

## 26. Poplar Cankers

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### Hosts and Causal Fungi

Bark necrosis, cankers, and dieback on native poplar species and hybrid poplars are caused by several species of fungi. The most common causal fungi are *Septoria musiva*, *Septoria populicola*, *Cytospora chrysosperma*, *Phomopsis macrospora*, *Dothichiza populea*, *Fusarium solani*, and *Lasiodiplodia theobromae*.

### Distribution

These fungi are found throughout native and introduced hybrid poplars ranges in North America.

### Damage

Poplar cankers can kill or severely weaken infected poplar seedlings and planted unrooted poplar cuttings. In addition, hardwood cuttings can be damaged during storage by a disease known as blackstem (fig. 26.1) caused by species of *Cytospora*, *Phomopsis*, and *Dothichiza*. Fungi introduced into plantations on infected nursery stock can result in planting failures (fig. 26.2).

### Diagnosis

Symptoms resulting from stem infection by these fungi may be similar, particularly in early stages of the disease. Often it is necessary to examine spores or obtain cultures from diseased tissues to positively identify the causal fungus. In the spring, look for small necrotic or discolored areas with definite margins on stems. They are initially inconspicuous, but as the cankers develop, a distinct depressed area is observed in the affected bark. All of the possible pathogens, except *F. solani*, often produce pimple-like fruit bodies called pycnidia that protrude

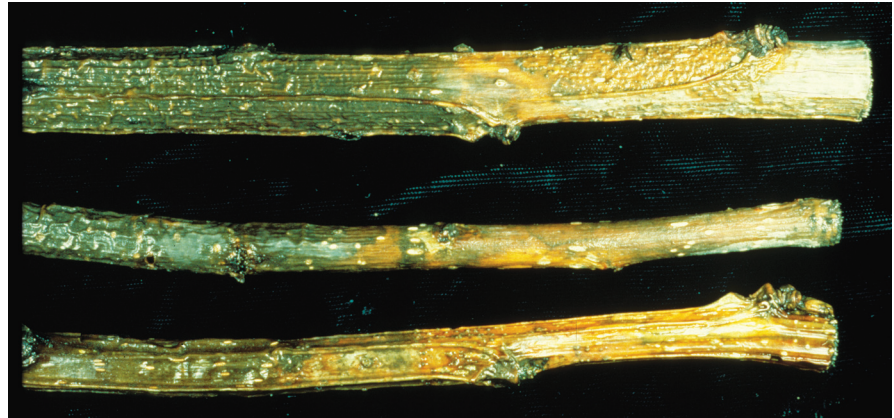


Figure 26.1—Poplar cuttings affected by blackstem disease during improper storage. Photo by Michael E. Ostry, USDA Forest Service.

through the affected bark (fig. 26.3). White, yellow, or orange conidia, often seen as coils of spores, exude from the pycnidia during wet weather (fig. 26.4). When dry, these masses of conidia appear as fine tendrils. Some of the resulting

cankers may girdle the stem, and the portion distal to the canker dies. *Septoria*, in addition to causing cankers (fig. 26.5), can cause leaf spots (fig. 26.6) and can prematurely defoliate highly susceptible clones.



Figure 26.2—Planted poplar cutting killed by blackstem disease. Photo by Michael E. Ostry, USDA Forest Service.



Figure 26.3—Canker on poplar stem caused by *Dothichiza populea*. Photo by Michael E. Ostry, USDA Forest Service.

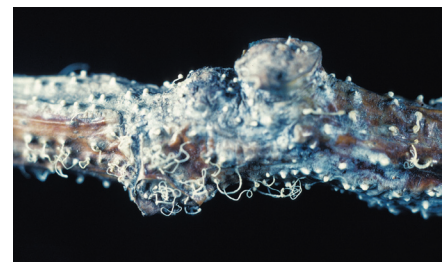


Figure 26.4—Coiled tendrils of spores exuding from poplar stem infected by *Phomopsis macrospora*. Photo by Michael E. Ostry, USDA Forest Service.



**Figure 26.5**—Canker caused by *Septoria musiva* on poplar stem. Photo by Michael E. Ostry, USDA Forest Service.

## Biology and Spread

These fungi overwinter in cankers on infected tree stems or on dead plant material on the ground. *Septoria* also overwinters in infected leaves. In the spring, the fungi produce spores that are spread by wind and rain splash. New infections occur during periods of high humidity that develop after overhead irrigation or rainfall throughout the summer.

## Control

### Prevention

Plant locally adapted, disease-resistant poplar clones to minimize damage. Removing native poplar trees near

the nursery will reduce fungus inoculum. Many of these fungi colonize stressed trees so maintaining high tree vigor will minimize the risk of disease development.

### Cultural

Use canker-free cuttings to establish nursery beds. Provide adequate water and nutrients to avoid tree stress. Infected poplar seedlings and unrooted poplar cuttings from diseased nursery stool beds should be culled to avoid shipment of diseased stock. Remove all leaves and debris after harvest to eliminate overwintering inoculum sources. Store cuttings at approximately -3 °C (26.6 °F) to avoid blackstem disease. Protect cuttings or rooted stock from drying out or becoming overheated during processing, storing, shipping, and planting.

### Chemical

Fungicides can be used in the nursery to reduce some pathogen populations that lead to canker development. For example, control of the leaf disease *Septoria musiva* by fungicides can reduce disease pressure and canker development.



**Figure 26.6**—Leaf spots on poplar leaves infected by *Septoria musiva*. Photo by Michael E. Ostry, USDA Forest Service.

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