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A REVISION OF THE HELORIDAE
(HYMENOPTERA)

by
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A REVISION OF THE HELORIDAE
(HYMENOPTERA)

By Henry Townes

American Entomological Institute,
5950 Warren Rd., Ann Arbor, Michigan, U. S. A.

The only living genus of the Heloridae is Helorus. The genera Ropronia, Vanhornia, Tetraconus, Monomachus, and Austronia were placed in the Heloridae by Riek (1955. Australian Jour. Zool. 3: 258-259). These have venations somewhat similar to that of Helorus but have conspicuous differences in body structure. The resemblances in venation are due to their having unspecialized venation of the serphoid type rather than to a close phyletic relationship with Helorus or between themselves. I exclude them from the Heloridae. The genera Ropronia, Monomachus, and Austronia may be considered the only living representatives of the families Roproniidae, Monomachidae, and Austroniidae, at least till there is clearer evidence as to their individual relationships. Vanhornia is believed to be an aberrant and primitive member of the Serphidae. Judging from the original description, Tetraconus is a synonym of Monomachus.

All species of Helorus are parasites of Chrysopidae. Oviposition is into a chrysopid larva. The host larva is killed after it has spun a cocoon. Helorus pupates within the chrysopid cocoon and the adult cuts a circular hole in the cocoon for emergence. Clancy (1946. Univ. California Pub. Ent. 7: 407-418) gives details of the life history of Helorus anomalipes (under the name H. paradoxus).

This revision was substantially assisted by a revision of the European Helorus by Pschorn-Walcher (1955. Mitt. Schweizerischen Ent. Gesell. 38: 233-250). Pschorn-Walcher's paper contains discussions of the types, variability, distribution, hosts, and some of the previous confusions in the determinations of European species. These discussions will not be repeated here. I have differed from Pschorn-Walcher's revision in treating corruscus as a synonym of ruficornis, rugosus as a synonym of nigripes, and meridionalis as a synonym of striolatus.

The following collections were studied:

British Museum (Natural History), London, England.

Curator: Mr. N. Fergusson.

Canadian National Collection, Ottawa, Ontario, Canada.

Curator: Dr. Lubomir Masner.

Instituto Miguel Lillo, Tucumán, Argentina. Curator: Dr. Abram Willink.

Michigan State University, East Lansing, Michigan.

Curator: Prof. Roland Fischer.

National Museum of Natural History, Washington, D. C.

Curator: Mr. C. F. W. Muesebeck

Townes Collection, Ann Arbor, Michigan.

Curators: Henry and Marjorie Townes

I wish to thank the curators who loaned specimens, and especially to thank my brother, George Townes, who collected a substantial amount of material. My wife has given assistance in a number of ways. Dr. D. W. Clancy generously gave permission to reproduce his figure of Helorus anomalipes.

Genus Helorus

Helorus Latreille, 1802. Histoire naturelle . . . des Crustaces et des insectes 3: 309. Type: (Helorus ater Latreille) = anomalipes Panzer. Monobasic.

Copelus Provancher, 1881. Nat. Canad. 12: 206. Type: (Copelus paradoxus Provancher) = anomalipes Panzer. Monobasic.

The genus is best described by giving a figure, as below. The venation, body shape, and pectinate claws make it easy to recognize. The size varies from a front wing length of 2.5 mm. to a front wing length of 4.3 mm. The head and body are black in all species except in the Neotropic H. brèthesi, in which the thorax is partly red.

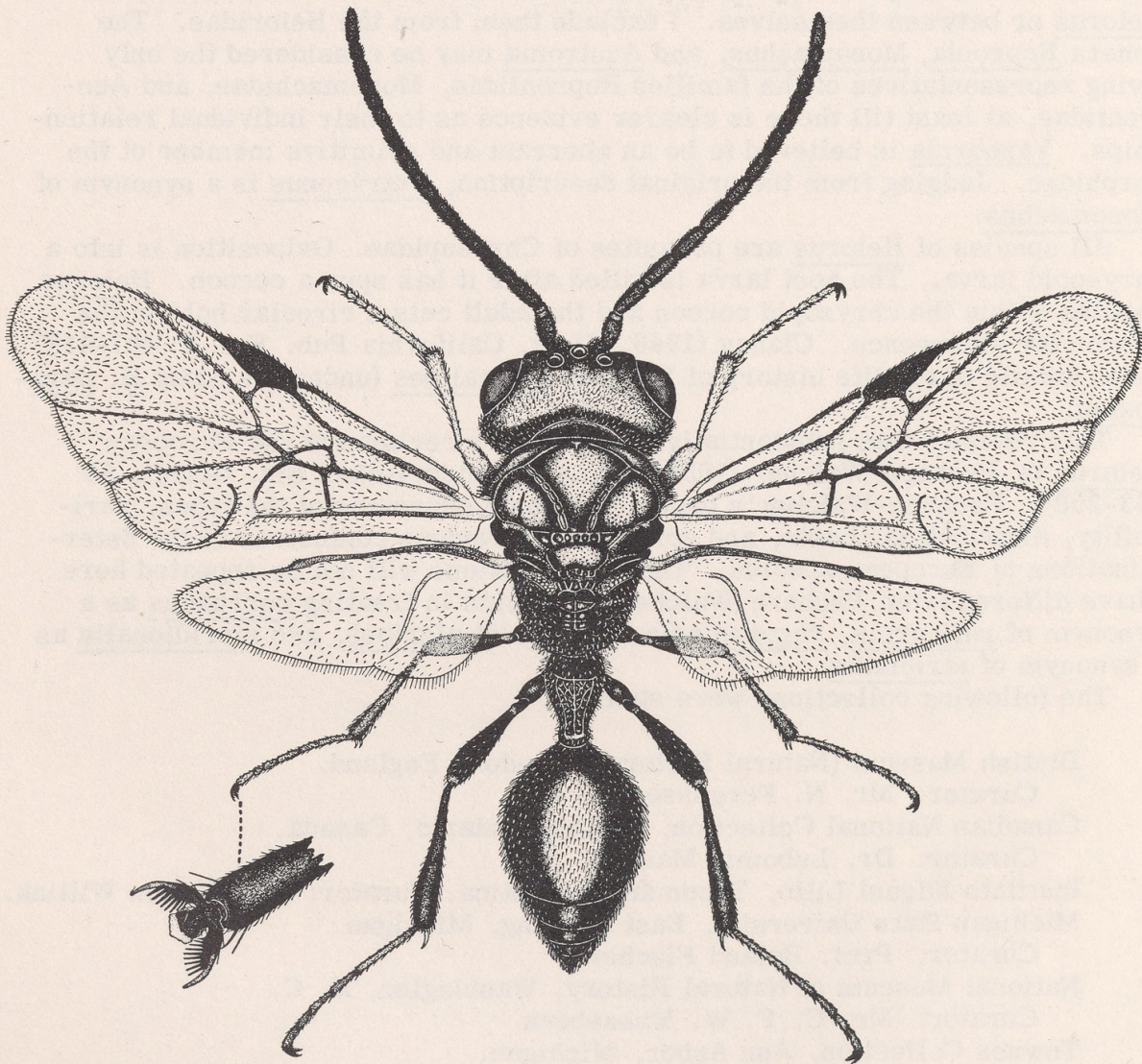


Figure 1. Helorus anomalipes ♀. Republished from Clancy, 1946.

Key to the species of Helorus

1. First abdominal segment 2.5 to 3.8 as long as wide. Face and mesoscutum essentially smooth, their punctures so fine and shallow as to be inconspicuous. 2
 First abdominal segment about 1.8 as long as wide (about 2.3 as long as wide in H. australiensis). Face and mesoscutum with punctures that are small but deep, or very coarsely rugoso-punctate. 5
2. Concave part of side of pronotum smooth or with a few weak wrinkles. Nervulus basad of basal vein by about 0.3 its length. Mesoscutum partly or entirely ferruginous. Neotropic Region.
 1. brèthesi Ogloblin (p. 3)
 Concave part of side of pronotum with strong horizontal wrinkles. Nervulus opposite basal vein, or distad, or basad of basal vein. Mesoscutum black. 3
3. Trochanters and middle femur blackish. Stigma about 3.1 as long as deep. Mesopleurum with a wide foveolate band behind prepectal carina. Base of tergite 1 with a relatively large oblique truncation. Palearctic Region. 4. striolatus Cameron (p. 6)
 Trochanters and middle femur pale fulvous. Stigma about 2.2 as long as deep. Mesopleurum with a narrow foveolate band behind prepectal carina. Base of tergite 1 with a small obliquely truncate area. . . 4
4. Nervulus basad of basal vein by 0.5 its length. First tergite about 3.8 as long as wide. Kenya. 2. elgoni Risbec (p. 4)
 Nervulus opposite basal vein or basad of it by up to 0.23 its length. First tergite about 3.0 as long as wide. Holarctic and Ethiopian regions.
 3. ruficornis Foerster (p. 4)
5. Face, vertex, and median lobe of mesoscutum very coarsely rugoso-punctate. Europe. 7. nigripes Foerster (p. 9)
 Face, vertex, and median lobe of mesoscutum with moderately small punctures. 6
6. Trochanters reddish brown. Front and middle femora reddish brown. Eastern Australia. 5. australiensis New (p. 7)
 Trochanters black or blackish. Front and middle femora fuscous near base, apically fulvous. Holarctic Region.
 6. anomalipes Panzer (p. 7)

1. Helorus brèthesi Ogloblin

Figure 2 (side view)

Helorus Brèthesi Ogloblin, 1928. Rev. Soc. Ent. Argentina 1928: 77. des., figs. Type: sex?, Loreto, Misiones, Argentina (La Plata). Type not seen. Description adequate for identification.

Front wing 2.6 to 3.0 mm. long. First flagellar segment about 5.7 as long as wide in male, about 6.0 as long as wide in female. Second flagellar segment about 3.5 as long as wide in male, about 4.7 as long as wide in fe-

male. Face and mesoscutum polished, with very fine faint punctures. Lateral part of pronotal collar rugose and rounded, surmounted by an irregular and incomplete longitudinal carina. (In all other species of Helorus the lateral part of pronotal collar is surmounted by a strong longitudinal carina.) Concave part of side of thorax smooth or with a few irregular wrinkles (in all other species of Helorus with strong, horizontal, parallel wrinkles). Mesopleurum with a single row of moderately small foveae behind prepectal carina. Scutellum smooth, polished, with sparse hairs that arise from almost invisible punctures. Stigma about 3.1 as long as deep. Nervulus basad of basal vein by about 0.3 its length. First tergite about 3.6 as long as wide, tapered to apex from widest point at basal 0.3, its baso-dorsal slope an almost vertical truncation and surrounded by a rim. Basal $0.3\pm$ and subapical $0.2\pm$ of surface of first tergite with longitudinal wrinkling and sparse shallow punctures, the rest of its surface almost smooth.

Black. Mouth parts yellowish white, the apical part of mandible dark. Antenna fulvous or stramineous at base, gradually darkening to dark brown at apex. Hind margin and hind corner of pronotum, usually upper part of pronotum, much or all of mesoscutum, and axillary areas ferruginous, sometimes the thorax more extensively ferruginous with only the under side and most of propodeum blackish. Tegula whitish. Legs stramineous or pale fulvous, the hind coxa and hind femur except its base and apex medium brown. Basal 0.25 of hind tibia whitish. Wings hyaline.

Specimens: ♂, Horco Molle (near Tucumán), Argentina, May 6 to 14, 1966, Lionel Stange (Townes). 2♀, Horco Molle (near Tucumán), Argentina, December 10 to 23, 1967, C. C. Porter (Cambridge). ♂, ♀, Horco Molle (near Tucumán), Argentina, May 15-21 and June 12-25, 1966, Lionel Stange (Tucumán). ♂, ♀, Tucumán, Argentina, December 1968 and December 1972, J. Foerster and F. M. Oliveira (Ottawa). ♂, Jatai, Goiás, Brazil, November 1972, F. M. Oliveira (Ottawa). ♀, Motozinha, 3,000 ft., Chiapas, Mexico, June 6, 1969, W. R. M. Mason (Ottawa). ♀, Yerba Buena, 6,500 ft., 20 miles north of Bochil, Chiapas, Mexico, June 9 to 24, 1969 (Ottawa).

This species ranges from southern Mexico to northern Argentina.

2. Helorus elgoni Risbec

Helorus elgoni Risbec, 1950. Trav. Lab. d'Ent. Sect. Soudanais Rech.

Agron. 2: 514. ♀. des., fig. Type: ♀, Kenya: Elgon Sawmill on Mt. Elgon (Paris). Type studied in 1975.

Similar to H. ruficornis, from which it differs in having nervulus basad of basal vein by 0.5 its length; first tergite about 25% longer than in ruficornis; flagellum a little longer than in ruficornis; and front and middle tarsus entirely fulvous.

Specimen: Known only from the type, a ♀ from Mt. Elgon in Kenya.

3. Helorus ruficornis Foerster

Figure 3 (side view)

Helorus ruficornis Foerster, 1856. Hymenopterologische Studien, p. 143. ♀. key, des. Type: ♀, Germany: Aachen (Vienna). Type studied in 1975.

Helorus coruscus Haliday, 1857. Nat. Hist. Review 4 (proc.): 168. ♂. des.

Types: ♂, England and Germany: Westphalia (Dublin). Study of types reported by Pschorn-Walcher, 1955. New synonym.

Helorus flavipes Kieffer, 1907. In André: Species des hyménoptères d'Europe et d'Algérie . . . 10: 267. ♂. Lectotype: ♂ (labeled by Townes, 1975 and hereby designated), France: Chanville (Paris). Lectotype studied in 1975.

Front wing 2.8 to 3.7 mm. long. First flagellar segment about 2.8 as long as wide in male, about 4.2 as long as wide in female. Second flagellar segment about 2.7 as long as wide male, about 3.8 as long as wide in female. Face and mesoscutum polished, with very small punctures that are separated by about 2.5 their diameter on face, by about 3.5 their diameter on mesocutum. Mesopleurum polished, smooth, its punctures very small, behind the prepectal carina with a narrow band of foveae, the band one fovea wide. Scutellum polished, smooth, its punctures very small, and moderately sparse. Stigma about 2.2 as long as deep. Nervulus opposite basal vein or basad by as much as 0.23 its length. First tergite about 3.0 as long as wide, its baso-dorsal truncation small, about 50° from the vertical, not bordered by a ridge, the surface of tergite coarsely punctato-rugose with a longitudinal bias, or with strong irregularly longitudinal wrinkling. Punctures on female pygidium small, deep, separated from each other by about 0.7 their diameter.

Black. Mouth parts whitish, the mandibular teeth dark brown. Antenna light brown to dark brown, rarely fuscous. Tegula pale fulvous. Front and middle coxae brown, paler apically. Front and middle legs beyond coxae fulvous. Hind coxa blackish. Hind trochanters fulvous. Hind femur brown, paler basally. Fifth segment of front and middle tarsi brown. Hind tibia and tarsus light brown. Wings hyaline.

Palaearctic specimens: 6♂, 3♀, Skåne, Sweden, June and July, 1969, Bo Svenson (Townes). ♂, Dorking, Surrey, England, July 11, 1964, H. and M. Townes (Townes). 2♂, New Forest, England, July 12, 1964, H. and M. Townes (Townes). 6♂, 4♀, Leicester, England, June, July, and August, 1972 and 1973, Jennifer Owen (Townes). ♀, reared from Chrysopa prasina, Rösental, Bale-Liestal, Switzerland, June 13, 1935, W. Elgin (London). ♀, Seegraeben, Switzerland, June 7, 1951, V. Delucchi (Ottawa). ♂, ♀, Pizzighettone, Italy, June 11, and May 31 to June 7, 1973, Franco Frilli (Townes). ♀, near Linz, Austria, July 6, 1947, H. Priesner (Washington). ♀, Igls, 900 m., Tirol, Austria, Aug. 31, 1953, J. R. Vockeroth (Ottawa). ♀, Rawalpindi, Pakistan, June 16, 1958, Murree (Washington). ♀, reared from chrysopid on Abies pindrow, Pakistan, June 6, 1959, Murree, (London). ♂, Pulchauki, 6,800 ft., Katmandu, Nepal, July 21, 1967 (Ottawa).

Ethiopian specimens: ♂, Grahamstown, South Africa, Dec. 1971, Fred Gess (Townes). ♀, Kloof, 1,500 ft., Natal, South Africa, Sept. 1926, R. E. Twiner (London).

Nearctic specimens: 13♀, Dryden, Me., Aug. 4, 6, 7, and 8, 1971, H. and M. Townes (Townes). ♀, Pinkham Notch, N. H., Aug. 23, 1951, H., M., and D. Townes (Townes). ♀, Mt. Washington, 5,100 ft., N. H., Aug. 25, 1951, H. and D. Townes (Townes). ♂, ♀, Aylmer West, Ont., July 20 to 24 and Aug 8 to 14, 1972 (Ottawa). ♀, Point Pelee, Ont., Oct. 22, 1968 (Ottawa). 13♂, 3♀, Cleveland, S. C., May 23, June 1, 7, 13, and 25, and July 4, 5, 7, 15, and 19, all in 1971, G. Townes family (Townes).

Pschorn-Walcher records specimens from Finland, Sweden, Ireland, Czechoslovakia, Austria, Switzerland, and Tirol. He records Chrysopa

ventralis and Chrysopa prasina as hosts.

This species is widespread in Eurasia, eastern part of South Africa, and eastern North America. In North America it is a recent introduction, as the earliest collection there was in 1951. Probably its occurrence in Africa is also due to introduction.

4. Helorus striolatus Cameron

Figure 4 (side view)

Helorus striolatus Cameron, 1906. Jour. Bombay Nat. Hist. Soc. 7: 98. ♂, des. Type: ♂ (lacking head), Pakistan: [Quetta] in Baluchistan (London). Type studied in 1975.

Helorus meridionalis Pschorn-Walcher, 1955. Mitt. Schweizerischen Ent. Gesell. 28: 247. ♂, ♀. key, des., figs. Type: ♀ (reared from Chrysopa flavifrons), Italy: near Bologna (Geneva?; not in Vienna in 1975). Type not seen but description adequate. New synonym.

Front wing 2.6 to 3.4 mm. long. First flagellar segment about 2.9 as long as wide in male, about 3.4 as long as wide in female. Second flagellar segment about 2.8 as long as wide in male, about 3.2 as long as wide in female. Face and mesoscutum polished, with very small punctures that are separated by about 2.5 their diameter on face, by about 3.5 their diameter on mesoscutum. Mesopleurum polished, with moderately small punctures on its lower 0.3, the rest impunctate and variously smooth or weakly wrinkled, behind the prepectal carina with a wide, mostly single row of strong foveae. Scutellum polished, smooth except for moderately sparse very small punctures. Stigma about 3.1 as long as deep. Nervulus opposite basal vein or basad by as much as the width of nervulus. First tergite about 3.0 as long as wide, its baso-dorsal truncation of moderate size, about 40° from the vertical, and bordered by a rim, the surface of tergite with strong wrinkles that have a longitudinal bias, its setiferous punctures very small and hardly visible. Punctures on female pygidium moderately small, deep, separated by about 0.7 their diameter.

Black. Mouth parts whitish to medium brown. Tegula, apical 0.65± of front femur, apical 0.1± of middle and hind femora, and front and middle tibiae and tarsi light brownish fulvous. Hind tibia and tarsus brown. Wings subhyaline.

Specimens: ♂, Helsinki, Finland, Aug. 7, 1962, O. Ranin (Townes). ♂, ♀, Helsinki, Finland, Aug. 14, 1968, H. and M. Townes (Townes). 4♂, Eberswalde, East Germany, July 5 and 6, 1964, H. K. Townes (Townes). ♀, "Kopl. Aschachtal", Austria, Aug. 29, 1962, H. Priesner (Washington). ♀, Marchtrenk, Austria, July 15, 1938, H. Priesner (Washington). ♀, Naturno, Trentino, Italy, July 18, 1958, David Townes (Ottawa). 3♂, 2♀, reared from Chrysopa, in forest, "Sh. Neumark", Israel (Washington).

Pschorn-Walcher records this from Italy, Hungary, and Finland, and as having been reared from Chrysopa flavifrons and Chrysopa septempunctata. Kozlov has recorded it from Mongolia (1972. Insects of Mongolia 1: 646).

This species is widely distributed in Eurasia.

5. Helorus australiensis New

Helorus australiensis New, 1975. Jour. Australian Ent. Soc. 14: 15. ♂, ♀. des., figs. Type: ♀, reared from Chrysopa cocoon, Australia: Bundoorra in Victoria (Canberra). Australia: Murphy's Creek near Helidon in southwestern Queensland. Hosts: Chrysopa ramburi, Chrysopa near dispar, and Chrysopa near signata. Types not seen.

Front wing 2.5 to 2.7 mm. long. First flagellar segment of female about 3.2 as long as wide. Second flagellar segment of female about 3.4 as long as wide. Face with dense white pubescence. Mesoscutum with fine punctures and hairs that are less dense than on face. Scutellum mostly smooth. Stigma about 3.2 as long as deep. Nervulus opposite basal vein. First tergite slightly furrowed longitudinally, about 2.3 as long as wide.

Black. Scape and pedicel reddish. Flagellar segments 1-3 usually reddish, sometimes darker. Mandible reddish toward apex. Tegula reddish. Coxae mostly black, the rest of legs reddish brown but hind femur sometimes darkened.

This species has not been seen. It is placed in the key and redescribed from data in the original description.

Specimens: Known only from the types (7♂, 11♀) from eastern Australia.

6. Helorus anomalipes Panzer

Figures 5 and 6 (side view)

Sphex anomalipes Panzer, 1798. Faunae insectorum germaniae . . . heft 52, plate 23. Type: ♀?, Germany (lost). Description and figure sufficient for identification.

Helorus ater Latreille, 1802. Histoire naturelle . . . des crustacés et des insectes. 3: 309. sex? Type: France? (lost). Description by mention of name under the new genus Helorus, but without distinguishing specific characters. First revisor was Latreille, 1809, who synonymized his ater with anomalipes.

Copelus paradoxus Provancher, 1881. Nat. Canad. 12: 207. ♀. des., fig. Lectotype: ♀ (designated by Gahan and Rohwer, 1916), Quebec: Cap Rouge (Sainte Foy). Lectotype and paratype studied in 1975. New synonym.

?Helorus anomalipes var. bifoveolata Gregor, 1938. Časopis Česk. Spol. Ent. 34: 15. ♂. des. Type: ♂, Czechoslovakia: Nový Jičín (Prague?). Type not seen.

?Helorus coruscus nigrotibia Hellén, 1941. Notulae Ent. 21: 30. Types: Finland: localities and sexes not specified (location of types unknown). Types not seen.

Front wing 3.1 to 3.8 mm. long. First flagellar segment about 2.9 as long as wide in male, about 3.9 as long as wide in female. Second flagellar segment about 2.4 as long as wide in male, about 2.8 as long as wide in female. Face and mesoscutum polished, with medium sized or small deep punctures that are separated by about 0.7 their diameter on face, by about 1.5 to 2.5 their diameter on mesoscutum. Mesopleurum with moderate sized punctures that usually are crowded, with some rugosity, smoother in specular area.

Behind the prepectal carina a band of coarse foveae, the band about 2 foveae wide. Scutellum foveolate or rugose near apical margin, or with more extensive rugosity that covers its hind half or more, sometimes the rugosity rudimentary and the scutellum almost smooth. Non-rugose part of scutellum with moderately sparse small weak punctures. Stigma about 3.6 as long as deep. Nervulus opposite basal vein or basad or distad by as much as 1.5 the width of nervulus. First tergite about 1.8 as long as wide, its baso-dorsal truncation large, about 45° from the vertical, bordered by a strong rim. First tergite in dorsal view tapered to apex from a little behind its basal truncation, its surface with a strong rugose reticulation and with strong longitudinal wrinkles or carinae and not distinctly punctate, or in some European specimens its surface smoother and distinctly punctate. Punctures on female pygidium deep, moderately small to medium sized.

There is much variation in the sculpture of the first abdominal segment, sculpture of the scutellum, size of the punctures on lower part of mesopleurum, and size of punctures on the pygidium. Figure 5 shows a specimen with normal sculpture; figure 6 shows one with the first tergite unusually smooth. Specimens similar to figure 6 are frequently found in Europe but never in North America.

Black. Mandible, tegula, and tibiae fulvous brown. Front and middle femora fuscous or black basally, fulvous brown apically, the front femur less extensively fuscous than middle femur, sometimes the front femur entirely fulvous brown. Tarsi brown.

Specimens from Europe: 25♂, 30♀ from Austria (Winden and near Linz); Czechoslovakia (Černovice); England (Aldeburgh in Suffolk, Cambridge, Dartmoor, Faversham in Kent, Horsell Common in Surrey, Mill Hill, Nottingham, Tunbridge Wells, and Windsor Forest); France (Landes on Cap Breton); East Germany (Beekow); Germany (Eisen and Mainz); Hungary; Spain (Grenada); Sweden (Degaberga in Skåne and Löderup); and Turkey (Ankara).

Specimens from North America: 85♂, 100♀ from Alberta (Jumping Pound 20 miles west of Calgary, Lancaster Park, Lethbridge, and Rockyford); British Columbia (Agassiz, Atlin, Garibaldi Park at 3,400 to 4,800 ft., Hudson Hope, Robson, Salmon Arm, and Terrace); California (Topaz Lake); Colorado (Boulder, Estes Park, and Morley); District of Columbia (Washington); Georgia (Ringgold); Iowa (Sioux City); Kansas (Lawrence); Kentucky (Golden Pond); Louisiana (Tallulah); Maryland (Laurel, Takoma Park, and Plummers Is.); Massachusetts (Arlington, North Saugus, and Holliston); Michigan (Ann Arbor, Antrim Co., Bay City, Benzie Co., Crystal Falls, East Lansing, Galien, Glen Haven, Grand Traverse, Gull Lake Biological Station in Kalamazoo Co., Hart, Hickory Corners, Iron River, Ontonagan Co., Roscommon Co., St. Charles, and Wexford Co.); Manitoba (Brandon and Riding Mt. National Park near Norgate); Minnesota (Cloquet and Eaglenest); Missouri (Webster Groves); Nebraska (Halsey); Nevada (Wine Cup Ranch in Elko Co.); New Brunswick (Fredericton and Nerepis); New York (Bemus Point, Farmingdale, Northwest, and Riverhead); North Carolina (Hickory); North Dakota (McHenry Co.); Ontario (Bancroft, Belleville, Chatterton, North Bay, Ottawa, St. Davids, Simcoe, and Toronto); Pennsylvania (North East and Inglenook); Prince Edward Island (Atherton); Quebec (Aylmer, Cross Point on the Gaspé Peninsula, Forestville, Hemmingford, and Hull); Rhode Island (Westerly); Saskatchewan (Dunblane, Minton, and Saskatoon); South Carolina (Greenville); Virginia (Charlottesville and Winchester); Washington (Yakima); Wisconsin (Lake Madeline); Wyoming (6 miles northwest of Newcastle); and Yukon Territory (mile 2 on the Dawson Road and Whitehorse). Collection dates are from early summer to mid fall,

with the majority in July and August. There are two reared specimens, one from Chrysopa sp. and one from "Chrysopa sp. (probably rufilabris)".

There is a good account of the biology of this species by Clancy (1946. Univ. California Pub. Ent. 7: 407-418), who reared it from Chrysopa majuscula. Koslov has recorded the species from Mongolia (1972. Insects of Mongolia 1: 645).

This species is widespread in Europe and in North America. It occurs over the entire extent of the United States and southern Canada but is rare or absent in arid habitats. It is uncertain whether it is native to both Europe and North America or was introduced from one to the other.

7. Helorus nigripes Foerster

Figure 7 (side view)

Helorus nigripes Foerster, 1856. Hymenopterologische Studien, p. 143. ♂. key, des. Type: ♂, Germany: Aachen (lost, not found in Vienna in 1975). Foerster's statement "Mesonotum ganz grob runzlig" makes the specific identity clear.

Helorus rugosus Thomson, 1858. Öfvers. Svenska Vet.-Akad. Forh. 15: 380. ♀. des. Type: ♀, Sweden: Skane (lost, not found in Stockholm in 1975). Description sufficient for identification.

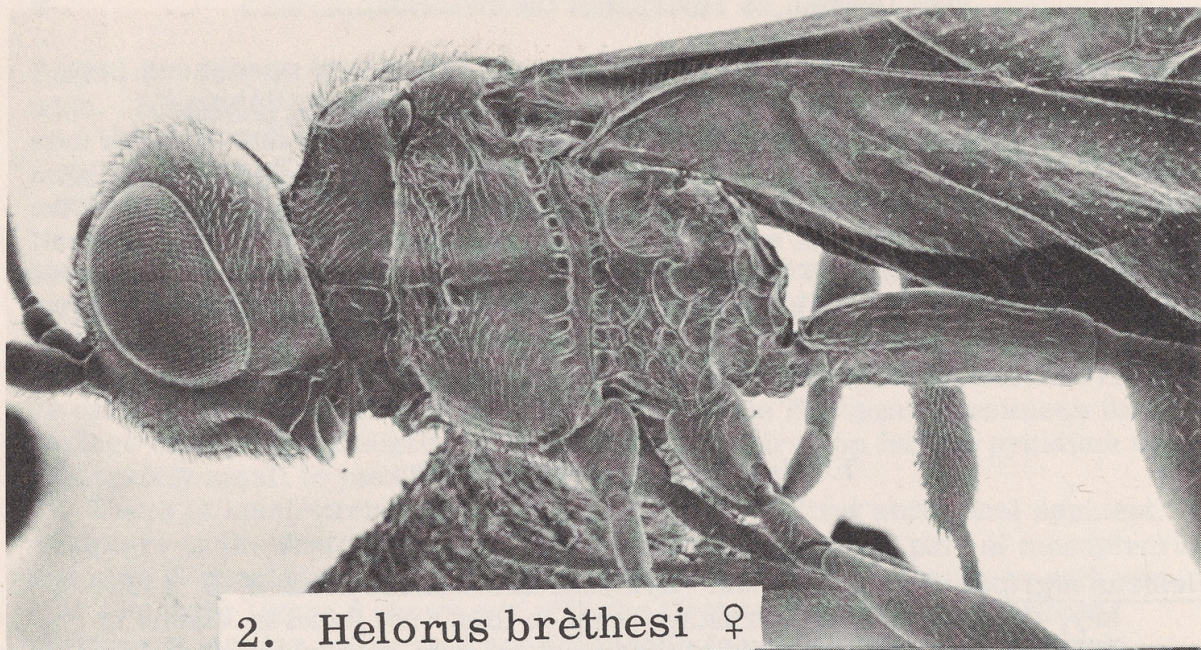
Front wing 3.7 to 4.3 mm. long. Face and mesoscutum with strong, very coarse punctato-rugosity, but the sublateral 0.2± of mesoscutum nearly smooth. First flagellar segment about 3.3 as long as wide in male, about 3.7 as long as wide in female. Second flagellar segment about 2.5 as long as wide in male, about 3.2 as long as wide in female. Mesopleurum very coarsely and strongly rugose except for a large specular area. Scutellum coarsely, strongly punctato-rugose. Stigma about 3.3 as long as deep. Nervulus opposite basal vein or basad of it by as much as 2.0 the width of nervulus, or sometimes a little distad of basal vein. First tergite about 1.85 as long as wide, its baso-dorsal truncation large, about 15° from the vertical and bordered by a projecting rim. General surface of tergite 2 strongly and coarsely reticulate-rugose, with a median dorsal carina or wrinkle and traces of other longitudinal wrinkles. Punctures on female pygidium small and deep, separated by about 0.6 their diameter.

Black. Mandible dark brown to blackish. Palpi brown. Flagellum black, brownish below. Tegula black. Legs black or blackish brown, the front leg with tibia, tarsus, and apical 0.3± of femur brown. Wings subhyaline to faintly infusate.

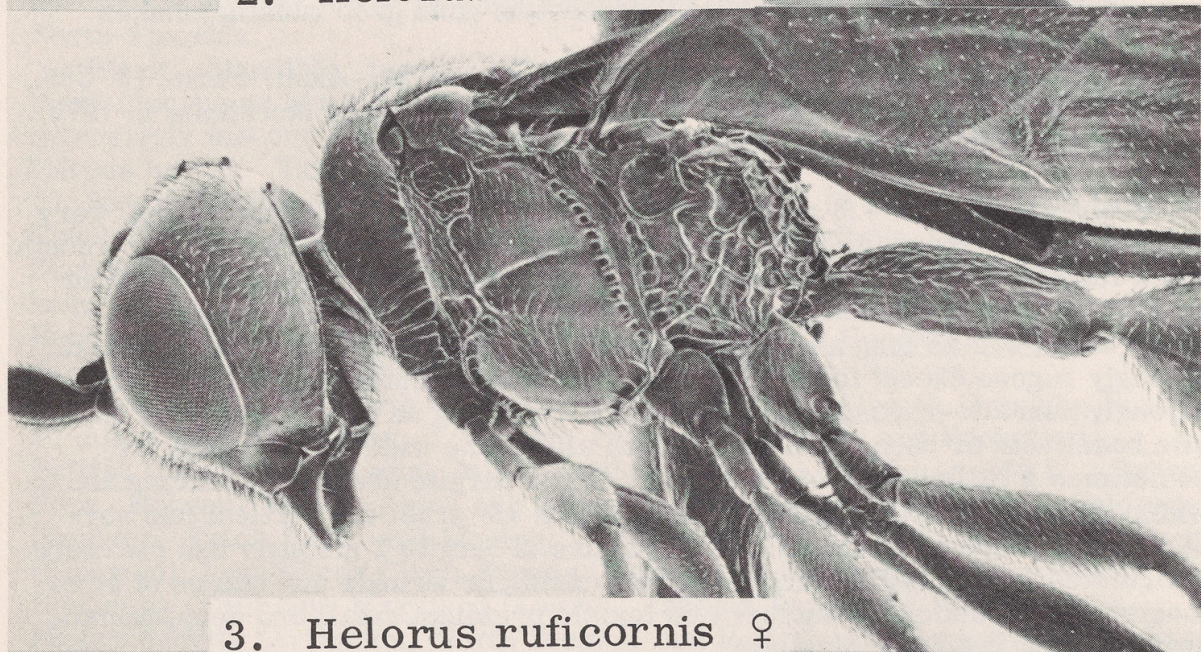
Specimens: 6♂, 8♀ from Austria (Winden); England (Leicester); East Germany (Eberswalde); and France (Hyères).

Seven specimens from Hyères, France, were reared from Chrysopa cocoons.

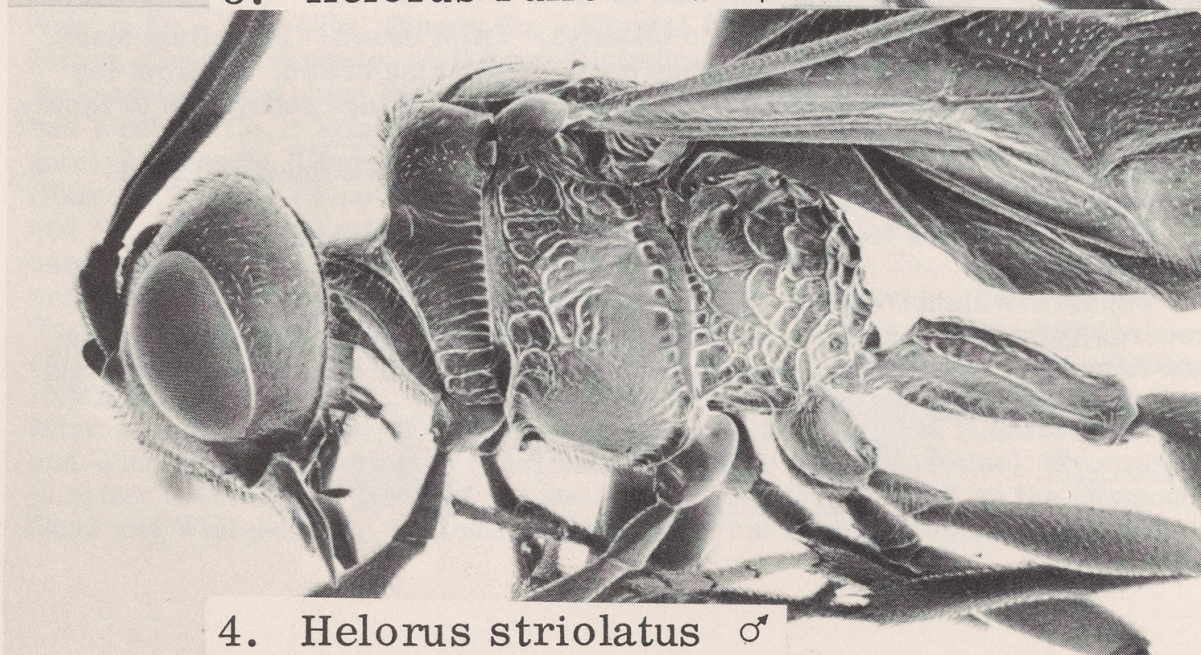
Pschorn-Walcher (1955. Mitt. Schweizerischen Ent. Gesell. 28: 247) records 16 specimens of this species from Sweden, Austria, Czechoslovakia, and Hungary. One of these specimens was reared from Chrysopa nigricortala and one from Chrysopa sp.



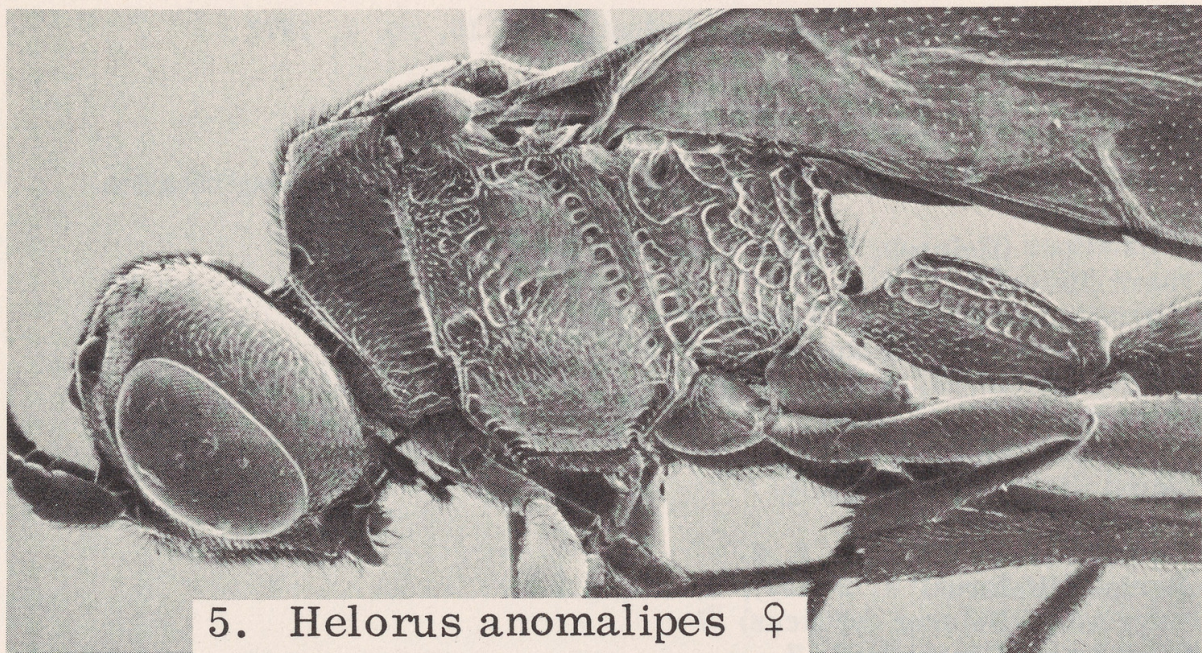
2. *Helorus brèthesi* ♀



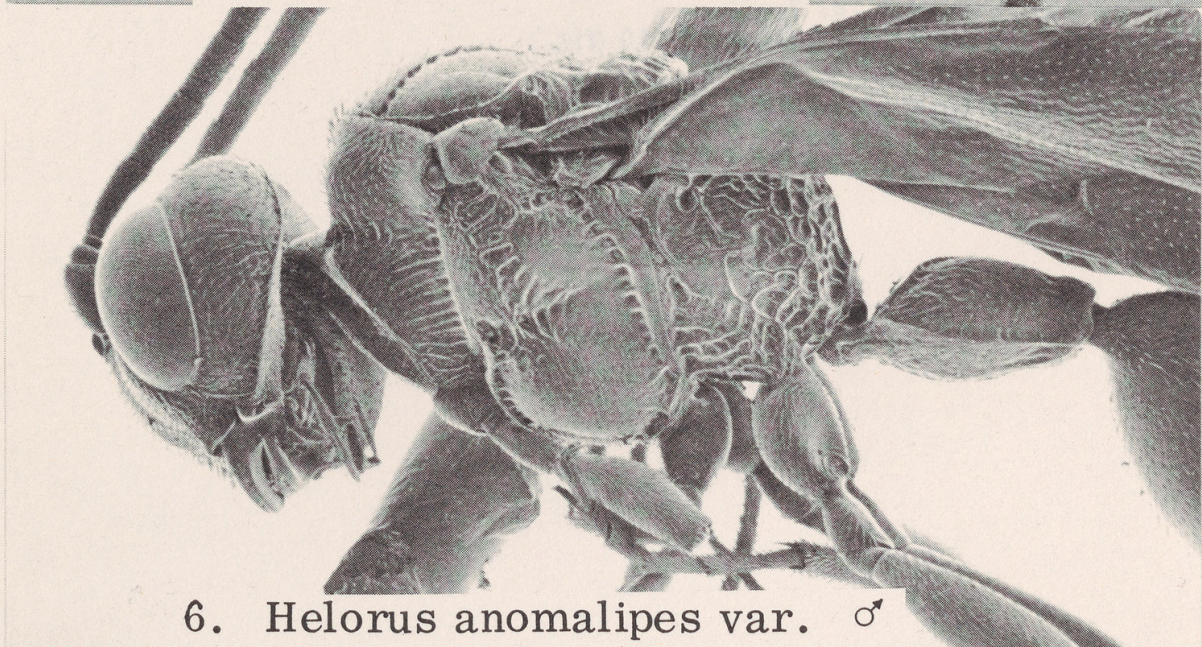
3. *Helorus ruficornis* ♀



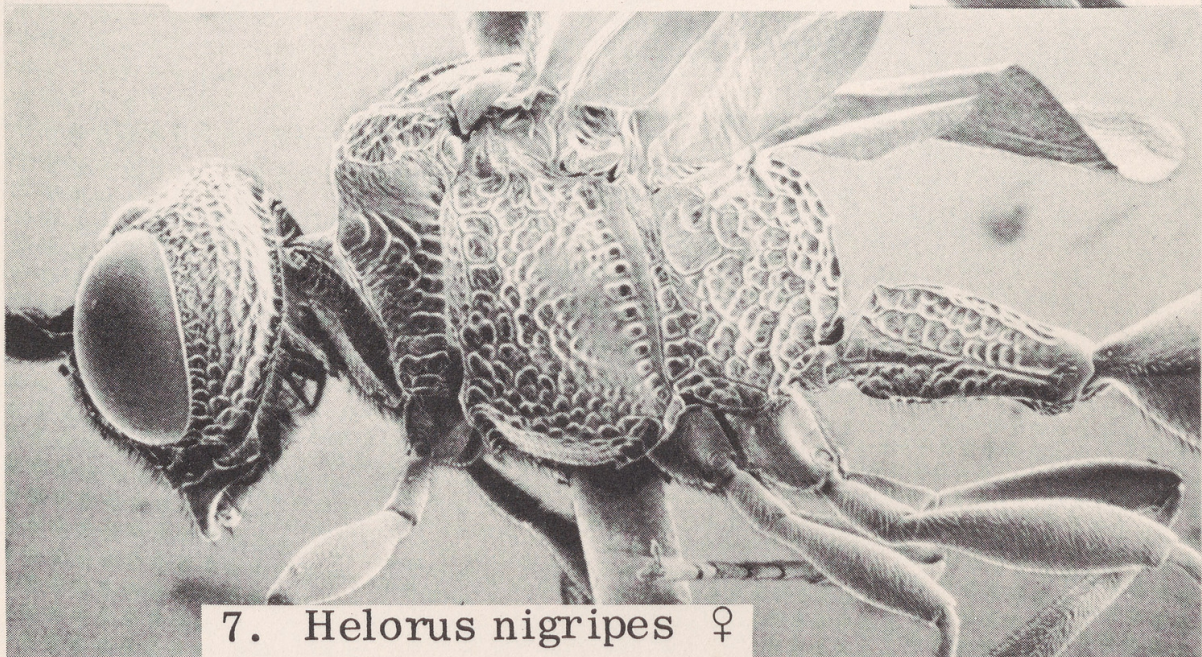
4. *Helorus striolatus* ♂



5. *Helorus anomalipes* ♀



6. *Helorus anomalipes* var. ♂



7. *Helorus nigripes* ♀

INDEX TO HELORIDAE

* An asterisk indicates a synonym, misspelling, or misidentification.

- anomalipes (Helorus, Sphex) 2 (fig.), 3 (key), 7, 11 (figs.)
*ater (Helorus) 2, 7
australiensis (Helorus) 3 (key), 7
*bifoveolata (Helorus anomalipes) 7
brèthesi (Helorus) 3 (key), 10 (fig.)
*Copelus 2
*coruscus (Helorus) 1, 5
elgoni (Helorus) 3 (key), 4
*flavipes (Helorus) 5
*meridionalis (Helorus) 1, 6
nigripes (Helorus) 1, 3 (key), 9, 11 (fig.)
*nigrotibia (Helorus coruscus) 7
*paradoxus (Copelus) 2, 7
ruficornis (Helorus) 1, 3 (key), 5, 10 (fig.)
*rugosus (Helorus) 1, 9
striolatus (Helorus) 1, 3 (key), 6, 10 (fig.)



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