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TAXONOMIC STATUS OF *FORMICA SUBNITENS*
CREIGHTON AND *F. INTEGROIDES* EMERY,
WITH A DESCRIPTION OF THE SEXUALS OF
F. SUBNITENS (HYMENOPTERA: FORMICIDÆ) (1)

by

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During the summers of 1954 and 1955 Mr. G. L. Ayre, now of the Entomology Laboratory, Belleville, Ontario, studied the species *Formica subnitens* Creighton and *F. integroides* Emery in the field at Westbank, British Columbia. He obtained several series from nests and forwarded them to the author for identification. According to Creighton (1940, 1950), the forms were determined as *F. integroides* Emery and *F. integroides subnitens* Creighton. The writer was impressed with the consistent difference in integumental sculpture of the two ants and suggested to Mr. Ayre that close field observations of habits might reveal important ecological data that would aid in determining whether they were species or subspecies.

In October, 1955, Mr. Ayre forwarded additional nest material of the two forms from the same area with ecological notes. Association of these data with the above morphological difference and examination of the sexual of both kinds showed that these two entities are specifically distinct.

Cole (1955), on very meagre distributional evidence, elevated *F. integroides subnitens* to a specific level. The morphological, ecological and distributional data in the following table confirm Cole's assumption.

SEXUALS OF *F. SUBNITENS*

The following descriptions and measurements were made from specimens killed in 70 per cent alcohol; the females include replete and non replete forms. The measurements were taken immediately on extraction from the alcohol.

(1) Contribution No. 3480, Entomology Division, Science Service, Department of Agriculture, Ottawa, Canada.

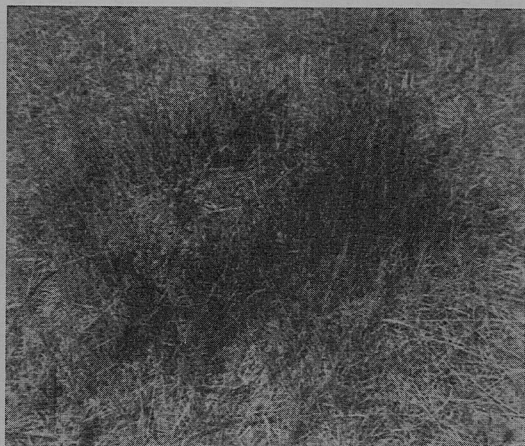


Fig. 1 (left). — Typical nest and nest site of *F. subnitens*.

Fig. 2 (right). — Close-up of typical nest of *F. subnitens*.

F. subnitens.

F. integroides.

MORPHOLOGY.

Form.	Body Length, mm.	Mesonotal Width, mm.	Form.	Body Length, mm.	Mesonotal Width, mm.
♂	7.5 — 9.5	1.5 — 1.8	♂	9.0 — 11.5	1.8 — 2.0
♀	6.6 — 9.5	1.0 — 1.3	♀	9.0 — 11.5	1.7 — 2.0
♀	4.7 — 8.2	0.37 — 0.65	♀	5.0 — 9.0	0.44 — 0.88

(Based on 33 ♀♀ from 3 nest series, 26 ♂♂ from 3 nest series and 45 ♀♀ from 3 nest series.)

(Based on 19 ♀♀ from 3 nest series, 31 ♂♂ from 4 nest series and 45 ♀♀ from 3 nest series.)

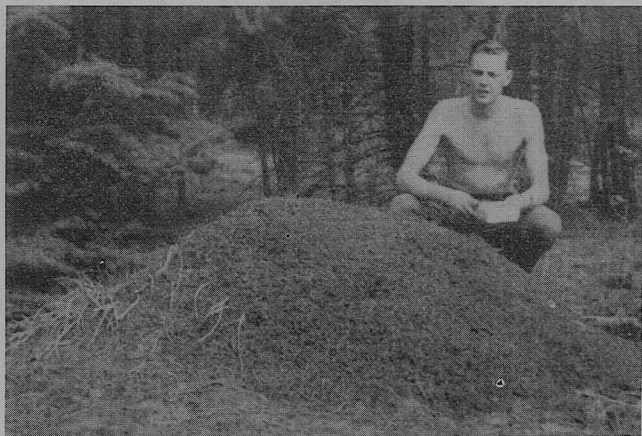


Fig. 3. — Typical nest and nest site of *F. integroides*.

Integumental sculpture.

♂	strongly shagreened and opaque.	♂	minutely punctate and opaque.
♀	finely shagreened and very shiny.	♀	minutely punctate and opaque.
♀	finely shagreened and very shiny.	♀	minutely punctate and opaque.

ECOLOGY.

Nest site and structure.

Open, dry grasslands of Transition zone.	Open woodlands of Transition zone.
Dense vegetation encircling nest.	No vegetation encircling nest.
Shape — domelike.	Shape — domelike.
Diameter — 16 in. (approx.)	Diameter — 4 ft. (approx.)
Height — 6 in. — 8 in.	Height — 2 1/2 ft. — 4 1/2 ft.

Nuptial flight.

Middle to end of June.	Latter part of May to early June.
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DISTRIBUTION.

<i>United States.</i>	<i>Canada.</i>	<i>United States.</i>	<i>Canada.</i>
New Mexico.	British Columbia.	California.	British Columbia.
Oregon.		Oregon.	
		Washington.	

FEMALE (fig. 4,A).

Body length.—(From the front margin of the head to the hind margin of the abdomen, the body being in the same position as in figure 4,A) 6.6—9.5 mm.

Mesonotal width.—(Immediately in front of the tegulae) 1.0—1.3 mm.

Head.—Occipital border straight or slightly convex; occiput and front with one to three long erect hairs; anterior border of the clypeus with a row of erect hairs; disk of the clypeus with zero to four erect hairs, gula with one to three erect hairs; compound eyes covered with short, fine, golden, erect hairs; pilosity consisting of widely spaced, short, inconspicuous, golden hairs; integument minutely shagreened to smooth and very shiny.

Thorax.—The 10 to 12 erect hairs of the dorsum much shorter and more obscure than those of the head; tegumental sculpture slightly stronger than that of the head and not as shiny; pilosity longer and more abundant than that on the head.

Petiole.—Dorsal margin convex, sometimes impressed in its middle portion.

Abdomen.—Erect hairs of all but the apical two tergites widely spaced, about as long as those of the head and mostly confined to the apical margins; erect hairs of the apical two tergites and all the sternites approximately a third longer; pilosity of the tergites short and fine, barely obscuring the smooth, shining integument.

Color.—Apparently relatively stable; ground color of head, thorax, and petiole yellowish-red; fuscous markings on mandibles, anterior margin

of clypeus, front, occiput, posterior margin of prothorax, entire meso- and meta-nota, tegulae, and dorsal edge of the petiole; legs almost entirely brownish; abdomen brown.

MALE (fig. 4,B).

Body length.—7.5—9.5 mm.

Mesonotal width.—1.5—1.8 mm.

Head.—Antennal scape slightly longer than the first four funicular segments; dorsal half of head quadrate, anterior half about two thirds

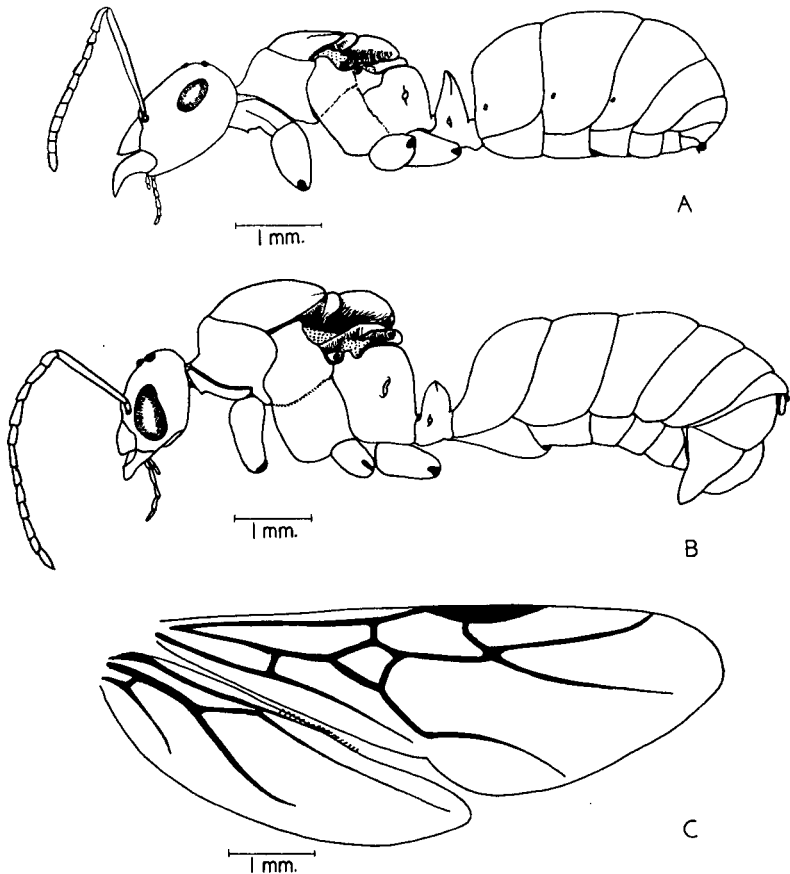


Fig. 4. — Outline drawings of *F. subnitens*.

A, female; B, male; C, male fore and hind wings.

as wide as posterior half and tapered anteriorly; decumbent to subdecumbent, long, greyish, coarse, and numerous erect hairs on the elevated occiput, occipital angles, gula, and anterior half of the clypeus; erect hairs of the bulbous compound eyes short, greyish, and numerous; mandible triangular, with a single apical tooth; integumental sculpture of the head strongly

shagreened and opaque, except for the smooth, shiny front, gular disk, and mandibles; pilosity sparse and greyish, somewhat clustered at the anterior edge of the gena near the base of the mandible.

Thorax.—Erect hairs abundant, long, and numerous on entire dorsum and pleura; integumental sculpture strongly shagreened and opaque; pilosity long and greyish, partially obscuring sculpture of mesonotum.

Petiole.—Dorsal margin straight to slightly concave, bearing 4—5 long erect hairs.

Abdomen.—All but the first and last tergites devoid of erect hairs; short greyish pilosity partially obscuring the strongly shagreened, opaque, integument.

Color.—Head, thorax, petiole, and legs black; abdomen brown and the protruding genital structure yellowish.

Wings (fig. 4,C).—Veins light fuscous and the stigma brown.

Summary.

Field and laboratory data on *Formica subnitens* Creighton and *F. integroides* Emery confirm Cole's assumption that these entities are species. The female and male of *F. subnitens* are described.

Acknowledgments.

The writer is indebted to Mr. G. L. Ayre, Entomology Laboratory, Belleville, Ontario, for the material and ecological notes he supplied; without his co-operation the ecological data would not have been available. Thanks are due Dr. W. S. Creighton, College of the City of New York, for sending a paratype of *F. subnitens* for comparison and for confirming the writer's identification of the material used in this study. Thanks are also due Dr. A. C. Cole, University of Tennessee, for supplying the writer with his publications on *F. subnitens*.

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