FOREST AND SHADE TREE PESTS

Needle Rust of Pines

SIGNIFICANCE

Needle rusts, tree diseases caused by various species of the fungal genus *Coleosporium*, affect most species of pine throughout Florida. Although needle rust occurrences are widespread, and often alarming to individuals encountering them for the first time, their impact on a large scale is negligible. Pines infected with needle rusts rarely die, and generally recover rapidly. In the forest, needle rusts are of no consequence, usually occurring only on the lower branches of susceptible trees. Concern may be warranted, however, when severe infections occur on seedlings which, because of their small size, may be more vulnerable to diseases which destroy essential foliage. Ornamental trees which are valued for their aesthetic qualities may suffer losses in value and/or merchantability due to the discoloration and destruction of needles resulting from heavy needle rust infections.

RECOGNITION

Infections are first noticed from spring through early summer when small, papery white pustules, called aecia (Fig. 1. A & B), begin to emerge on infected pine needles. Each aecium soon fills with yellow-orange spores that are later released into the air in small puffs or clouds when the needles are jarred or shaken in the wind (Fig. 1. C). Severe infections may give trees a “frosty” or “snowy” appearance. Infected needles eventually turn brown and fall from the tree.

INFECTION BIOLOGY

The spores produced on pines in the spring do not infect other pines, but as is typical of most rust fungi, they initiate infections on other plants referred to as alternate hosts. Common alternate hosts for *Coleosporium* spp. include goldenrods, asters, sunflowers, morning glories, and others, depending upon the particular species of *Coleosporium* involved. A different spore type is produced later in the summer on the infected leaves of the alternate host.
hosts. These wind-borne spores complete the disease cycle by initiating new infections in pine needles in the late summer and fall. These infections remain undetected during the winter, only becoming evident when the aecial pustules are produced the following spring. Needle rust is extremely variable, both with respect to location of occurrence, and severity, during any given year. Needle rust incidence may remain low and nearly undetectable for many years, then suddenly appear one year at widespread and alarming levels. Factors which may account for this variability include rainfall/temperature/humidity patterns, populations of alternate hosts, and genetic diversity within the pine population.

**CONTROL**

Control of needle rusts is seldom necessary or cost-effective. If the situation does warrant control, fungicidal protection of susceptible pine needles with an appropriate fungicide in late summer and fall may be useful. Eradication of the alternate host(s) growing near susceptible pines, and location of pine plantings away from heavy populations of the alternate host(s) are also prudent control practices.

**FORESTRY OFFICES**

1. Escambia, Santa Rosa, and Okaloosa Counties
   Blackwater Forestry Center
   11650 Munson Highway
   Milton, FL 32570
   850/ 957-6140

2. Bay, Calhoun, Gulf, Holmes, Jackson, Walton, and Washington Counties
   Chipola Forestry Center
   715 West 15 Street
   Panama City, FL 32401
   850/872-4175

4. Leon, Jefferson, Wakulla, Gadsden, Liberty and Franklin Counties
   Tallahassee Forestry Center
   865 Geddie Road
   Tallahassee, FL 32304
   850/ 488-1871

5. Dixie, Lafayette, Madison and Taylor Counties
   Perry District Office
   618 Plantation Road
   Perry, FL 32348
   850/ 838-2299

   Suwannee District Office
   137 SE Forestry Circle
   Lake City, FL 32025
   386/ 758-5700

7. Clay, Duval, and Nassau Counties
   Jacksonville District
   7247 Big Oaks Road
   Bryceville, FL 32009
   904/ 266-5001

8. Alachua, Putnam, Gilchrist, Marion and Levy Counties
   Waccasassa Forestry Center
   1800 N.E. 23rd Ave
   Gainesville, FL 32609
   352/ 955-2005

10. Flagler, St. Johns and Volusia Counties
    Bunnell District Office
    5001 US Highway 1, North
    Bunnell, FL 32110
    386/ 446-6785

11. Citrus, Hernando, Lake, Pasco, and Sumter Counties
    Withlacoochee Forestry Center
    15019 Broad Street
    Brooksville, FL 34601-4201
    352/ 754-6777

12. Seminole, Orange, Osceola and Brevard Counties
    Orlando District Office
    8431 S. Orange Blossom Trail
    Orlando, Florida 32809
    407/856-6512

14. Polk, Hillsborough, and Pinellas Counties
    Lakeland District Office
    5745 S. Florida Ave.
    Lakeland, FL 33813
    863/648-3163

15. Manatee, Desoto, Hardee, Sarasota and Charlotte Counties
    Myakka R. District Office
    4723 53rd Ave., E.
    Bradenton, FL 34203
    941/ 751-7627

16. Okeechobee, St. Lucie, Martin, Highlands, Indian River, and Glades Counties
    Okeechobee District
    5200 Hwy. 441 North
    Okeechobee, FL 34972-8697
    863/ 462-5160

17. Lee, Collier, and Hendry Counties
    Caloosahatchee District Office
    10941 Palm Beach Blvd.
    Fort Myers, FL 33905
    239/ 690-3500 ext. 100 or 101

18. Palm Beach, Broward, Miami-Dade, and Monroe Counties
    Everglades District
    3315 S.W. College Ave.
    Davie, FL 33314
    954/ 475-4120