

Water Striders

Order: Hemiptera (True Bugs, Aphids, Scale Insects, Hoppers, Cicadas, etc.)

Family: Gerridae (Water Striders)

Identification and Descriptive Features:

Water striders are familiar insects, capable of skating across the surface of water. Their body is elongate or oval and covered in fine hairs. Four long, narrow legs splay out from the body, each tipped with fine hydrophobic hairs that allow the insect to perch above the surface of the water. The smaller front pair of legs are used for grasping prey. Winged (macropterous), wingless (apterous) and intermediate forms (brachypterous) may occur. Larger species may have a body length of 12-16 mm.



Figure 1. Water strider.

Distribution in Colorado: At least 11 species of water striders are known from Colorado (Table 1) and one or more representatives may be found where ever there is water as pools, ponds and lakes, rivers and streams. Habits of the various species vary. For example, *Aquarius remigis*, probably the most common species in the state, prefers streams but will be found in ponds and stock tanks; *Metrobates trux trux* are typically found in streams with moderately swift flow. The various *Gerris* spp. usually occur in ponds, lakes, and wetlands.

Table 1. Checklist of the water striders known from Colorado.

Subfamily Gerrinae
<i>Aquarius nyctalis</i> (Drake & Hottes)
<i>Aquarius remigis</i> (Say)
<i>Gerris buenoi</i> Kirkaldy
<i>Gerris comatus</i> Drake & Hottes
<i>Gerris gillettei</i> Lethierry & Severin
<i>Gerris incognitus</i> Drake & Hottes
<i>Gerris insperatus</i> Drake & Hottes
<i>Gerris marginatus</i> Say
<i>Gerris pingreensis</i> Drake & Hottes
<i>Limnopus notabilis</i> (Drake & Hottes)
Subfamily Trepobatinae
<i>Metrobates trux trux</i> Torre Bueno



Figure 2. Water strider pair. The male is riding on the back of the female.

Life History and Habits: Water striders are predators, feeding on insects that fall and are trapped on the surface, or aquatic insects that come to the surface for air. Prey are often located by detecting vibrations of the water. The front pair of legs, much shorter than the hind two pairs of legs that are involved with swimming, are used for grasping prey. Water striders have piercing-sucking mouthparts that inject a paralyzing saliva to incapacitate prey and also help to digest the tissues of the prey (exodigest).

Water striders lay eggs just under the water surface on emergent vegetation and floating debris, either as a series of single eggs or as masses. Eggs hatch in about 12 days. The newly emerged nymphs are minute but can grow rapidly over the course of a month or two, passing through five nymphal stages during development. Adult forms may, or may not, be winged and the occurrence of the various winged forms is related to the habitat stability (i.e., permanent streams vs.. temporary ponds) and time of year. During mating, the male may be seen being carried on the back of the female.

Two generations per year are produced by some species (e.g., *Aquarius remigis*). During winter adults move to protected sites on land. Leaves, logs, holes in stream banks, or similar cover located near waterways are used for hibernation.

Water striders (or “pond skaters”) are among the most enchanting insects to watch as they almost effortlessly appear to glide across the surface of a water pool. This trick is largely achieved by a special modification of the tarsi at the tip of their hind two pair of legs. These are clothed with fine, precisely oriented hairs, that catch air and are difficult to wet, providing flotation. The long legs of the water strider are also important as they spread out the mass of the insect so that it does not break the surface tension of the water. To maintain this balance, larger and heavier species of water striders have proportionately longer legs.



Figure 3. Water strider resting on weeds at pond edge.

The middle pair of legs are used for locomotion, driving backwards with much the same effect as an oar. (The hind pair is primarily used for balance; the small front pair for holding prey.) Water striders can be quite fast and have been observed to skate at bursts that cover 1.5 m/second over short distances. Eight species are presently known from Colorado (Table 2).

Related Species: The **broadshouldered water striders** of the family Veliidae are another group of surface swimming, predaceous aquatic bugs that are closely related to the water striders. Considerably smaller in size than water striders, typically about 4-5 mm in length, they are also known as “Small water striders”, “riffle bugs” or “water crickets”.

Also the broadshouldered water striders also share the feature of long legs, their mode of locomotion is unique. Salivary secretions secreted from the mouth result in a reduction of water

surface tension, causing the insect to be drawn forward. Among the genus *Rhagovelia* tufts of fanned hairs allow the insect to push for additional speed.

Table 2. Checklist of the broadshouldered water striders (Veliidae) of Colorado.

Microvelia beameri McKinsty
Microvelia cerifera McKinsty
Microvelia gerhardi Hussey
Microvelia hinei Drake
Microvelia paludicola Champion
Microvelia signata Uhler
Microvelia torquata Champion
Rhagovelia distincta Champion



Figure 4. Broadshouldered water strider on water lily.