

A new *Phytophthora* Pathogen in Alaska

A new *Phytophthora* root rot pathogen (*Phytophthora alni* subsp. *uniformis* (PAU)) of thin-leaf alder (*Alnus incana* subsp. *tenuifolia*) was detected in streamside surveys conducted across South-central and Interior Alaska in 2007 by Dr. Gerard Adams, MI State University. This was the first time PAU was found not only in Alaska but also North America. We do not know if this is an introduced or native pathogen. Significance of this finding is currently being assessed. This is not the highly aggressive pathogen *P. alni* subsp. *alni* (PAA) found in Europe killing alder. PAU is less aggressive than PAA, and is the only variant of *P. alni* found in Alaska to date.

Current Knowledge

- Isolated from soil beneath alders in 2 of 30 remote, unmanaged, unplanted streamside locations over 200 miles apart:
 - 1) North of Healy and 2) Kenai Peninsula, near Cooper Landing (Figure 1). This suggests the pathogen is widespread, though perhaps uncommon.
- **Hosts:** all alder species in Alaska, though alders near water or subject to water table fluctuations are the most vulnerable to infection.
- **Aggressiveness:** low in Europe, unknown but possibly low in Alaska.
- **Detected** in soil under alders in Alaska, also recovered from river water and bark lesions in Europe.
- **Pathogen dispersal** through:
 - 1) Water, via river systems
 - 2) Infected soil
 - 3) Live plant material



Figure 1



Figure 2

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Recognizing the pathogen

Infected alders frequently have abnormally small, yellow, and sparse leaves that prematurely drop off. The lower part of the stem, typically near the root crown, may have distinct bark lesions with black tar-like deposits, known as “tarry spots” (Figure 2). Lesions and tarry spots indicate that the underlying bark is dead. Alders may live several years with root lesions before crown symptoms occur. Specialized tests are needed to detect the pathogen from soil or water.

Is there a concern for alder in Alaska?

Discussions among the US Forest Service, APHIS, and State of Alaska Division of Agriculture personnel are underway. We believe there is currently a low threat to alder, based on the available information. However, we are concerned that intra-state movement of live alder from one water course to another may transport the pathogen to uninfected sites. An example would be alder transplanted for streamside restoration projects. As precautionary measures in light of this new pathogen finding we encourage 1) careful examination and selection of healthy alder plants prior to transplanting, and 2) avoidance of alder stands with distinct signs and symptoms of this pathogen.

Next steps

Disease detection surveys and stream baiting will be conducted within known infected and presumed uninfected water courses in 2008 with the US Forest Service as lead agency. Further analysis of the isolates from 2007 is underway to help determine whether the pathogen is introduced or native. Studies on the susceptibility of other Alaskan hardwood species to this pathogen are planned for 2008.

For further information on this pathogen: <http://www.fs.fed.us/r10/spf/fhp> or contact Lori Trummer, US Forest Service, ltrummer@fs.fed.us, Ann Ferguson, APHIS (907-357-9542), Charles Knight, Div of Agriculture – Fairbanks (907-328-1950), or Doug Warner, Div of Agriculture - Palmer (907-761-3861).

