

## **PRACTICE DESCRIPTION AND SPECIFICATIONS**

### **SNAG CREATION – CONIFER GIRDLING**

#### **Overall Objectives**

Use a bark/cambium stripping or severing technique to kill standing, live conifer trees, thereby creating a snag. This practice is used for wildlife objectives in creating nesting and foraging habitat for numerous species; and as an augment to oak woodland and grassland habitat restoration for removing larger, invading conifers.

#### **Explanation of Girdling and Its Basic Effects**

A tree girdle consists of a cut or series of cuts around the bole of a tree such that the flow of carbohydrates (sugars produced in the leaves of the tree crown) to the roots (through the phloem) is severed, thereby causing eventual death of the tree. Girdle cuts usually consist of one or two cuts that encompass the entire bole of the tree, deep enough to sever the cambium layer. The bark and cambium between the two cuts (or below a single cut) is then stripped off leaving the sapwood exposed in a ring around the entire tree bole.

A chainsaw, axe, or other cutting tool can be used to make initial in-cuts through the bark and cambium on the tree trunk. When two cuts are used (such as with a chainsaw) they should be roughly parallel to each other and the bark and cambium should be stripped from in between the two encircling cuts. Cuts should not go so deep that the structural integrity of the tree is compromised as this will create a hazard tree (i.e. a tree pre-disposed to falling).

Live foliage should not be left below the girdle as this may prevent death of the tree. Girdled conifers generally die within 3 years. If girdled, larger conifers will make better wildlife snags as opposed to smaller diameter trees.

#### **Tips to Girdling Success**

- For Douglas-fir in the coastal zone, girdle width should be at least 8 inches (i.e. 8 inch strip of bark and cambium peeled off the tree bole); use a minimum 4 inch girdle for all other zones
- Leave no live foliage below the girdle
- Do not cut too deep into the tree bole (minimize potential for hazard trees); cut depth should generally not be deeper than 1 inch for trees <14 inches in diameter, and not deeper than 1.5 inches for trees >14 inches in diameter
- Strip all bark and cambial material within the girdle zone (i.e. between two cuts or below a single cut) leaving no connecting material between the portions above and below the girdle



Step 1: After removing branches, make shallow (< 1 inch deep) horizontal cuts through the bark of the selected fir tree using an axe or chainsaw.



Step 2: Use a flat edge shovel, pry bar, axe or other wedge tool to pry bark away from outer sap wood.



Continue to pry bark away from outer sap wood until no connective bark or cambial tissue remains between the two initial horizontal cuts. If all connective tissue is not removed, or if the girdle is not wide enough, trees are less likely to die. Do not leave any live branches below the girdle.



Girdled Douglas-fir trees in a meadow restoration project area. Trees are 10 – 18 inches in diameter and girdles are at least 8 inches wide.



Girdled Douglas-fir trees within oak woodland restoration project areas. Trees were too difficult to fall due to their position within and near oak and ponderosa pine crowns. Girdled trees in the photo on the right have died.

## **Monitoring and Maintenance for Girdled Trees**

Girdled trees will generally die within 3 years. After death, snags will begin contributing more forest fuel to the area as branches rot and fall. Depending on the density of trees girdled, a maintenance plan may need to be developed prior to implementation to determine methods for dealing with any excess forest fuels.

Girdled trees should be monitored for girdle failure (e.g. the girdle did not completely sever the cambium or live foliage below the girdle was not removed). If trees do not die, they may require re-girdling or felling.

## **Invasive species**

Equipment should be inspected prior to entering a new site for mud or other debris that could harbor non-native invasive species seeds or vegetation (Including chainsaws, boots, etc.). If equipment is coming from an area known to have non-native invasive species, then equipment wash/decontamination methods should be employed.

## **Wildlife**

Forest workers should be aware of wildlife presence and potential within a project area. Threatened, endangered and sensitive species should be considered prior to and during operations. If threatened, endangered or sensitive species are encountered during operations, work should be adjusted accordingly or halted until proper consultation and adjustments to work can be made.

For more information regarding California state wildlife regulations contact your local California Department of Fish and Wildlife or US Fish and Wildlife Service offices.

## **Streams and Other Water Features**

Operators and landowners should be aware of local and state laws that may apply if activities are planned in wetland or riparian zones before implementing vegetation treatments, and should inquire with appropriate local and state agencies about needed permits or environmental impact within such zones.

For more information regarding California state forestry regulations contact your local CalFire, California Department of Fish and Wildlife, or Regional Water Quality Control Board offices.

## **Contact**

This document was created by Mathew Cocking for use in conservation planning landowner guidance. For more information about this practice and questions regarding this document, contact the USDA Natural Resources Conservation office in Eureka, CA:

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