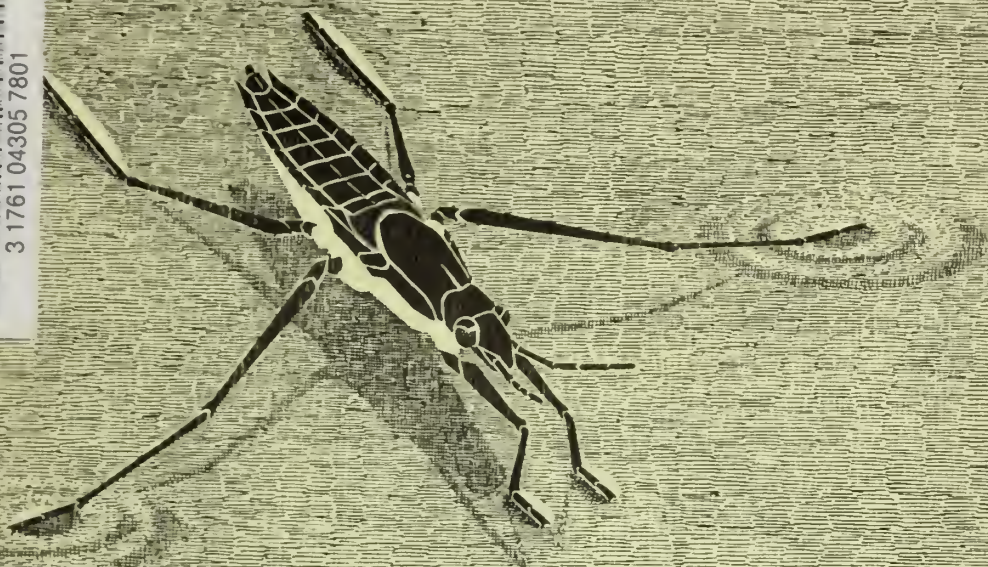




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LANNA CHENG
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THE WATER-STRIDERS OF ONTARIO

(Heteroptera: Gerridae)

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**THE WATER-STRIDERS
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THE WATER-STRIDERS OF ONTARIO (Heteroptera: Gerridae)

Introduction

The water-striders or gerrids constitute a family of very common aquatic insects found in natural waters of all kinds - both permanent and temporary. These insects have been studied very little in Ontario, and what was known about water-striders in this province has been widely scattered in general works on the North American species (Torre-Bueno, 1911; Anderson, 1932; Drake and Harris, 1932, 1934; Kuitert, 1942; Drake and Hottes, 1952; Hungerford, 1954). This study was designed to bring together the basic taxonomic and distributional data on water-striders in Ontario. The keys to genera and species are based on easily observable characters of the adults and are fully illustrated.

The Gerridae are among the largest families of the aquatic Heteroptera. Fifty-three genera are arranged in six subfamilies: Gerrinae, Halobatinae, Trepobatinae, Ptilomerinae, Rhagadotarsinae, and Hermatobatinae. A monograph of the family has been written by Matsuda (1960), and keys to subfamilies and genera of the world by Hungerford and Matsuda (1960). Four genera with 11 species belonging to three subfamilies have now been recorded from Ontario:

- Gerrinae - *Gerris* (7 species);
- Trepobatinae - *Metrobates* (1 species),
Trepobates (2 species);
- Rhagadotarsinae - *Rheumatobates* (1 species).

The material covered in the present paper includes collections in the Department of Entomology and Invertebrate Zoology, Royal Ontario Museum, Toronto; Entomology Research Institute, Canada Department of Agriculture, Ottawa; Research Institute, Canada Department of Agriculture, Belleville; Department of Zoology, University of Guelph, Guelph; Department of Zoology, University of Western Ontario, London; and Department of Biology, University of Waterloo, Waterloo. Material from over 100 localities in Ontario was available for study (see Fig. 1).



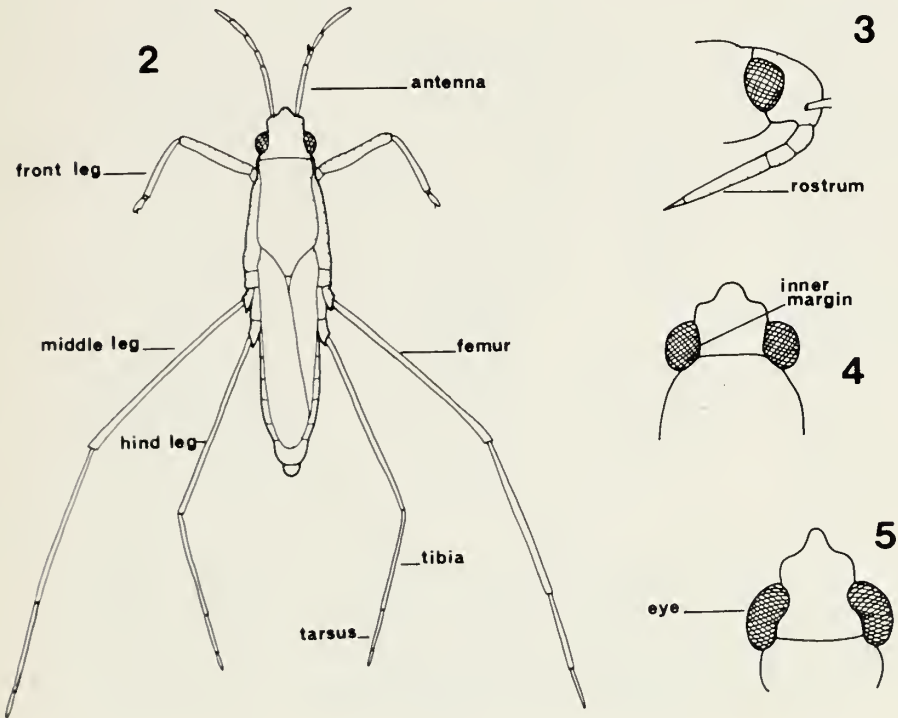
Fig. 1. Ontario gerrid collections studied.

Figs. 2-5. 2. General structure of a gerrid, dorsal view; 3. Gerrid, lateral view of head showing rostrum; 4. Gerrid, dorsal view of head showing eyes with inner margin rounded; 5. Gerrid, dorsal view of head showing eyes with inner margin indented.

In the course of our work, hitherto unstudied material from Quebec, New Brunswick, Newfoundland, Nova Scotia, Prince Edward Island, Yukon Territory, Northwest Territories, and British Columbia came to light, and the records are also included. The Gerridae of Alberta, Saskatchewan, and Manitoba have been dealt with by Brooks and Kelton (1967), and a new species of *Gerris* was described from Yukon and Alaska by Kelton (1961).

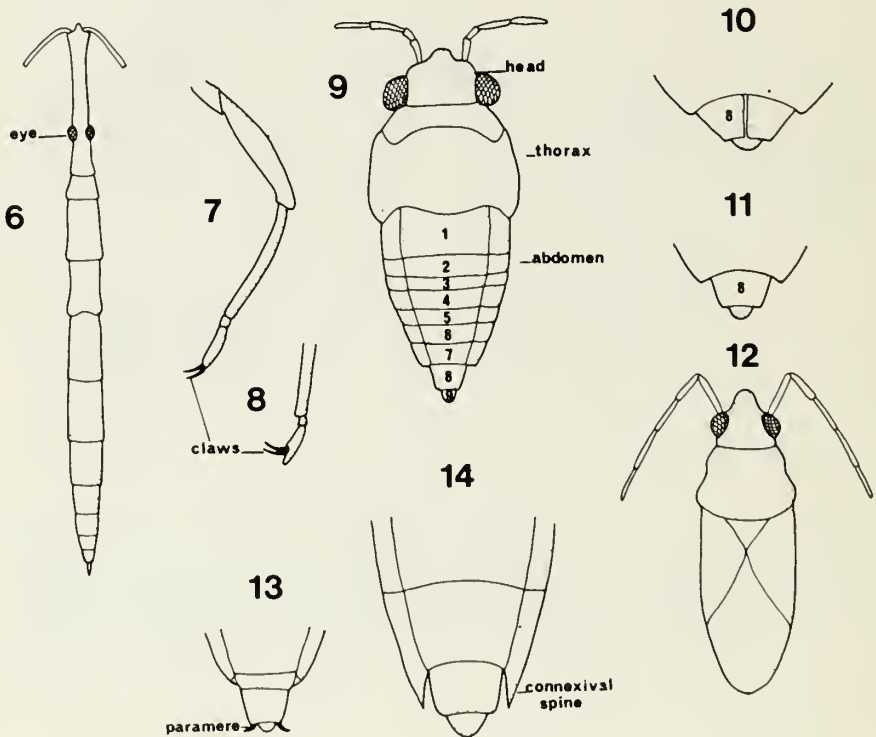
Methods of Collection and Preservation

Gerrids can be collected by using a pond net, and they can be handled safely because they do not sting. They can be preserved either in fluid, preferably 70% alcohol, or as dried specimens, pinned in the conventional way. Specimens preserved in 70% alcohol can be dissected easily for detailed studies, but dried specimens must be soaked in water or alcohol before further studies are made, as they are very brittle and break easily.



General Structure

The water-striders are easily distinguishable from the other surface-living water bugs by their long antennae and legs, and also by their larger size. The general structure of a gerrid is illustrated in Fig. 2. The body is elongate (except in the subfamily Halobatinae which has a more or less oval-shaped body), and the primary divisions of head, thorax, and abdomen are clear (Fig. 9). The head bears a pair of long, slender, four-segmented antennae, and a ventral rostrum (or beak), which is used for feeding (Fig. 3). The thorax is divided into three parts, the prothorax, the mesothorax, and the metathorax, and each bears a pair of legs. The front legs are usually stouter than the other legs and are used for holding the prey and for cleaning the body. The middle legs are used for swimming, and the hind legs are used for swimming as well as steering. In addition, the two posterior thoracic segments may bear a pair of wings each. In wingless forms the pronotum is very short, but in winged forms this segment is prolonged posteriorly and covers the wing base (Fig. 2). The abdomen has nine visible segments,



the last two narrower than the preceding ones (Fig. 9). In the genus *Gerris* the sides of the seventh abdominal segment often project prominently beyond the posterior margin of this segment, forming the connexival spines (Fig. 14). These spines are absent in the other three genera. The eighth and ninth abdominal segments are modified to form the genital segments. In the male, the ventral plate of the eighth abdominal segment is entire (Fig. 11), but in the female it is divided (Fig. 10). The males of *Trepobates* and *Metrobates* often have the parameres, which are sclerotized portions of the genitalia, protruding behind the eighth abdominal segment (Fig. 13). The shape of the parameres is useful for specific identification.

The family Gerridae belongs to the Gymnocerata, a group of water bugs characterized by having conspicuous antennae extending beyond the anterior margin of the head. Other families of the Gymnocerata found in Ontario include the Hydrometridae, Hebridae, Mesoveliidae and the Veliidae. Gerrids can be separated from these by the following key:

1. Head as long as or longer than entire thorax with eyes placed about half way up the head (Fig. 6) Hydrometridae
 Head very much shorter than thorax with eyes placed more or less terminally (Fig. 9) 2
2. Claws inserted at apex of legs (Fig. 7) 3
 Claws inserted before apex of legs (Fig. 8) 4
3. Antennae five-segmented (Fig. 12) Hebridae
 Antennae four-segmented Mesoveliidae
4. Middle femur not extending beyond tip of abdomen posteriorly Veliidae
 Middle femur extending well beyond tip of abdomen posteriorly (Fig. 33) Gerridae

Figs. 6-14. 6. Hydrometrid, dorsal view showing elongated head and position of eyes; 7. Hebrid, leg with apical claws, lateral view; 8. Gerrid, leg with sub-apical claws, lateral view; 9. Gerrid, showing short head and position of eyes, dorsal view; 10. Ventral view of abdomen of female gerrid showing divided eighth abdominal ventrite; 11. Ventral view of abdomen of male gerrid showing undivided eighth abdominal ventrite; 12. Hebrid, showing five-segmented antennae, dorsal view; 13. Gerrid, ventral view of abdomen of male showing parameres; 14. Abdomen of *Gerris* showing connexival spines, ventral view.

Biology

Although the life histories of a few species of gerrids have been studied in North America (Hoffman, 1924; Torre-Bueno, 1917) and in Asia (Hoffman, 1936; Cheng, 1966b), our knowledge of the biology of these insects is still meagre. In southern Ontario gerrids overwinter as adults in vegetation, often within easy reach of water. This phenomenon is well known, and has been documented by Hungerford (1920) and Brinkhurst (1956). As soon as the ice thaws in early spring (late March or early April), gerrids can be seen skating gracefully on the water surface. Mating occurs soon after they emerge from hibernation. During mating the male stays motionless on top of the female, which moves freely on the water surface. They may remain in copula for over an hour and do not separate even when captured in a net. The eggs are about 2-4 mm in length, creamy-white in colour, and are laid on stones or vegetation beneath the water surface.

There are five nymphal stages, and development from the egg to the adult may take 40-60 days (Cheng, 1966b). The early nymphal stages can be found in the field in late May or early June. They are very much smaller than the adults in size and may have a very different colour pattern, although in general body shape and structure the nymphs are similar to the adults. As a rule the nymphs are much paler than the adults, and lack the well-defined colour pattern of the latter. They are not easily distinguishable from the adults, especially in the later stages, unless the genitalia are examined carefully. In the field it is often difficult to distinguish nymphs of one species from the adults of others. Also, some species occur in very small numbers mixed with more numerous individuals of other species. Hence, for the inexperienced collector it is advisable to collect large samples with many individuals at as many different times of year as possible. Sexes are not easily separable in the nymphal stages except during the fourth or fifth instars when some of the adult sexual characters become apparent.

Our observations made at Waterloo suggest that in Ontario gerrids usually have only a single generation extending from March or April to October or November. The number of generations varies, however, from place to place even within temperate North America. According to Torre-Bueno (1917), *Gerris remigis*, one of the commonest gerrids in North America, has at least three generations a year at White Plains, New York. The situation is different in the tropics where gerrids breed all the year

round and may have five or six generations annually (Cheng, 1966b).

Water-striders feed on insects that fall on to the water surface. They have also been observed to feed on spiders. The nymphs are sometimes cannibalistic, but the adults have not been observed to feed on one another, although they do feed on younger nymphs when other insects are not available. Prey is captured and held tightly with the front legs. In feeding, the gerrid extends a pair of long stylets from within its rostrum and inserts them into the body of the prey. The internal contents of the prey are liquefied by enzymes secreted by the gerrid, and then sucked up (Cheng, 1966a). In the laboratory, gerrids can be reared on fruit flies (*Drosophila*). They prey readily on living insects but do not show much interest in dead ones.

In the family Gerridae the adults may be winged or wingless, a condition peculiar to only some of the heteropteran families. This problem of wing polymorphism has received considerable attention (Poisson, 1924; Brinkhurst, 1959). Some species are predominantly winged while others are predominantly wingless. On the whole, species found in streams or permanent water bodies are wingless but those found in ponds and temporary habitats are mostly winged. Of the Ontario species, winged forms are extremely common in *Gerris buenoi*, *G. comatus* and *G. marginatus*, all of which have been found in swimming pools and other isolated artificial habitats in the Waterloo area. Gerrids are also known to fly to artificial lights, a phenomenon especially common in the tropics (Fernando, 1961).

Key to the Genera of Ontario Gerridae

1. Body comparatively long and thin, with ratio of length to width approximately 3:1 (see Fig. 2); inner margin of eyes indented in dorsal view (Fig. 5) *Gerris*

- Body comparatively short and broad, with ratio of length to width approximately 2:1 (see Fig. 23); inner margin of eyes rounded (Fig. 4) 2

2. Antenna and hind leg of male greatly modified (Fig. 15); abdomen of female pointed (Fig. 18) *Rheumatobates*
 Antenna and hind leg of male not modified (Fig. 2); abdomen of female not pointed (Fig. 29) 3
3. Body dark grey to black in colour with few pale markings (Fig. 27); hind femur distinctly longer than body length *Metrobates*
 Body predominantly yellow in colour with striking brown or black markings (Fig. 23); hind femur shorter than body length *Trepobates*

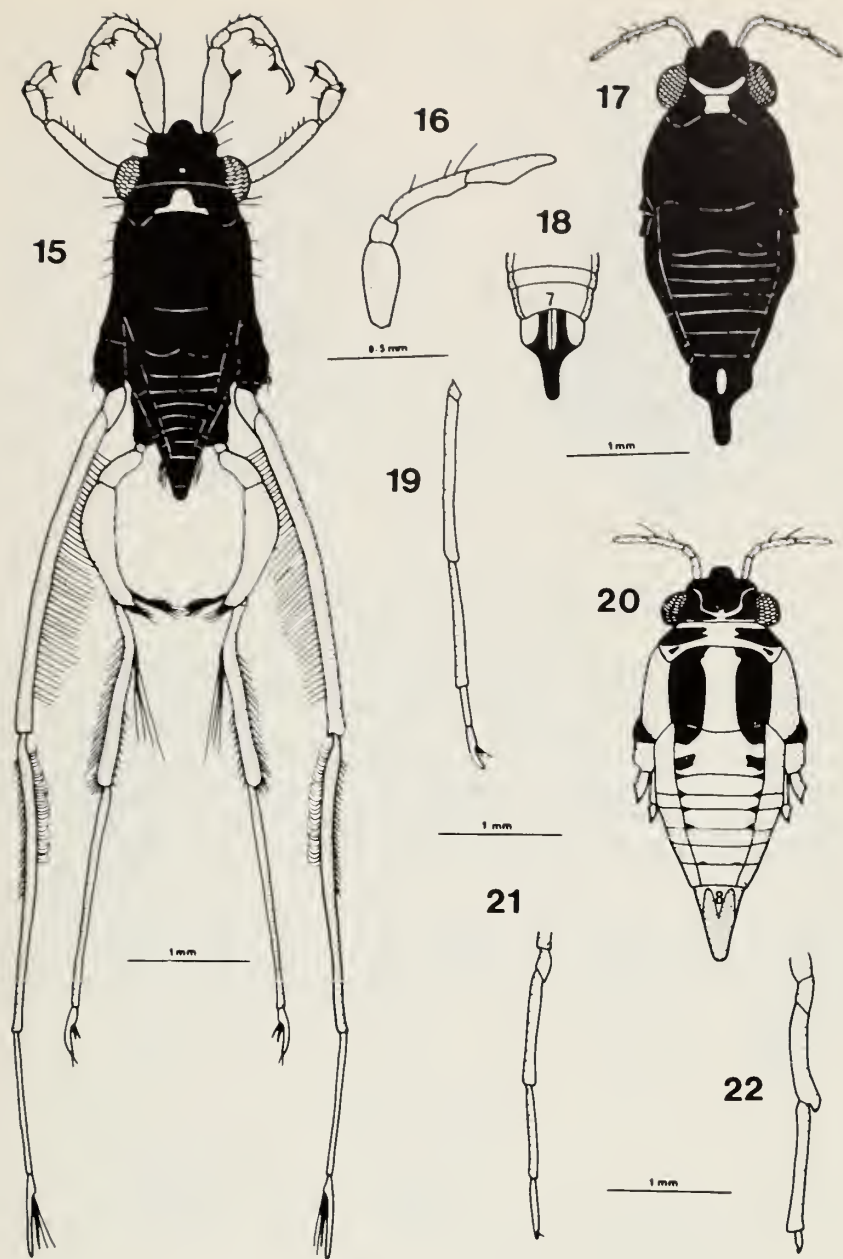
Genus *Rheumatobates* Bergroth

Hungerford (1954) has published a key to the 23 species of this genus. Although the genus is widely distributed with species recorded from North, Central and South America, only one occurs in Canada.

***Rheumatobates rileyi* Bergroth**

Figs. 15-22. This is a stream-dwelling gerrid measuring 2.0-3.5 mm in length; the females are larger than the males. The adults are dark grey to black in ground colour with pale yellowish markings on the head and pronotum (Figs. 15, 17), but the nymphs are largely pale yellow with dark markings (Fig. 20). The males of this species have strongly modified antennae and hind legs (Fig. 15), but these appendages are not modified in the female (Figs. 17, 19) nor in the nymphs (Figs. 16, 21, 22). The genital segments of the female are, however, prolonged into a pointed structure (Figs. 17, 18).

Figs. 15-22. *Rheumatobates rileyi*
 15. male, dorsal view. 16. fifth instar male, antenna. 17. female, dorsal view. 18. female, apical abdominal segments, ventral view. 19. female, hind leg. 20. fifth instar nymph, dorsal view. 21. fifth instar female, hind leg. 22. fifth instar male, hind leg.



Ontario Localities. Bruce Co.: Kincardine. Lincoln Co.: Jordan. Nipissing Dist.: Algonquin Provincial Park (Cache L., Opeongo L.). Renfrew Co.: Arnprior. Victoria Co.: Dalrymple.

Additional Localities. Quebec: Abbotsford, Fairy L.

Genus *Trepobates* Uhler

About 10 species are known for this genus, distributed in North, Central and South America and in the West Indies (Matsuda, 1960). A monograph with keys to the species was published by Drake and Harris (1932). Two species are recorded from Ontario.

Trepobates pictus (Herrich-Schaeffer)

Figs. 23-25. This species can be recognized easily by its variegated dark brown and yellow colour pattern (Fig. 23) and the presence of a dorsomedian thoracic process in the female (Fig. 24). The paramere of the male is sickle-shaped (Fig. 25) and quite different from that of *T. inermis*. It is a small, stream-dwelling species measuring 2.0-3.0 mm in length. Very few specimens have been collected from Ontario up to this time.

Ontario Localities. Bruce Co.: Chesley L. Essex Co.: Pt. Pelee. Waterloo Co.: Waterloo. Wellington Co.: Fergus.

Figs. 23-25. *Trepobates pictus*

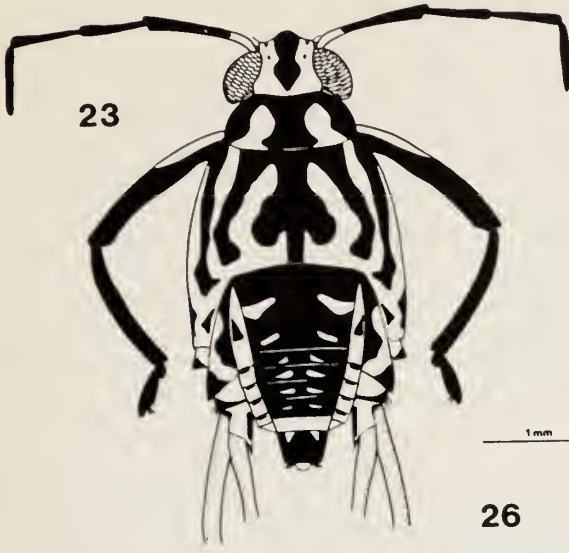
23. male, dorsal view. 24. female, lateral view showing median thoracic process. 25. male, paramere.

Fig. 26. *Trepobates inermis*

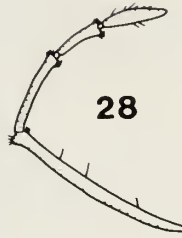
26. male, paramere.

Figs. 27-32. *Metrobates hesperius*

27. male, dorsal view. 28. female, antenna. 29. female, apical abdominal segments, ventral view. 30. male, apical abdominal segments, ventral view. 31. male, paramere. 32. male, antenna.

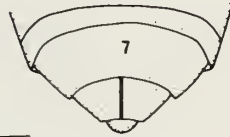


26



32

29



1 mm

31



25



30



8

***Trepobates inermis* Esaki**

Fig. 26. This species is easily separated from *T. pictus* by the absence of the median thoracic process in the female, the presence of long hairs on the middle femur in the male, and the differently shaped paramere of the male (Fig. 26). It is also duller in colour. Only a single collection consisting of one male and one female has been made in Ontario.

Ontario Locality. *Lincoln Co.*: Jordan.

Genus *Metrobates* Uhler

About 10 species are known in this genus, but only one occurs in Ontario. The genus is distributed in North, Central and South America and was monographed by Anderson (1932).

***Metrobates hesperius* Uhler**

Figs. 27-32. This species is dark grey to black in ground colour with whitish markings on the head and the pronotum (Fig. 27). It is small in size, measuring 2.5-3.5 mm in length. The male and female are similar in colour pattern but can be separated by the structure of the eighth abdominal ventrite (Figs. 29, 30). Also, the male is narrower than the female and has its first antennal segment fringed with hairs (Fig. 32); that of the female is comparatively bare (Fig. 28). The paramere of the male is characteristically shaped (Fig. 31).

This is also a stream-dwelling species and has been found to occur in large numbers in the Grand River at Grand Valley. Only wingless forms have been collected so far.

Ontario Localities. *Algoma Dist.*: Goulais Bay. *Dufferin Co.*: Grand Valley. *Muskoka Dist.*: Norway Pt. *Nipissing Dist.*: Algonquin Provincial Park (Opeongo L.). *Renfrew Co.*: Arnprior.

Genus *Gerris* Fabricius

This is the largest genus of the Gerridae, with a world-wide distribution. About 30 species are known from the North American continent alone. Seven species are recorded from Ontario and the males can be identified with the following key. It is not possible at present to construct a key to the females of this genus.

Key to the species of *Gerris* (males)

- 1. Posterior margin of sixth abdominal ventrite smoothly rounded (Fig. 47) 2
 - Posterior margin of sixth abdominal ventrite interrupted by an angular shoulder on either side (Fig. 42) 3
- 2. Eighth abdominal segment concave laterally (Fig. 49); body very slender, less than 10 mm in length *G. canaliculatus* (p.18)
 - Eighth abdominal segment with straight sides (Fig. 47); more than 10 mm in length *G. dissortis* (p.19)
- 3. Connexival spines extremely short or wanting (Fig. 38) 4
 - Connexival spines long and distinct (Fig. 36) 6
- 4. Eighth abdominal segment with distinct tufts of long hairs on each side ventrally (Fig. 39) *G. comatus* (p.14)
 - Eighth abdominal segment without tufts of long hair ventrally (Fig. 42) 5

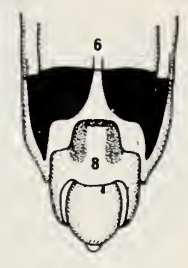
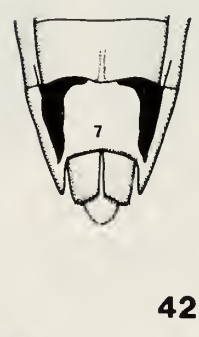
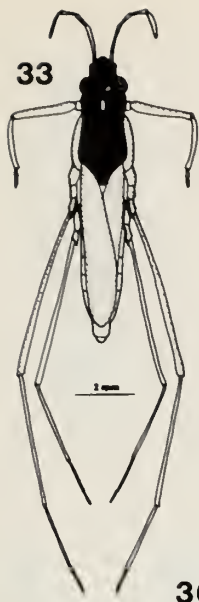
5. Pronotum with pale lateral stripes on both anterior and posterior lobes (Fig. 40) *G. buenoi* (p.16)
 Pronotum with pale lateral stripes only on anterior lobe (Fig. 43) *G. pingreensis* (p.20)
6. Body robust, more than 8 mm in length; eighth abdominal segment with prominent keel (Fig. 44) *G. remigis* (p.18)
 Body slender, less than 8 mm in length; eighth abdominal segment without keel (Fig. 54). *G. marginatus* (p.20)

***Gerris comatus* Drake and Hottes**

Figs. 33-39. This is one of the commonest *Gerris* in Ontario, and can often be found in large numbers in ponds, lakes and all sorts of temporary pools in early spring. Winged forms (Figs. 33, 34, 35) are very common and the species frequently occurs together with *G. buenoi* and *G. marginatus*. It is a medium-sized gerrid measuring 6.5-9.0 mm in length. The males and females are rather similar in colour pattern and body structure but can be distinguished by examining the posterior abdominal segments (Figs. 36, 37, 38, 39).

Ontario Localities. *Bruce Co.*: Southampton. *Carleton Co.*: Bells Corners, Black Rapids, Jock R., Mississippi R., Ottawa. *Durham Co.*: Kendal. *Essex Co.*: Pt. Pelee. *Haliburton Co.*: Miners Bay. *Kent Co.*: Rondeau Provincial

- Figs. 33-39. *Gerris comatus*
 33. male, dorsal view. 34. fore wing. 35. hind wing. 36. female, apical abdominal segments, dorsal view. 37. female, apical abdominal segments, ventral view. 38. male, apical abdominal segments, dorsal view. 39. male, apical abdominal segments, ventral view.
- Figs. 40-42. *Gerris buenoi*
 40. male, dorsal view showing colour pattern on pronotum. 41. female, apical abdominal segments, ventral view. 42. male, apical abdominal segments, ventral view.



Park. *Leeds Co.*: Chaffeys Locks (Opinicon L.). *Hastings Co.*: Moira L. *Lincoln Co.*: Jordan. *Middlesex Co.*: London. *Nipissing Dist.*: Algonquin Provincial Park (Opéongo L.), Timagami. *Oxford Co.*: Ingersoll. *Peel Co.*: Brampton, Britannia, Burnhamthorpe, Cooksville, Mount Charles, Port Credit. *Peterborough Co.*: Lakefield. *Perth Co.*: St. Mary's. *Renfrew Co.*: Meilleur Bay. *Thunder Bay Dist.*: Creelman Creek, Geraldton, Nakina. *Waterloo Co.*: Waterloo. *Welland Co.*: Welland Canal. *Wellington Co.*: Aberfoyle, Crieff, Guelph. *York Co.*: Aurora.

Additional Localities. *British Columbia*: Rolla. *New Brunswick*: French L. *Nova Scotia*: Cape Breton Island (Herbert R., Ainslie L.), Black River L. *Quebec*: Brome L., Fairy L., Île de Montréal, Kazabazua, Knowlton's Lodge, Missisquoi Bay, N. Hatley, St. Chrysostome, Trinity Bay.

***Gerris buenoi* Kirkaldy**

Figs. 40-42. This is the smallest *Gerris* species in Ontario measuring only 4.0-5.5 mm in length. Winged forms are common and the species often occurs in fairly large numbers in ponds, lakes and temporary habitats. The colour pattern on the thorax is rather distinctive (Fig. 40). The male can be separated from the female by the structure of the posterior abdominal segments (Figs. 41, 42).

Ontario Localities. *Carleton Co.*: Black Rapids, Jock R., Merivale, Ottawa. *Dufferin Co.*: Mansfield. *Durham Co.*

Figs. 43, 48-49. *Gerris canaliculatus*

43. male, dorsal view showing colour pattern on pronotum. 48. female, apical abdominal segments, ventral view. 49. male, apical abdominal segments, ventral view.

Figs. 44-45. *Gerris remigis*

44. male, apical abdominal segments, ventral view. 45. female, apical abdominal segments, ventral view.

Figs. 46-47. *Gerris dissortis*

46. female, apical abdominal segments, ventral view. 47. male, apical abdominal segments, ventral view.

Figs. 50-52. *Gerris pingreensis*

50. male, apical abdominal segments, dorsal view. 51. male, apical abdominal segments, ventral view. 52. female, apical abdominal segments, ventral view.

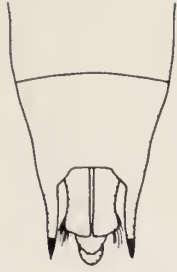
Figs. 53-54. *Gerris marginatus*

53. female, apical abdominal segments, ventral view. 54. male, apical abdominal segments, ventral view.

43



48



49

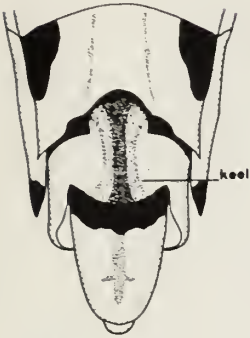


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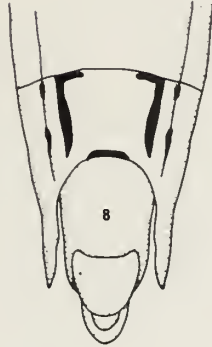


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44



47



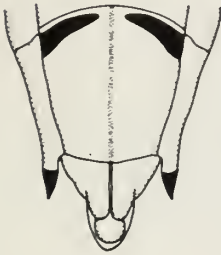
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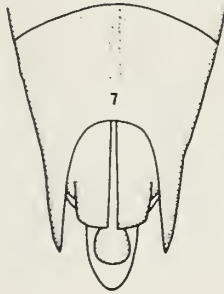
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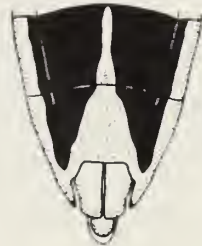
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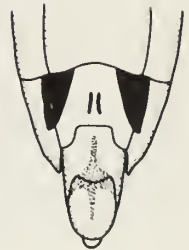
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Kendal. *Haldimand Co.*: Cayuga. *Haliburton Co.*: Haliburton. *Halton Co.*: Campbellville. *Hastings Co.*: Trenton. *Kenora Dist.*: Minaki, Sioux Lookout. *Leeds Co.*: Chaffeys Locks. *Middlesex Co.*: London. *Muskoka Dist.*: Baysville. *Nipissing Dist.*: Algonquin Provincial Park, L. Nipissing, Madawaska R. *Ontario Co.*: Pickering. *Peel Co.*: Brampton, Britannia. *Peterborough Co.*: Cordova Mines. *Timiskaming Dist.*: Cobalt. *Waterloo Co.*: Waterloo. *Wellington Co.*: Aberfoyle, Arkell, Crieff, Guelph, Rockwood. *York Co.*: Don R. (Toronto).

Additional Localities. *British Columbia*: Oliver, Victoria. *Quebec*: Covey, Esquimaux, Fairy L., Kazabazua, Knowlton, Laniel, Mascanin, Natashquan, Rupert House, Thunder R., Watshishu.

***Gerris canaliculatus* Say**

Figs. 43, 48-49. This is an extremely slender gerrid of medium size measuring 5.0-9.0 mm in length. Both winged and wingless forms have been collected. In both sexes the thorax is dark brown with pale yellow markings (Fig. 43) but the sexes can be separated easily by the differently shaped posterior abdominal segments (Figs. 48, 49). It is an uncommon species and has only been collected from one locality in Ontario so far. This species has not been recorded from the prairie provinces.

Ontario Locality. *Parry Sound Dist.*: Log L.

***Gerris remigis* Say**

Figs. 44-45. This is a very common stream gerrid in Ontario. The male is similar to the female but can be separated by the structure of the posterior abdominal segments (Figs. 44, 45). The wingless forms are commonly found in large numbers in streams in early spring. Winged forms are uncommon.

Ontario Localities. *Algoma Dist.*: Desbarats. *Bruce Co.*: Kincardine, Southampton. *Cochrane Dist.*: Driftwood, Kapuskasing, Macdiarmid. *Durham Co.*: Orono. *Essex Co.*:

Windsor. *Grey Co.*: Singhampton, Woodford. *Haldimand Co.*: Cayuga. *Haliburton Co.*: Haliburton. *Halton Co.*: Georgetown. *Hastings Co.*: Belleville, Foxboro, Madoc, Stirling. *Huron Co.*: Clinton. *Kenora Dist.*: Dryden, Kenora, Malachi, Nestor Falls. *Kenora Dist. (Patricia Portion)*: Attawapiskat, Favourable Lake. *Kent Co.*: Bothwell, Rondeau Provincial Park. *Lincoln Co.*: Grimsby, Jordan. *Middlesex Co.*: London. *Muskoka Dist.*: Baysville, Echo L., Go Home Bay, Rosseau L., Port Sydney. *Nipissing Dist.*: Algonquin Provincial Park, Madawaska R., Smoke L. *Northumberland Co.*: Cobourg. *Ontario Co.*: Pickering. *Oxford Co.*: Tillsonburg. *Parry Sound Dist.*: Rosseau. *Peel Co.*: Port Credit. *Rainy River Dist.*: One Sided Lake. *Simcoe Co.*: Collingwood, De Grassi Pt. (L. Simcoe), Midland, Sturgeon Bay. *Sudbury Dist.*: Spanish. *Thunder Bay Dist.*: Geraldton, Nakina, Nipigon. *Waterloo Co.*: Waterloo. *Wellington Co.*: Arkell, Fergus, Guelph, Ospringe. *York Co.*: Pottageville, Toronto.

Additional Localities. *British Columbia*: Cranbrook, Departure Bay, Goldstream, Kamloops, Keremeos, Kicking Horse Pass, Ladysmith, Erroch L., Nelson L., Mission City, Oliver, Osoyoos, Pouce Coupe, Qualicum Bay, Royal Oak, Sannlich Dist., Summerland, Vancouver. *New Brunswick*: Beresford (Grants Brook), Fredericton, St. Andrews. *Newfoundland*: Frenchman's Cove, Rock Harbour, Stephenville (Seal Cove Brook). *Nova Scotia*: Cape Breton Island (Brook Village, Skye R., nr. Whycocomagh). *Prince Edward Island*: Pleasant Valley (Dunk R.), Watervale (Clarke Brook). *Quebec*: Abitibi Region, Anticosti (Potato R.), Cascapedia, Gaspé Peninsula, Hull, Île de Montréal, Kingsmere, Kirk Ferry, Laniel, Le Relais, Thunder R., Trinity Bay.

***Gerris dissortis* Drake and Harris**

Figs. 46-47. This is the longest of Ontario gerrids but is not as robust as *G. remigis*. It measures 8.5-12.0 mm in length. The sexes can be separated by the posterior abdominal segments (Figs. 46, 47).

Ontario Localities. *Carleton Co.*: Jock R. *Durham Co.*: Kendal. *Hastings Co.*: Chatterton, Madoc. *Kenora Dist.*: Dryden. *Lincoln Co.*: Vineland. *Nipissing Dist.*: L. Nipissing, Timagami. *Ontario Co.*: Oshawa. *Parry Sound Dist.*: Log L. *Rainy River Dist.*: One Sided Lake.

Simcoe Co.: Bradford, De Grassi Pt. (L. Simcoe). *Sudbury Dist.*: Sudbury. *Thunder Bay Dist.*: Geraldton, Nankina. *Wellington Co.*: Guelph. *York Co.*: Downsview, Toronto.

Additional Localities. *British Columbia*: Mount Allard, Kitimat, Pouce Coupe, Summit L., Toad R., White L. *Nova Scotia*: Liverpool (Hunts Point). *Quebec*: Brome L., Kazabazua, Laniel, Natashquan.

***Gerris pingreensis* Drake and Hottes**

Figs. 50-52. This is a medium-sized gerrid measuring 6.5-7.0 mm in length. It is not common. Only three collections have been made in Ontario so far. The connexival spines are extremely short in the male (Figs. 50, 51), while those in the female are flexed inwards above and not visible ventrally (Fig. 52).

Ontario Localities. *Essex Co.*: La Salle. *Kenora Dist.* (*Patricia Portion*): Cape Henrietta Maria, Fort Severn. *Parry Sound Dist.*: Log L.

Additional Localities. *British Columbia*: Atlin, Boofahnie Valley. *Northwest Territories*: Fort Smith. *Quebec*: Bradore Bay, Rupert House. *Yukon Territory*: Watsu L., Whitehorse.

***Gerris marginatus* Say**

Figs. 53-54. This is also a medium-sized gerrid, measuring 5.5-7.0 mm in length. It occurs commonly with *G. buenoi* in lakes and ponds. The males can be distinguished easily from those of *G. comatus* by the absence of tufts of hairs on the eighth abdominal segment (Fig. 54), but the females (Fig. 53) of these two species are difficult to distinguish externally.

Ontario Localities. *Bruce Co.*: Southampton. *Carleton Co.*: Black Rapids, Jock R., Mississippi R., Ottawa. *Durham Co.*: Kendal. *Essex Co.*: Pt. Pelee. *Grenville Co.*: Spencerville. *Hastings Co.*: Marmora. *Kent Co.*:

Rondeau Provincial Park. *Middlesex Co.*: London. *Peel Co.*: Britannia, Caledon. *Renfrew Co.*: Arnprior. *Waterloo Co.*: Waterloo. *Wellington Co.*: Aberfoyle, Crieff, Guelph. *Wentworth Co.*: Ancaster. *York Co.*: Agincourt.

Additional Localities. *Quebec*: Fairy L., Kazabazua.

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This publication offers an introduction to the study of Ontario water-striders. Illustrated keys are provided for the identification of the eleven species known to occur in the Province, and existing knowledge on the distribution of each one is summarized. An introductory section describes important features of the biology and structure of water-striders, and outlines methods for the collection and preservation of specimens. References to the scientific literature are provided for those wishing to proceed further with the study of these interesting insects.