

Handout H09-1: Lab Preparation

Name _____

Read each term's definition and sketch the described fuel or fire in the box. These terms refer mainly to plant communities such as forests, woodlands, and shrublands, which have tree crowns (a "canopy").

Surface fuels include all plants, litter, and woody material on or near the forest floor, including small trees and shrubs. In some forests that have not experienced fire for several decades, surface fuels become abundant and continuous. Fine surface fuels such as dead grass, leaf litter, and twigs dry out quickly and help surface fires spread rapidly. Heavy surface fuels such as logs, stumps, and wood piles dry slowly and burn slowly, so fires in these fuels can smolder for a long time.



Surface fires burn in *surface fuels*. Surface fires reduce *ladder fuels*, so they also reduce the likelihood that a future fire will burn into the tree crowns. Surface fires can be severe enough to kill a tree if they kill the its roots or kill the living cells under the trees' bark.



Ladder fuels include trees and tall shrubs growing under the crowns of mature trees. These provide a way for surface fires to climb up into the tree crowns. Ladder fuels include tree branches that grow low to the ground.



Crown fuels, also called aerial fuels, are fuels that are not in contact with the ground. These fuels include foliage and branches within the canopy that are not in contact with surface fuels. Crown fuels also include dead needles, lichens, and mistletoe plants that are growing in tree crowns.



Crown fires burn in the crowns of trees and tall shrubs. Crown fires are often ignited by surface fires that spread upward through ladder fuels; then they spread from crown to crown, especially if winds are strong. Crown fires have longer flames than surface fires and are very powerful. They can have unpredictable fire behavior and be very difficult to control. Crown fires are common in some kinds of coniferous forests and chaparral-type shrublands.

