In or On the Water

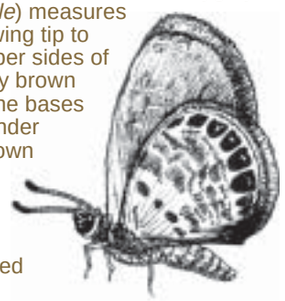
Although most aquatic arthropods of the Rio Bosque can be seen only with a microscope, it is in the water that we find the greatest diversity. Copepods and ostracods, for example, have been documented. These large classes of planktonic crustaceans are related to barnacles. Cladocerans ("Water Fleas") are crustaceans, too, more closely related to shrimp. They swim by beating their antennae.

Water Flea

Water Boatman

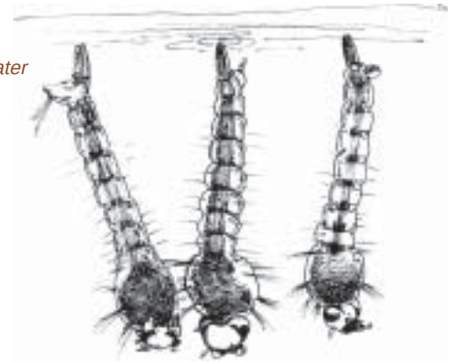
Western Pygmy Blue

The smallest of all North American butterflies is commonly encountered at the Rio Bosque in warm months of the year. The Western Pygmy Blue (*Brephidium exile*) measures a mere ¾" from forewing tip to forewing tip. The upper sides of the wings are coppery brown with dull blue along the bases and white fringes. Under sides are coppery brown dappled with white. Look for them especially in the vicinity of Four-Wing Saltbushes, a preferred food plant.

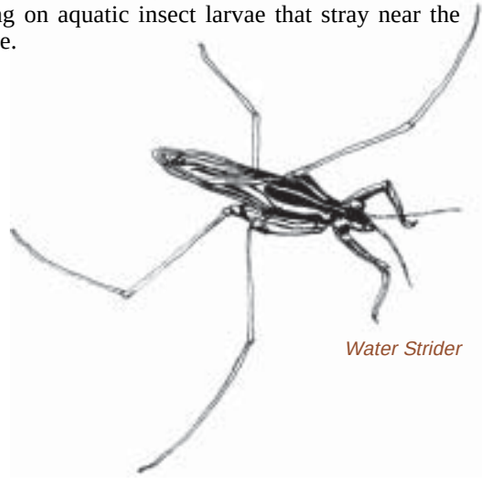


Insect larvae abound, looking very different from the adults we are familiar with. Mosquito larvae ("wrigglers") thrive on algae just below the water's surface. Dragonfly larvae, depending on species, are bottom dwellers or move about in pond vegetation. They are fierce predators, but, alas, mosquito larvae are not a preferred food.

Mosquito Larvae in water



Adult insects commonly seen include Water Boatmen and Water Striders, both true bugs (Order Hemiptera). Water Boatmen paddle about with their middle and rear legs, while using the front legs to scoop up algae. They have mottled brown, oval-shaped bodies up to ½" long. Water Striders can "walk" on water due to their legs' ability to chemically repel water and thereby avoid breaking its surface tension. Unlike the vegetarian Boatmen, Water Striders are hunters, preying on aquatic insect larvae that stray near the surface.



Water Strider

Wetlands and riverside forests once graced the banks of the Rio Grande in the Paso del Norte region. They were the area's most productive natural habitats, but today they are virtually gone. At Rio Bosque Wetlands Park, the environment is still changing, but in a new way. Here, a diverse partnership is working to bring back meaningful examples of the unique and valuable ecosystems once found in our river valley.

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The Rio Bosque project relies on community involvement for success. Find out how you can participate: call **915-747-8663** or visit **www.cerm.utep.edu/riobosque/**

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FRIENDS OF THE RIO BOSQUE

ARTHROPODS
of the Rio Bosque

Rio Bosque Wetlands Park

El Paso, Texas

Millipedes to water fleas, spiders to shrimp, beetles to barnacles: arthropods all share a basic body plan that includes a tough exoskeleton and paired, segmented appendages. Their vast numbers and small size often cause them to be overlooked and under-studied. This brochure offers only a brief introduction to arthropod life at Rio Bosque Wetlands Park.

Paper Wasps tending a nest

"No other phylum of animals is so various as the arthropods, or so speciose, or compares in biomass, or has had a greater impact on the ecology of this planet over the past 600 million years…."
Colin Tudge, The Variety of Life.

"Arthropods are all around us, life-giving, and we have never taken their measure."
E. O. Wilson, The Diversity of Life.

In the Air

Insects are the only invertebrates that truly have mastered the art of flying. Except in the coldest days of winter, you're almost guaranteed to witness insects exploiting their aerial abilities at the Rio Bosque. Some examples:

- Dragonflies and damselflies hunting for other flying insects that they'll capture and devour on the wing.
- Butterflies or bees flitting from flower to flower in search of a sweet sip of nectar.
- Mosquitoes seeking a bird or mammal (maybe you!) from which to suck a blood meal to nourish their eggs.
- Tarantula hawks – very large, metallic blue-black wasps with dark orange wings – cruising on the lookout for spiders in which to lay their eggs.
- Paper wasps bringing back insect prey to feed the larvae developing in the cells of their paper nests.

Damselfly

Dragonfly or Damselfly?

These members of the insect order Odonata have many similarities: two large compound eyes, two short antennae, four membranous wings that can act independently of each other, and a very long abdomen. They are most easily distinguished by how they hold their wings at rest: dragonflies keep their wings extended horizontally, while damselflies fold them closed over their backs. Damselflies are weaker fliers and stay closer to the ground or water surface.

Pinacate or Darkling Beetle

On the Land

Worldwide, arthropods play a key role in breaking down and re-distributing organic matter. In arid environments, where physical decay may proceed very slowly, their importance in nutrient cycling is dramatic. Some of the most conspicuous detritivores at the Rio Bosque are the Pinacate or Darkling Beetles. Shiny jet black, they are easily recognized by their habit of walking around with their rear-ends pointing up. They protect themselves from most predators by emitting irritating, smelly chemicals.

Springtail

Another group of detritivores, the springtails, is widespread but seldom noticed. Individuals measure only up to ¼" long. Springtails have six legs so they're often called "hexapods" to distinguish them from true insects. They "spring" by means of an appendage, the furcula, which folds underneath the body. Suddenly releasing the furcula, the animal is propelled up to several inches forward.

Dragonfly

Not all ground-dwellers at the Rio Bosque eat decaying matter. Grasshoppers, for example, feast on living plant material. Wolf spiders dig burrows and hunt for insects, mostly at night. In addition to true ants, you might spot a furry, bright red or yellow Velvet Ant – it's really a wasp. A female Velvet Ant lacks wings and spends her time combing the ground for burrows of other solitary wasps or bees. When she finds one, she lays some eggs in the resident pupal chambers. Her progeny will hatch and consume the host larvae. Be careful! Velvet Ants can deliver a powerful, painful sting.

Velvet Ant

Too Close for Comfort

Arthropods' small size allows this huge group to exploit a bewildering variety of habitats. One we don't usually think about is on (or in) the bodies of other animals. Birds, mammals and reptiles can play host to a plethora of fleas, lice, flies, ticks and mites. We may not be able to observe these ectoparasites directly, but we can certainly find evidence of their presence at the Rio Bosque. Grooming behavior often is triggered by the presence of unwanted arthropods; for example, you may behold a bird preening its feathers of giving itself a dust bath. Many mating displays serve to showcase the healthy "parasite-free" status of hopeful males to choosy females. Empty rodent burrows may have been abandoned by their residents due to a build-up of parasites. Vertebrates have many strategies to escape, avoid or repel ectoparasites; their interactions with these arthropods can have profound effects on survival and reproductive success.