

# Iris borer and bacterial soft rot

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If iris leaves appear wilted, discolored, or partly dead in mid-summer, the cause could be iris borer, *Macronoctua onusta* Grote. Damage by iris borer often appears quite suddenly, and entire beds can be extensively damaged. Bacterial soft rot of the rhizomes, caused by *Erwinia carotovora* or closely related species, frequently accompanies wounds caused by iris borer and other agents.

## Symptoms and effects

Iris borer occurs throughout Wisconsin and is the most damaging insect attacking all types of iris. Damage is done by the larval stage. Young larvae tunnel into leaves in late April to early May and feed as leafminers, completely confined within the leaf. As the larvae work their way downward through the leaf, they leave trails which have a water-soaked appearance. Continuing downward, the larvae eventually work their way into the rhizomes in the soil.

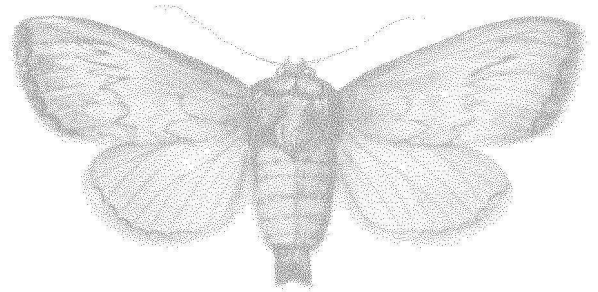
Damage to the rhizomes occurs in two ways. First, the chewing by the larvae can cause significant injury by itself. More importantly, however, bacterial soft rot, which readily invades borer-attacked rhizomes, damages the plant. Rhizomes with bacterial soft rot are slimy, soft, and foul-smelling. Soft rot infection occurs almost entirely through damaged areas, usually caused by the iris borer, but also by mechanical wounding.

The combination of borer and bacteria can cause rapidly appearing serious injury. You can prevent plant injury by understanding the insect's life cycle and applying control measures accordingly.

## Life cycle

The adult iris borer is a large moth with a 2-inch wingspan. It has dark purplish-brown front wings and paler yellow-brown hind wings. Moths fly at night during August and September, the months they are mating and laying eggs for next year's generation. The tiny, pale, flattened eggs are usually laid in clusters of 100 or more, on the surfaces of iris leaves, at the bases of stalks and on other plant debris in the vicinity of the iris planting. These eggs—the borer's overwintering stage—hatch in April or May, when the new iris leaves are 4 to 6 inches high. The tiny young larvae crawl up onto the new leaves and make pinpoint holes as they enter. As they tunnel down through the leaves they grow to about 1 inch in length, but remain relatively slender. By early to mid-July, the larvae reach the soil area and enter the rhizomes,

Adult



where they grow rapidly. When done feeding, a larva is usually 1½ to 2 inches long, fat and pinkish in color with a brown head. In late July to early August, the larvae move from the rhizomes into the soil where they pupate. In late August and September adult moths emerge from the soil to lay eggs for the following year. There is a single generation per year.



Iris borer larvae make pinpoint holes to enter leaves and crawl down the inside of them. The water-soaked appearance of the leaf is diagnostic of iris borer infestation.

## Control

### Monitoring

Iris borer can be adequately controlled in the early stages of larval development, but this requires regular inspections of the foliage to determine when larvae are present. Starting in late April, carefully inspect the foliage at weekly intervals, looking for the water-soaked trails made by the young larvae. These inspections can be stopped in early June because all eggs will have hatched by this time.

### Cultural and mechanical control

Fall sanitation is very important for iris borer control. After the first hard frost, remove and destroy old iris leaves, stems, and nearby plant debris. Keep in mind that although you may not have seen damage this year, adult moths could have flown into your iris bed in August and September and laid eggs which will hatch into damaging larvae next year.

If the iris planting is small, you can destroy most young larvae by crushing them in their water-soaked tunnels of the leaves. This should be done in May and June.

If there is a heavy borer infestation, dig up and destroy the affected rhizomes as soon as damage is noticed. If the infestation is light, remove the affected rhizomes from the soil and destroy the larvae with a piece of wire forced into the borer tunnels. In small plantings it is also

advisable to sift by hand through the soil around the rhizomes to remove any free-living larvae and pupae. You can then replant the healthy rhizomes.

Every few years, you should thin iris after they flower to keep them vigorous. Inspect the rhizomes and eliminate those that are borer infested or affected by bacterial soft rot. Keep weeds and other vegetation out of the iris bed to encourage air circulation through and around the plants. This will allow the soil to dry better, discouraging the establishment of soft rot.

### Chemical control

Chemical controls are frequently unsuccessful. If chemical controls are considered, they should be used as an adjunct to the practices already mentioned. Select a material approved for iris borer and make the first application when new growth is 4 to 6 inches high. Follow manufacturers suggestions for repeat applications. Chemical sprays are of no value after blooms start to appear.

### Control of bacterial rot

Carefully cut out and destroy all rotted portions of the rhizomes. Severe infections usually require that you dig the plants for this purpose. Clean and disinfect knives between each cut to avoid carrying the bacterium into the fresh wound. Cleaned knives can be disinfected between cuts with 70% alcohol (rubbing



By the end of July, larvae move into the rhizomes where they mature.

alcohol) or household bleach diluted 1 part with 10 parts water. It is best to do this work on a dry sunny day. Allow the cut rhizomes to "heal," or suberize, for several days before replanting.

Warm, moist conditions favor soft rot bacteria. Select a well-drained soil for your iris. Plant the iris shallow, with the upper half of the rhizomes exposed. To keep the iris bed as dry and airy as possible, avoid pulling soil over the rhizomes during routine gardening chores.

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