



Western redcedar dieback monitoring in the Pacific Northwest

Noticing symptomatic WRC in areas where you work or live?

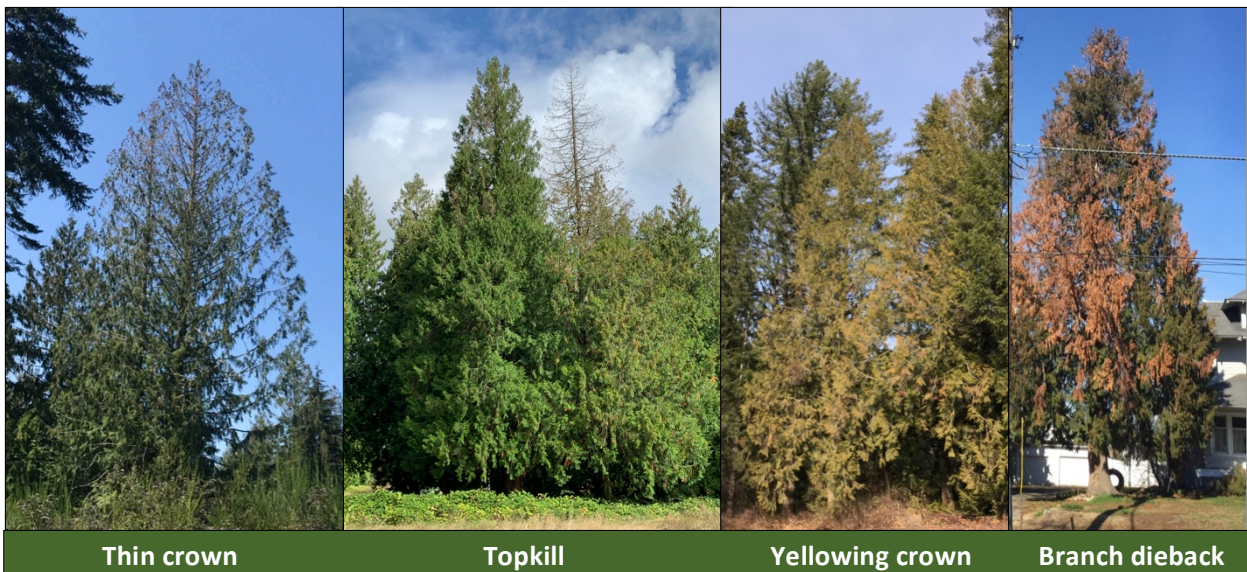
How you can help:

1. Record and email GPS locations of WRC dieback
2. Download and use the Western Redcedar Dieback survey in the Survey123 app to record locations of dieback (~5 minutes field time) or collect plot/site data (15-20 minutes field time).

From Oregon through western Canada, western redcedar (*Thuja plicata*, WRC) has been dying in areas where it should be thriving, such as along streams and within closed canopies. The cause for this sometimes sudden and expanding dieback is currently unknown. Insects and diseases of WRC are typically secondary, meaning that they are not direct tree killers but are opportunistic pests and can only attack dead and dying trees. Redcedar can even tolerate endemic levels of bark beetles and stem decay for many years. These known pests have not always been found in dieback pockets nor have novel pests been observed.

The predominant theory for sudden mortality is that trees may be impacted by a changing climate, including increasing average temperatures and drought stress in the form of reduced and inconsistent precipitation. Even shaded sites along streams are at risk due to higher than usual average temperatures and reduced stream flow. Western redcedar is a species more sensitive to slight changes in abiotic conditions and may be crossing the lower limits of where they can thrive in some areas.

Oregon Department of Forestry (ODF), Washington Department of Natural Resources (WADNR), the U.S. Forest Service (USFS), various university researchers and natural resource agencies are collaborating to collect locations to determine the distribution and possible cause(s) of dieback. We are mapping locations of dieback and monitoring some of these sites over the long-term. **We are now asking for your help** in identifying sites of where dieback and tree decline is occurring. We are looking for pockets of dieback containing at least two mature trees with any of the following symptoms:

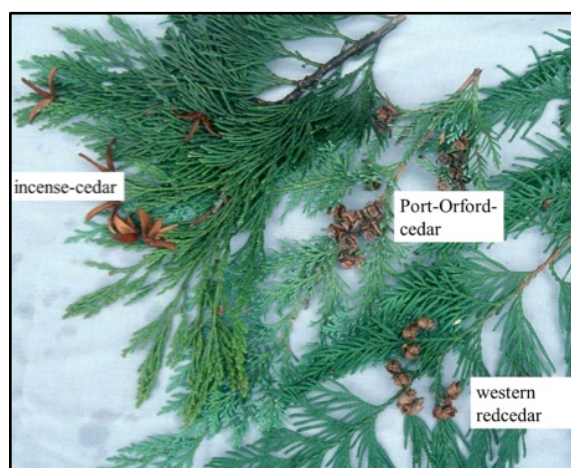


Do not report these symptoms



Do not report sites where the cause of dieback is known (e.g., mechanical damage, single sun-exposed trees, decadent old growth candelabra crowns or symptomatic trees in known root disease pockets) or trees with normal, seasonal dieback of older needles rather than whole-branch mortality.

Lastly, western redcedar may be confused with the other two species that we call “cedar”: incense cedar and Port Orford cedar (none are true cedar, which do not occur naturally in the PNW). The easiest way to identify western redcedar is by looking at the cones. Western redcedar produces cones that look like woody roses, incense cedar has larger cones that split open like duck bills, and Port Orford cedar has cones that resemble soccer balls. Assist us in this effort to understand what is happening with this majestic staple of Pacific Northwest forests and urban areas.



We are requesting assistance to locate dying and symptomatic WRC across the species distribution!

Please submit GPS locations of western redcedar dieback
OR
 a request to download the WRC survey on Survey123* to any of us at:

Christine Buhl, ODF Entomologist in Oregon (christine.j.buhl@oregon.gov)

Melissa Fischer, WADNR Entomologist in Washington (Melissa.Fischer@dnr.wa.gov)

Betsy Goodrich, USFS Forest Pathologist in Washington (anne.goodrich@usda.gov)



**Survey 123 access reserved for those in agencies with access to ArcGIS Online Accounts. If you don't have access, please still consider contributing coordinates.*