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Descriptions of Three New Species of Nearctic Ctenopelmatinae (Hymenoptera: Ichneumonidae)

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DESCRIPTIONS OF THREE NEW SPECIES OF NEARCTIC CTENOPELMATINAE (HYMENOPTERA: ICHNEUMONIDAE)[1,2]

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ABSTRACT

Three new species of Ctenopelmatinae are described from series obtained from rearings of yellowheaded spruce sawfly larvae, *Pikonema alaskensis* (Rohwer).

This paper is largely the result of continuing studies of *Pikonema alaskensis* (Rohwer), the yellowheaded spruce sawfly (YHSS) (Hymenoptera: Tenthredinidae), in Itasca County, Minnesota, in the white spruce plantations of the Blandin Paper Company, Grand Rapids, Minnesota. Among the 12 ichneumonid parasites recorded emerging from YHSS cocoons were three undescribed species of Ichneumonidae in the subfamily Ctenopelmatinae (Scolobatinae of Townes [1951] and others). These species were determined in 1974 and 1977 by R. W. Carlson at the Systematic Entomology Laboratory, Agricultural Research Center, USDA, Beltsville, Maryland, as follows: Rhorus #1 (*Rhorus bartelti* of author), *Rhorus* #2 (*Rhorus gaspesianulus* of author), and *Hyperbatus* n. sp. (*Hyperbatus marmoratus* of author). These three species were among those listed as parasites of YHSS by Houseweart and Kulman (1976), Thompson and Kulman (1980), and Rau (1976), the latter including biological notes. Large numbers of all three species were obtained from massive rearings of the sawfly larvae in Minnesota 1977 and 1978.

P. alaskensis sawfly larvae were gathered for pheromone research on adult males. Nearly a million 4th to 6th instar larvae of YHSS from the white spruce plantations of the Blandin Paper Company were collected in Itasca County. The collecting was done from late June to early July. Though parasites presumably attack larval stages, the act was rarely observed. In normal summers, virtually all the YHSS have formed cocoons in the soil by mid-July. Thus it appears that *P. alaskensis* is an early summer host for the parasites in question.

The cocoons of reared YHSS, about a third of a million, were stored at 0°C in September. They were warmed in successive batches at 15°C after 4 to 9 months at 10°C. The YHSS emerged after 5 to 6 weeks at 15°; the parasites after 7 to 9 weeks. The order of abundance of the three parasites from two years of emergences is as follows (after *Syndipnus rubiginosus* Walley and *S. gaspesianus* [Provancher]): *R. bartelti, H. marmoratus, R. gaspesianulus.*

Rhorus bartelti new species

Figure 1

General: Moderately stout abdomen, black with ferruginous abdomen and testaceous legs; males with black-tipped abdomen (Fig. 1D). More specific generic description as follows: body moderately proportioned, abdomen longer than head and thorax together: abdominal tergite 1 stout, tergites 1 and 2, and basally 3 rugulose; male subgenital plate with nearly hemispherical emarginations (Fig. 1C).

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[2]Paper No. 11240 Scientific Journal Series, Minnesota Agricultural Experiment Station, St. Paul, MN 55108.

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Etymology: Through painstaking collection and rearing of YHSS larvae by Robert Bartelt, large series of the three undescribed ctenopelmatines were obtained enabling accurate descriptions of them to be written.

Female and **Male:** Nearly identical size and coloration except males with apical fourth of abdomen and clypeus usually black; front wing 3.9 to 6.0 mm, usually between 4.7 to 5.7 mm long; body generally shiny, face and mesopleurum (except speculum and area around fovea) with dense, moderately coarse punctations, those on head and mesoscutum finer; propodeum rugulose between carinae; metapleurum with lower half rugulose; apical portion of tergite 3 and tergites 4 to 7 subpolished with very fine punctations.

Brown. Flagellum except darker dorsally; apex of scape; tegula.

Black. Head, often entire clypeus in males, usually only medial part in females; usually basal portion of mandible; thorax and propodeum; petiole except apical and mesal portion, often two black spots on tergite 2, rarely (males) with black rectangular area; apical and lateral portions of tergite 4 (rarely 3 also) and all of tergites 5 to 7 except sometimes ferruginous patch medially on base of tergite 5; lateral sternal plates of males; coxae except usually anterior portion of coxae 1 and 2 and sometimes apical portion of coxa 3; trochanters often infuscate basally.

Testaceous. Often lateral third of clypeus in males, sometimes in females; sometimes mandible; legs 1 and 2, leg 3 rufotestaceous; trochanters 1 and 2 except basally infuscate, and trochanter 3 rufotestaceous with infuscation.

Yellow. Usually clypeus in females (rarely in males) except for medial part; usually mandible except basally and teeth.

White. Anteror and mesal part of coxae 1 and 2, except varying amount of infuscation and sometimes apical part of coxa 3.

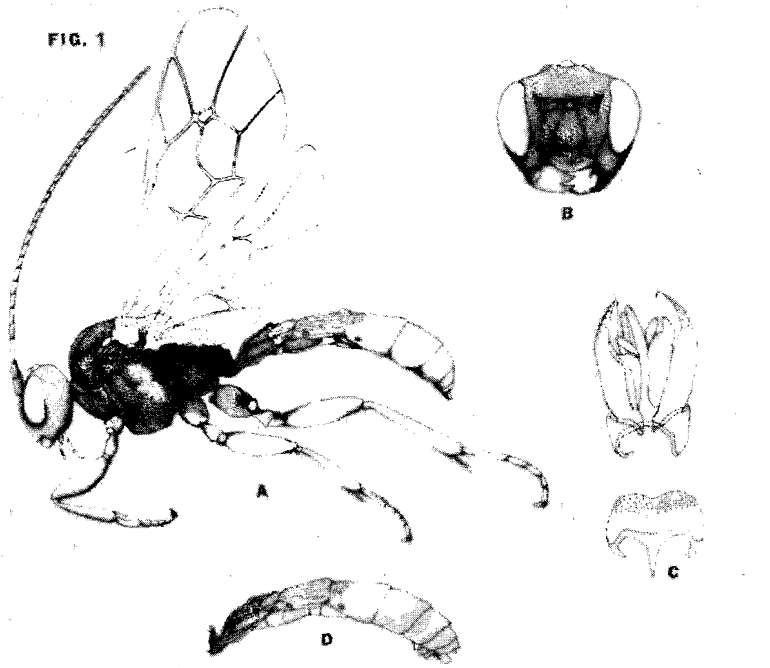

Fig. 1. *Rhorus bartelti* n.sp.: (A) side view, female; (B) face, female; (C) parameres and subgenital plate, male; (D) abdomen, male.

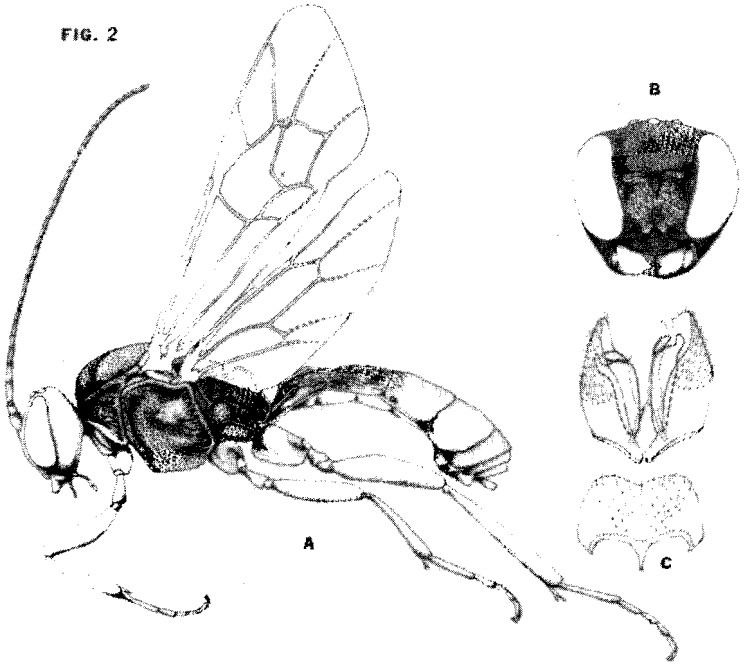

Fig. 2. *Rhorus gaspesianulus* n.sp.: (A) side view, female; (B) face, female; (C) parameres and subgenital plate, male.

Ferruginous. Apical portion of petiole; female abdominal tergites 2 to 7, except sometimes two spots on tergite 2, and tergites 6 and 7 almost orange; male tergites 2 to 4 except margin of tergite 4, rarely of tergite 3, and sometimes tergite 2 with two spots, or rarely with rectangular black area; rarely, ferruginous areas nearly orange.

Variations. Clypeus from all yellow to all black; in males, coxae 1 and 2 from nearly all white to black; trochanters from testaceous to nearly black; mandible from yellow to testaceous; tergite 2 from all ferruginous to having two black spots or (males) rarely with rectangular black patch; rarely males with apical margin of tergite 3 black, and rarely males with no black on apical portion of tergite 4.

Holotype: Female, near Grand Rapids, Itasca Co., Minnesota, reared from a *Pikonema alaskensis* larva collected June 1978; Adult emerged in incubator by spring 1979; R. Bartelt, collector. Type deposited in the insect collection of the Department of Entomololgy, Fisheries and Wildlife, University of Minnesota, St. Paul.

Allotype: Male, same data as holotype.

Paratypes: 97 females and 99 males from Minnesota (Itasca Co.) also reared from YHSS larvae collected June 1977 and 1978; 18 females and 16 males from Maine from YHSS collected July 1976.

Rhorus gaspesianulus **new species**
Figure 2

General: Stout abdomen, shiny black with a yellowish, bilobed (truncate heart-shaped) patch on face (Fig. 2B), and with testaceous legs. More specific generic characters as

follows: notaulus short and broad, nervellus distinctly inclivious, tergite 1 stout, tergites 1 and 2, and tergite 3 basally, rugulose; male subgenital plate weakly emarginate (Fig. 2C).

Etymology: Resembles *Syndipnus gaspesianus* (Provancher), a larger more elongate ichneumonid commonly reared from YHSS larvae.

Female and **Male:** Nearly identical size and coloration; front wing 4.0 to 5.8 mm, most between 4.6 and 5.4 mm; face and clypeus with coarse, dense punctations, finer and sparser ones on remainder of head and mesoscutum except dorsal portion of latter in front of prescutellar groove coarser, almost rugulose; mesoscutum polished; pleural sclerites evenly and moderately densely, coarsely punctate except the speculum and below fovea along mesopleural suture; tergites 3 to 6 polished with very fine, moderately dense punctations; abdomen about as long as head and thorax together; propodeum as figured with distinct rugulosity in pleural and petiolar areas.

Black. Flagellum but more brownish especially anteriorly, scape except usually anterior tip whitish, pedicel, head except biblobed patch on face often extending into clypeus and into facial orbit; thorax except tip of pronotum and mesopleurum at tegula; propodeum, petiole, abdomen except truncate apical portion of female whitish, and sometimes apicolateral portion of tergite 2 and more rarely basal part of tergite 3 darkly ferruginous, epipleura except 2nd and 3rd light, sternal plates except first medial 4 lighter; coxae 2 and 3 except often increasingly testaceous toward apex.

Darkly Ferruginous. Rarely (females) apical margin of petiole, rarely (males and females) most of tergites 2 and 3, and tergite 4 basally; more often (males and females) apicolateral portion of tergite 2.

Yellow. Medial, bilobed patch on face ranging from heart-shaped to moderately notched, sometimes straminous; sometimes clypeus, more often with suffusion and only between its fovea; mandible except at tip and base.

Testaceous. Coxa 1, rarely coxae 2 and 3 rufotestaceous except basally infuscate; trochanters except 3rd often darker; legs except leg 3 rufotestaceous and tarsus 3 and apex of tibia 3 infuscate.

White. Usually anterior tip of scape; tip of pronotum and mesopleurum at tegula; tegula; truncate apical portion of female abdomen, ovipositor sheath.

Variations. Areolet rarely incomplete or absent; rarely large portions of tergites 2 and 3 darkly, unevenly ferruginous; coxae 2 and 3 rufotestaceous; yellowish bilobed patch filling most of face to eyes, but not outside of clypeal fovea.

Holotype: Female, near Grand Rapids, Itasca Co., Minnesota, reared from *Pikonema alaskensis* larvae collected June 1978; adult emergence indoors by spring 1979; R. Bartelt, collector. Type deposited in the insect collection of the Department of Entomology, Fisheries, and Wildlife, University of Minnesota, St. Paul.

Allotype: Male, same data as holotype.

Paratypes: 38 females and 33 males from Minnesota (Itasca Co.) reared from YHSS; 10 females and 4 males from Nova Scotia YHSS; 5 females and 1 male from Maine YHSS.

Hyperbatus marmoratus **new species**
Figure 3

General: Elongate abdomen, black above, side view with marbled appearance of distinct zones of black, rufous, and white on the mesopleurum; legs 1 and 2 testaceous, leg 3 black; coxae 1 and 2 white, coxa 3 fulvous. Differs from generic description as follows: front wing 4.7 to 6.8 mm, nervulus barely its width distad of basal vein, nervellus intercepted near lower fourth, mesopleurum polished with punctations moderately coarse and dense, more densely distributed on lower half and anterior part.

Etymology: From the marbled coloration of the mesopleurum.

Female and **Male:** Front wing usually between 5.4 and 6.4 mm but male 5.8 mm; face and frons mat, clypeus polished, mesoscutum subpolished with short, moderately dense hairs, punctations very fine and sparse; abdominal tergites mat with moderately dense hairs.

Black. Antenna except sometimes anterior portion of scape; frons, medial portion of face between and below antennae to or near clypeus, vertex, temple, occiput, apical seg-

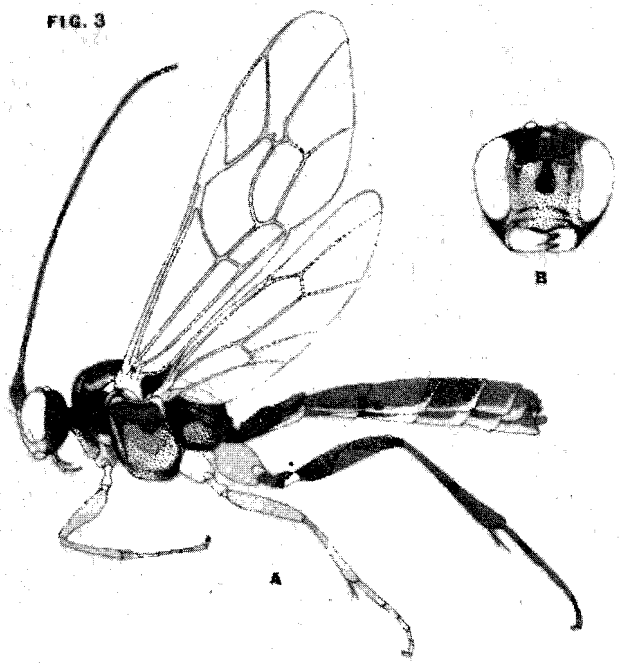

Fig. 3. *Hyperbatus marmoratus* n.sp.: (A) side view, female; (B) face, female.

ment of labial and maxillary palpi (blackish); pronotum except anterior and posterior tips, mesoscutum except anterolateral band extending from notaulus to tegula, scutellum medially, anterior half of preceptus, upper third of mesepisterum except near tegula; propodeum except along pleural carina, though sometimes this area and metapleurum infuscate or black; petiole, abdominal tergites 2 to 8 except epipleura and apical edges, mid to upper portion of abdominal sternites (side view) extending about three-fourths the distance to apex of each sternite ovipositor except very tip; first trochanter 3 except distal tip, leg 3 except basal tip of femur; wing veins above except at basal tip of stigma, and sometimes metacarpus.

White. Sometimes anterior portion of scape (whitish), mandible (except teeth), palps except apical segments, face except medial portion to near clypeus; clypeus except sometimes apical margin testaceous; anterior half of propleurum touching coxa 1; anterior and posterior tips of pronotum; anterior band on mesoscutum from dorsum along notaulus to margin continuing to tegula, dorsolateral edge of mesoscutellum, tegula, axillary sclerites, edge of mesopleurum near tegula, about posterior half of prepectus, mesepimeron, lower third of mesepisternum in form of broad "Y" around indentation marking approximate area of sternaulus with stem of "Y" ending at or near coxa 2, mesosternum medially along suture and at edges; epipleura of abdominal tergites 2 to 8 and apical edge of each, abdominal sternites except for elongate black markings along mid to upper portion of sternites as seen from side; very tip of ovipositor sheath whitish; coxae 1 and 2, first and second trochanters 1 and 2, second trochanter 3 and apical edge of first trochanter 3, basal tip of femora 1 and 2.

Rufous. Mesopleural band beginning from upper end of prepectal carina expanding posteriorly over about mid third of mesepisternum below foveal groove, in and above sternaulus indentation and mesosternum except at suture and edges; above and along pleural

carina though sometimes infuscate to black, metapleurum though sometimes infuscate or black.

Fulvous. Coxa 3.

Testaceous. Legs 1 and 2 except dorsally infuscate basal tip of tibiae 1 and 2 and light area near basal fourth of tibia 1 and 2 with grayish patch beneath distal end, tarsi infuscate; sometimes apical margin of clypeus.

Holotype: Female, near Grand Rapids, Itasca County, Minnesota, reared from *Pikonema alaskensis* larva collected June 1978; adult emergence indoors by spring 1979; R. Bartelt, collector. Type deposited in the insect collection of the Department of Entomology, Fisheries, and Wildlife, University of Minnesota, St. Paul.

Allotype: Male, same as holotype data.

Paratypes: 155 females from Minnesota (Itasca Co.) reared form YHSS larvae; 2 females from Maine YHSS. Males are apparently rare. Only one male was obtained out of 159 *H. marmoratus* emerging over three years from YHSS cocoons from two states.

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