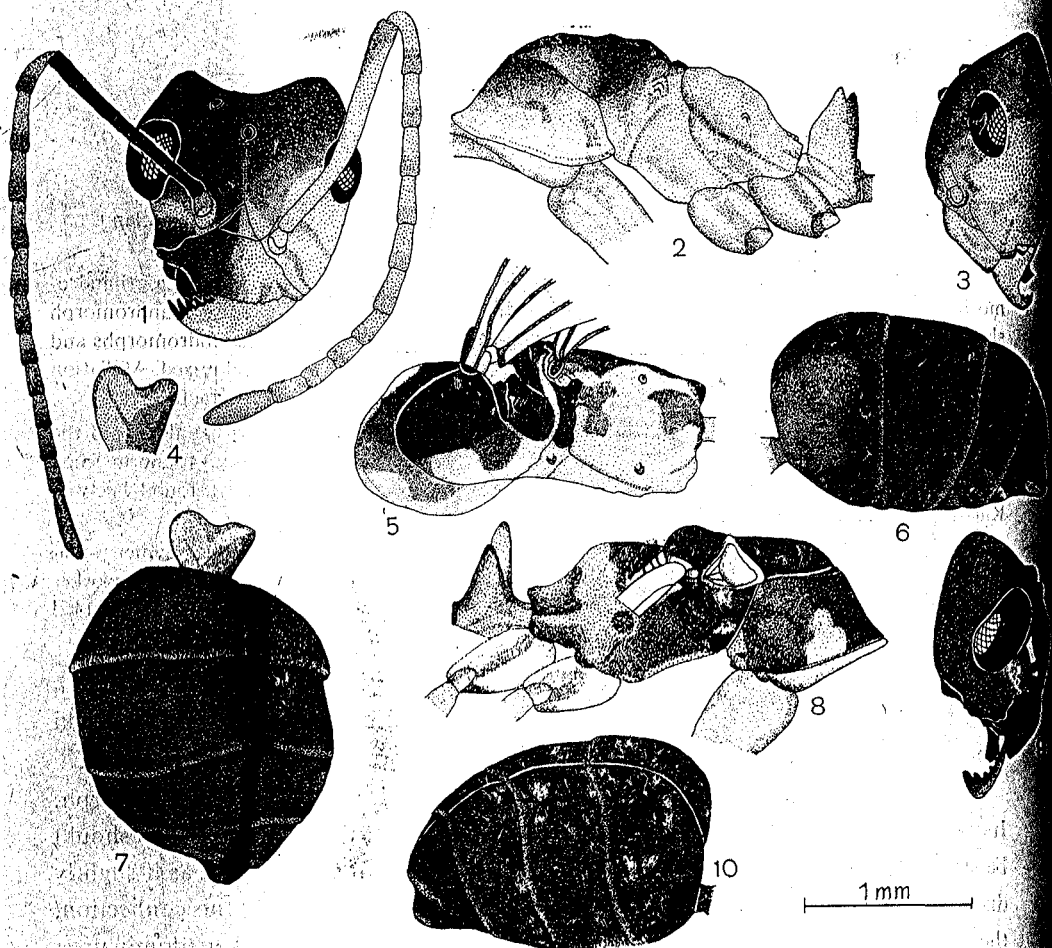
The left side has the characters of a worker. The right side has the characters of a male.

Head

Shape (Fig. 1)

Head proportionally smaller than in a worker and asymmetrical. Left, posterior corner of the head longer than on the right side; seen from the back it is more flat and has a sharp end.

Proportions of the head approximate those of a male. Right, posterior corner of the head seen from the back higher and rounded.



Figs. 1—10. Colour of the ergatandromorph *F. exsecta* Nyl.

1 — head seen from the front; 2 — thorax, side view, left side; 3 — head, side view, left side; 4 — petiole; 5 — thorax seen from above; 6 — gaster, side view, left side; 7 — gaster seen from above; 8 — thorax, side view, right side; 9 — head, side view, right side; 10 — gaster, side view, right side

Ocellus small, like in the worker and placed symmetrically to the right ocellus.

Ocelli: right and central like in a typical male, i.e. large and placed on a convex base.

Eye showing a slightly more lateral position than in a normal worker, but with the typical shape of a worker's eye and erect hairs.

In connection with the asymmetrical position of the head, the frontal area and the clypeus are displaced to the right.

Mandible developed like in a worker.

Antenna typical of a worker. It has along scape and an 11-jointed funiculus.

Eye typical for a male, large, protuberant and with erect hairs.

Mandible typical of a male.

Antenna typical of a male. The scape of the antenna shorter than on the left side. Funiculus 12-jointed.

Colour (Figs. 1, 3, 9)

Occiput, vertex and forehead black-brown, lower part of forehead somewhat brighter.

Cheek, frontal area and clypeus bright, of a yellow-brown colour. Lower part of clypeus showing a small black-brown darker spot. Scape yellow-brown, funiculus brown.

Whole right side black-brown, with a brown brighter spot on cheek.

Scape is black-brown, funiculus of a brighter, brown colour.

Hairness (Figs. 11, 13, 19)

Standard hairness. Small number of hairs on head. On posterior edge short, slightly protruding, few hairs. Gula and side of head not covered with hairs. On forehead a line of stiff, protruding hairs. On clypeus and on mandible side by side short and thin, and longer stiff hairs.

Profuse hairness typical for a male. Posterior corner of head, temple and cheek covered with small erect hairs. On vertex, mainly near ocelli and forehead, hairs longer and stiffer. On clypeus two types of hairs: small and delicate, and longer and stiffer.

Thorax

Shape (Figs. 2, 5, 8)

Shape of thorax similar to that of a worker.

Pronotum built like in a worker.

Mesonotum larger than in a standard worker. Stitch separating mesonotum from pronotum like in a worker.

Metanotum like in a worker

Epinotum big of a shape resembling that of a worker.

Pronotum see from above longer, and in side view inclined at a smaller angle than in a standard male.

Compared with thorax of standard male, mesonotum smaller. Right side of mesonotum, dominated by male characters, much larger than left side. Proscutellum and scutellum forming two different parts.

Metanotum: a distinct line separating the right and left sides. Part dominated by male characters extending over the left side.

Epinotum: influence of male characters very little visible on the right side.

Front wing formed like in a standard male, hind wing under-developed.

Colour (Figs. 2, 5, 8)

Left side of thorax yellow-brown with a distinct brown spot on dorsal surface of pronotum and mesonotum.

Pronotum black-brown passing into brown at the back. At bottom edge a bright yellowish spot. Mesonotum, scutellum, metanotum and epimera black-brown. Remaining parts of thorax brown with irregular yellow-brown, brighter spots.

Hairness (Figs. 12, 15, 18)

Left side with little hair. Hairs short and small in number, occurring on pro- and mesonotum.

On right side hairs comparatively long and thick on pro- and mesonotum. On all other parts of thorax, hairs, stiff and erect.

Legs

Typical of a worker.

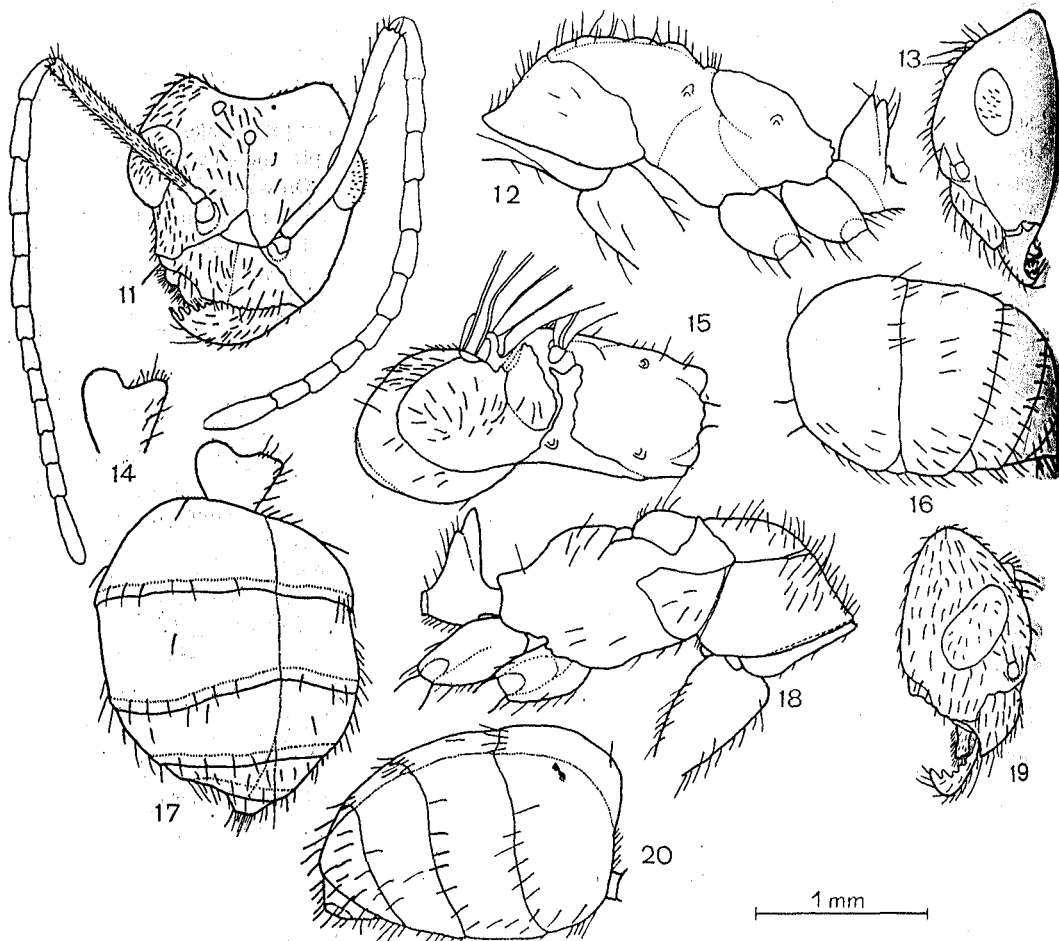
Typical of a male.

Petiole (Figs. 4, 14)

Nonsymmetrical and consisting of two distinct, different parts.

Left side larger and rounded, of a yellow-brown colour. No hair.

Right side smaller with a sharper corner, of a brown colour. Covered with two types of hairs: short and small, and long and stiff. Compared with the petiole of a standard male of *F. exsecta* Nyl. this part is brighter and much less hairy.



Figs. 11—20. Hairness of the ergatandromorph *F. exsecta* Nyl.

11 — head seen from the front; 12 — thorax, side view, left side; 13 — head, side view, left side; 14 — petiole; 15 — thorax seen from above; 16 — gaster, side view, left side; 17 — gaster seen from above; 18 — thorax, side view right side; 19 — head, side view, right side; 20 — gaster, side view, right side.

Gaster

Shape (Figs. 6, 7, 10)

Gaster consisting of two distinct parts, as the two sides differ in shape and dimensions, it has an irregular shape.

Left side broader and higher. Proportions of the gaster approximate those of a worker.

Compared to the side belonging to the worker, right side more flat. External genitalia not developed.

Colour and hairiness (Figs. 6, 7, 10, 16, 20)

Black-brown colour. Hairiness as in a worker.

Black-brown colour. Less hair than in a standard male. Compared to the side belonging to the worker, right side more shiny.

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REFERENCES

- [1] A. Forel, *Les fourmis de la Suisse*, N. Denkschr. Schweiz. Ges. Naturw., Zürich, 1874, pp. 1—452.
- [2] J. Łomnicki, *Three gynandromorphs Myrmica rugulosa* Nyl., [in Polish], Kosmos, Lwów 49 (1924), 817—830.
- [3] H. Roger, *Einiges über Ameisen*, Berlin. Ent. Z., Berlin, 1857, pp. 10—20.
- [4] W. M. Wheeler, *Some new gynandromorphous ants, with a review of the previously recorded cases*, Bull. Amer. Mus. Nat. Hist., New York, 19 (1903), 653—683.
- [5] — *Ants*, New York, 1926, pp. 1—663.

Е. Парапура, Эргатандроморф из рода *Formica exsecta* Nyl. (Hymenoptera, Formicidae) из Польши

Содержание. В представленной работе автор даст описание латерального эргатандроморфа из рода *Formica exsecta* Nyl. из Польши.