

# PREDATOR PROFILE:

## MINUTE PIRATE BUG

*By Stuart McMillan*

**M**inute pirate bugs are common insect predators found in gardens, fields, orchards and surrounding areas. Even though they occur across Canada in many different habitats they are often overlooked. But don't let their small size fool you, minute pirate bugs have a big impact on a wide variety of common pests.

### Appearance

Minute pirate bugs start their lives as clusters of tiny eggs laid inside plant tissue. Like other bugs they go through five moults between hatching and becoming an adult. This takes on average 20 days.

When they first hatch, they are nearly clear with a slight yellow tinge, but with each moult they become darker reaching a mahogany colour in the fifth moult. They are wingless until they are adults, but are active walkers. Adult minute pirate bugs are generally 2 mm (1/10 in.) in length, oval-shaped, and black with white wing patches. Although there are many different species in Canada, they all have this general appearance. Adults live for around 3 to 4 weeks.

The adults are active flyers and are always on the move in search of food. They have a keen ability to locate prey by chemical signals. Their small size allows them to get into tight flower clusters where other predators cannot reach. Their active habits combined with their searching ability makes them highly effective biological control agents. Their main prey includes thrips, whiteflies, aphids and mites, though they will also eat insect eggs and small caterpillars. When food is scarce they will feed on nectar and pollen to tide them over until they can find more insects to eat. Although they could not survive on

plant food alone, this ability gives them an advantage over other predatory insects that must have insect food or else they migrate or die.

### Flower power

Minute pirate bugs will take advantage of nearly any flowering plant and it is important to try to maintain a blend of plants that offer food throughout the year. Local beekeeping information and personal observation is often the best way to find out what would work best in your area.

Allowing cover crops to flower longer than normal before working them down is also an effective strategy for promoting minute pirate bugs. The challenge can be that if there are very high numbers of beneficial insects in the cover crop, soil incorporation will likely kill most of them. Allowing predators time to mature and move out

could avoid this. Choosing cover crops that bloom for a long period would allow pirate bugs to develop into adults and then fly from the cover crop and hopefully right into your garden or field. Also cutting cover crops with a sickle bar mower instead of a flail mower causes less mortality. Letting part of your area go wild can provide a wide range of flower sources with minimal effort and cost (the bugs use a variety of common weeds). Leaving debris and ground cover helps minute pirate bugs survive our winters.

### Bringing in the troops

Sometimes gardens can face a real onslaught of pests, where there is more than the local predator population can handle. Or, too much damage is done



*The prey of minute pirate bugs includes thrips, whiteflies, aphids and mites, though they will also eat insect eggs and small caterpillars.*

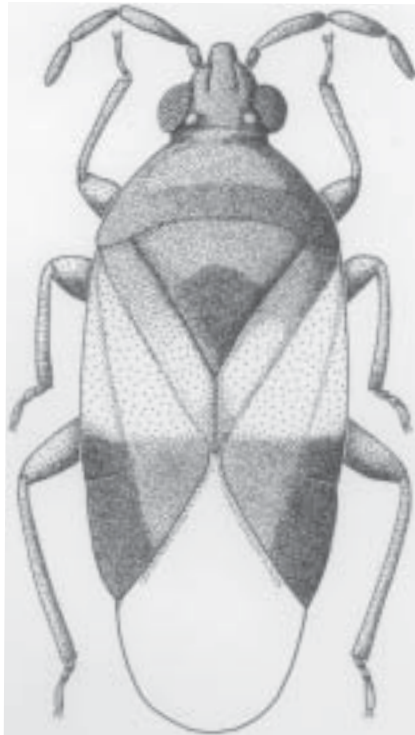
before the population of minute pirate bugs gets a chance to grow. In these times, minute pirate bugs can be ordered and couriered to your door. They generally suffer little mortality in shipping and are sent as adults ready to eat, breed and lay eggs.

Minute pirate bugs are invaluable in controlled spaces such as greenhouses where pest populations can grow very quickly and tolerance for damage is low. They can be used as either a preventative or curative measure. Preventative release should only occur once there is pollen and nectar available. Some gardeners grow plants in their greenhouses that are known to be highly supportive of minute pirate bugs.

Both juvenile and adult minute pirate bugs have a big appetite for insect pests. They are capable of eating thirty mites a day during both life stages. But it is their ability to consume a wide range of plant and insect food sources that makes them such a valuable and versatile ally for organic gardeners. Whether one chooses to promote the existing ones or

### Shortlist of plants known to attract minute pirate bugs

Common name	Latin name	Bloom period
Alfalfa	<i>Medicago sativa</i>	mid to late summer
Angelica	<i>Angelica atropurpurea</i>	early to mid summer
Cow Parsnip	<i>Heracleum maximum</i>	mid summer
Canada Anemone	<i>Anemone canadensis</i>	early to mid summer
Goldenrod	<i>Solidago</i> spp.	late summer to early fall
Penstemon	<i>Penstemon</i> spp.	late spring to mid summer
Shrubby Cinquefoil	<i>Potentilla fruticosa</i>	mid to late summer
Yellow Coneflower	<i>Ratibida pinnata</i>	mid to late summer



*Minute pirate bug.*

to bring in purchased ones, getting to know which pirate bugs are in your area and what they need to thrive is a rewarding experience for any organic gardener or farmer.

*Stuart McMillan works as an organic inspector in Manitoba and frequently can be found in a field with his nose in a flower or close to the ground. He welcomes questions and feedback at [salmagundiag@hotmail.com](mailto:salmagundiag@hotmail.com).*

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*Photos: [www.cityofgfp.com/citygov/dept/parks/ipm/insect/beneficial\\_insects.htm](http://www.cityofgfp.com/citygov/dept/parks/ipm/insect/beneficial_insects.htm)*

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