

**SUBJECT: 2013 Swiss Needle Cast Aerial Survey**

**TO:** Forest land managers in western Oregon

**FROM:** Alan Kanaskie and Mike McWilliams

**DATE:** June 3, 2013

The enclosed maps show the approximate size and location of areas of Douglas-fir forest with symptoms of Swiss needle cast (SNC) detected during an aerial survey conducted in May, 2013.

**Survey procedures:**

The Oregon Coast Range survey was flown on May 1, 2, 3, and 9 and covered approximately 2.6 million acres of forest. Weather conditions and symptom development both were excellent during the survey period. The observation plane flew at 1,500 to 2,000 feet above the terrain, following north-south lines separated by 2 miles. Observers looked for areas of Douglas-fir forest with obvious yellow to yellow-brown foliage, a symptom of Swiss needle cast. Patches of forest with these symptoms (patches are referred to as polygons) were sketched onto computer touch screens displaying topographic maps or ortho-photos and the position of the aircraft. Each polygon was classified for degree of discoloration as either “S” (severe) or “M” (moderate). Polygons classified as “S” had very sparse crowns and brownish foliage, while those classified as “M” were predominantly yellow to yellow-brown foliage with slightly denser crowns than those classified as “S”. The survey area extended from the Columbia River south to Curry County, and from the coastline eastward until obvious symptoms were no longer visible. We did not survey the Cascade Range in 2013, but Swiss needle cast does occur at damaging levels in some areas.

**Results of the survey:**

The 2013 survey results show an increase in the area of forest with symptoms of Swiss needle cast compared to the previous 3 years and reached an all-time high for the fourth year in a row. We mapped 524,518 acres of Douglas-fir forest with obvious symptoms of Swiss needle cast (Figure 1). As has been the case for the past several years, the easternmost area with obvious SNC symptoms was approximately 28 miles inland from the coast in the Highway 20 corridor, but most of the area with symptoms occurred within 18 miles of the coast. Figures 2 and 3 show the trend in damage from 1996 through 2013. This year’s increase in SNC likely is due in part to prolonged wet weather in spring of 2012 which was very conducive to infection.

The Swiss needle cast aerial survey provides a conservative estimate of damage because observers can map only those areas where disease symptoms have developed enough to be visible from the air. We know (from permanent plot data and ground checks) that Swiss needle cast occurs throughout the survey area, but that discoloration often is not severe enough to enable aerial detection. The total area of forest affected by Swiss needle cast is far greater than indicated by the aerial survey. The aerial survey does,

however, provide a reasonable depiction of the extent of moderate and severe damage, and coarsely documents trends in damage over time.

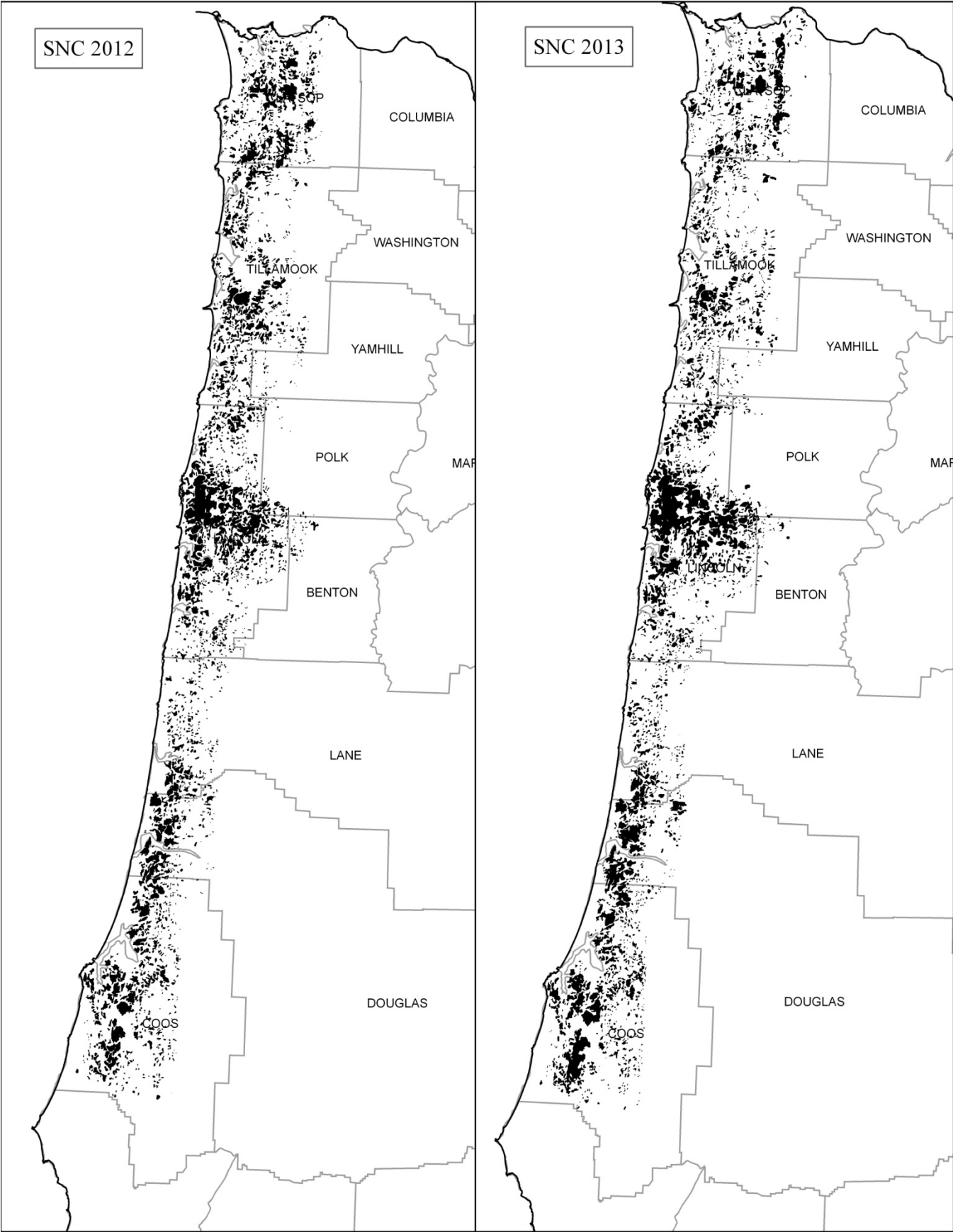
The survey was conducted by the Oregon Department of Forestry Insect & Disease and Air Operations sections, and was funded by the Oregon State University Swiss Needle Cast Cooperative, the USDA Forest Service Forest Health Monitoring Program, and the Oregon Department of Forestry. Martin Kimbrel (ODFW) piloted the plane. Mike McWilliams (ODF) is the survey coordinator and primary aerial observer; Bob Schroeter (USFS) and Rob Flowers (ODF) were the other aerial observers.

**Additional Notes:**

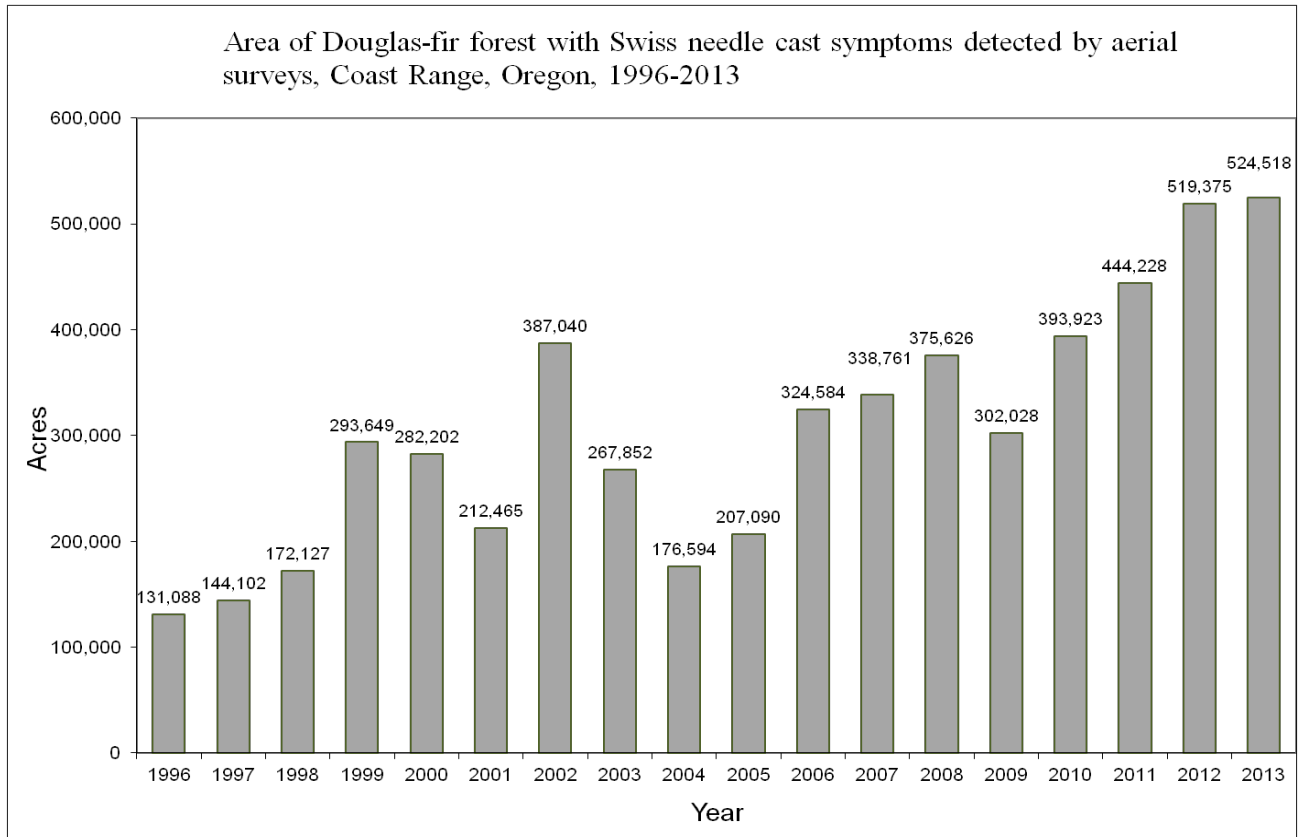
We appreciate any information regarding the accuracy or usefulness of the maps. If you have a chance to look at some of the mapped areas on the ground, please let us know what you observe. Please call Alan Kanaskie (503-945-7397) or Mike McWilliams (503-945-7395) if you have questions, suggestions, or comments.

The GIS data and a .pdf file can be accessed via the ODF web page at:

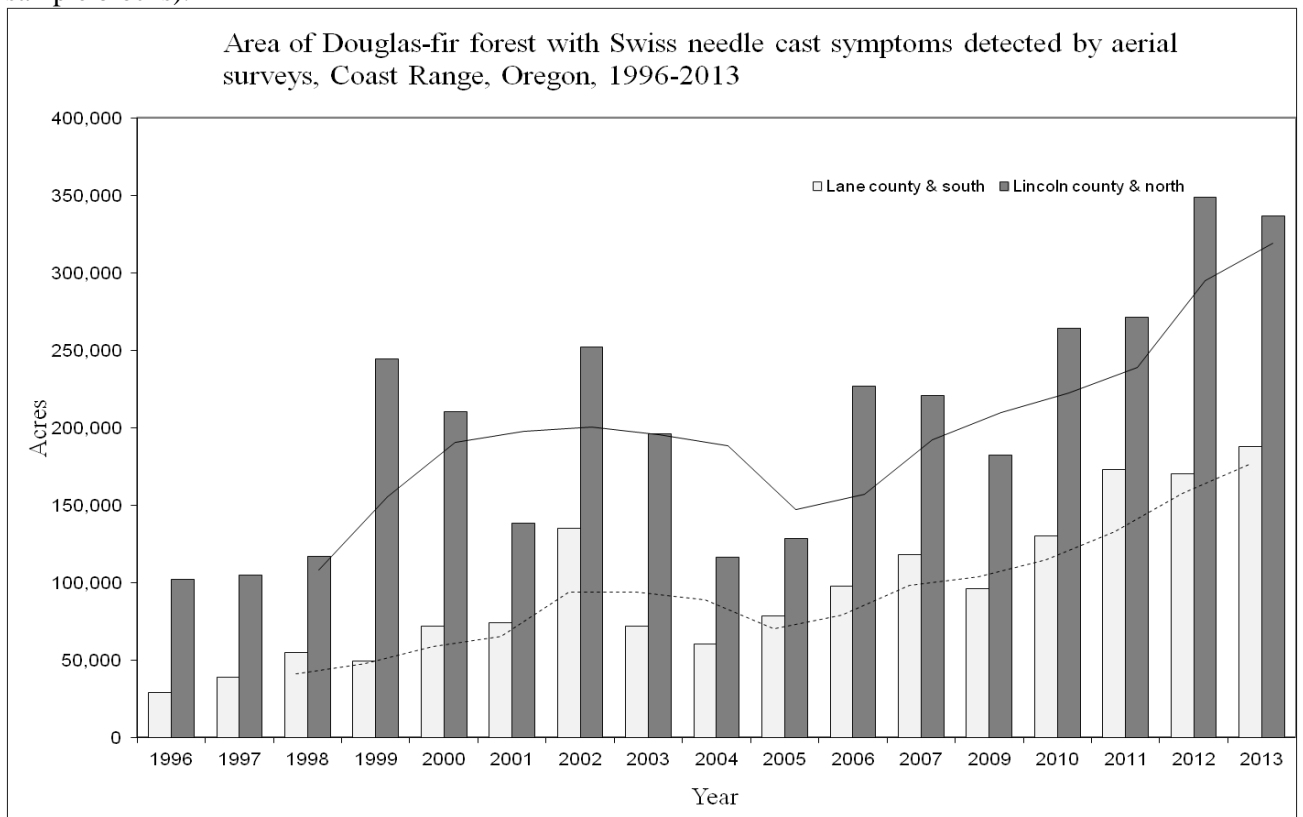
<http://www.oregon.gov/ODF/privateforests/fhMaps.shtml>



**Figure 1.** Areas of Douglas-fir forest with symptoms of Swiss Needle Cast detected in the 2012 and 2013 aerial surveys.



**Figure 2.** Area of Douglas-fir forest in western Oregon with symptoms of Swiss needle cast detected during aerial surveys conducted in April-June, 1996-2013 (2008 area estimated from partial survey consisting of 3 sample blocks).



**Figure 3.** Area of Douglas-fir forest in western Oregon with symptoms of Swiss needle cast detected during aerial surveys conducted in April-June, 1996-2013; north and south halves of survey area (2008 area estimated from partial survey consisting of 3 sample blocks).