



LOUISIANA PLANT HEALTH MANAGEMENT



Solving Plant Health Problems Caused by Biotic and Abiotic Stresses

Slime Flux

Bacterial wetwood, also known as bacterial flux or slime flux, is a disorder of many tree species. Some of the common trees affected include ash, birch, beech, boxelder, cottonwood, elm, fir, hickory, maple, oaks, pines, yellow poplar, sweet gum, sycamore, walnut and willow.

Wetwood normally occurs in the inner wood of heartwood trees without causing any harm in response to biotic and abiotic stresses including pruning and wounding. On the contrary, wetwood colonized by facultative and obligate anaerobic bacterial species may inhibit fungal wood decay. However, the gases produced by anaerobic bacterial growth result in pressure to buildup which then forces sap from within the tree to the outside surface through cracks and wounds on the trunk. This ooze is often colonized by surface inhabiting fungi, bacteria or yeast and results in the formation of slime flux with a rancid odor that may be detected from a distance (**Figure 1**). Slime flux may appear anywhere on the tree as low as near the base (**Figure 1**) or several feet up on the trunk (**Figure 2**).



Figure 1. Slime flux ooze presents at the base of an affected Nuttall oak tree.



Figure 2. Slime flux ooze appears several feet up on the trunk of a Nuttall oak tree.

Slime flux runs down from the point of exit, leaving behind stained (**Figure 3**), discolored (**Figure 4**), water-soaked areas on the trunk. Older slime flux will dry out and can be seen in the form of opaque white crystals deposited on the trunk (**Figure 5**), whereas active slime flux can be seen bubbling out from an exit point along the tree trunk (**Figure 6**).



Figure 3. A tree exhibiting streaks left behind by the slime flux ooze that has run down from an exit point.



Figure 4. A dark discolored trunk of Nuttall oak resulting from slime flux.



Figure 5. Older dried slime flux appears as opaque white crystals deposited on the trunk of a Nuttall oak tree.



Figure 6. A Nuttall oak displaying active slime flux bubbling out from an exit point along the tree trunk.

Although slime flux is not considered a disease, the forceful outward expulsion of sap under pressure may damage sapwood living tissue and the bark resulting in wilting of leaves, branch dieback and general decline in tree vigor. Additionally, slime flux may delay wound callus formation.

There is no preventative treatment or cure for slime flux. Adopting good horticulture practices that improve tree vigor including proper planting in well drained fertile soils, adequate fertilization, avoiding water stress, proper pruning and cleaning of pruning tools in between trees, and proper management of pest problems may help reduce the incidence of slim flux.

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