A large, dense, leafy tree with a thick trunk, set against a light background. The tree is the central focus of the slide, with its branches spreading out in all directions. The leaves are a vibrant green, and the trunk is a dark brown. The background is a soft, out-of-focus landscape with more trees and a hint of a sky.

**Native and non-native forest pests
you may have already seen...**

bear damage



Armillaria root rot



Credit: The Mushroom Journal



Credit: forestry-dev.org

decay on older trees



abiotic problems

drought!
sunburn
cold and heat
fire
salt
hail and wind
water stress
alkaline soils
ozone damage
lightning
golf balls



Phytophthora lateralis



Phytophthora ramorum

Tanoak, coast live oak, CA black oak, Shreve oak, canyon live oak; PLUS many carrier (foliar) species



Distribution of Sudden Oak Death as of February 28, 2013



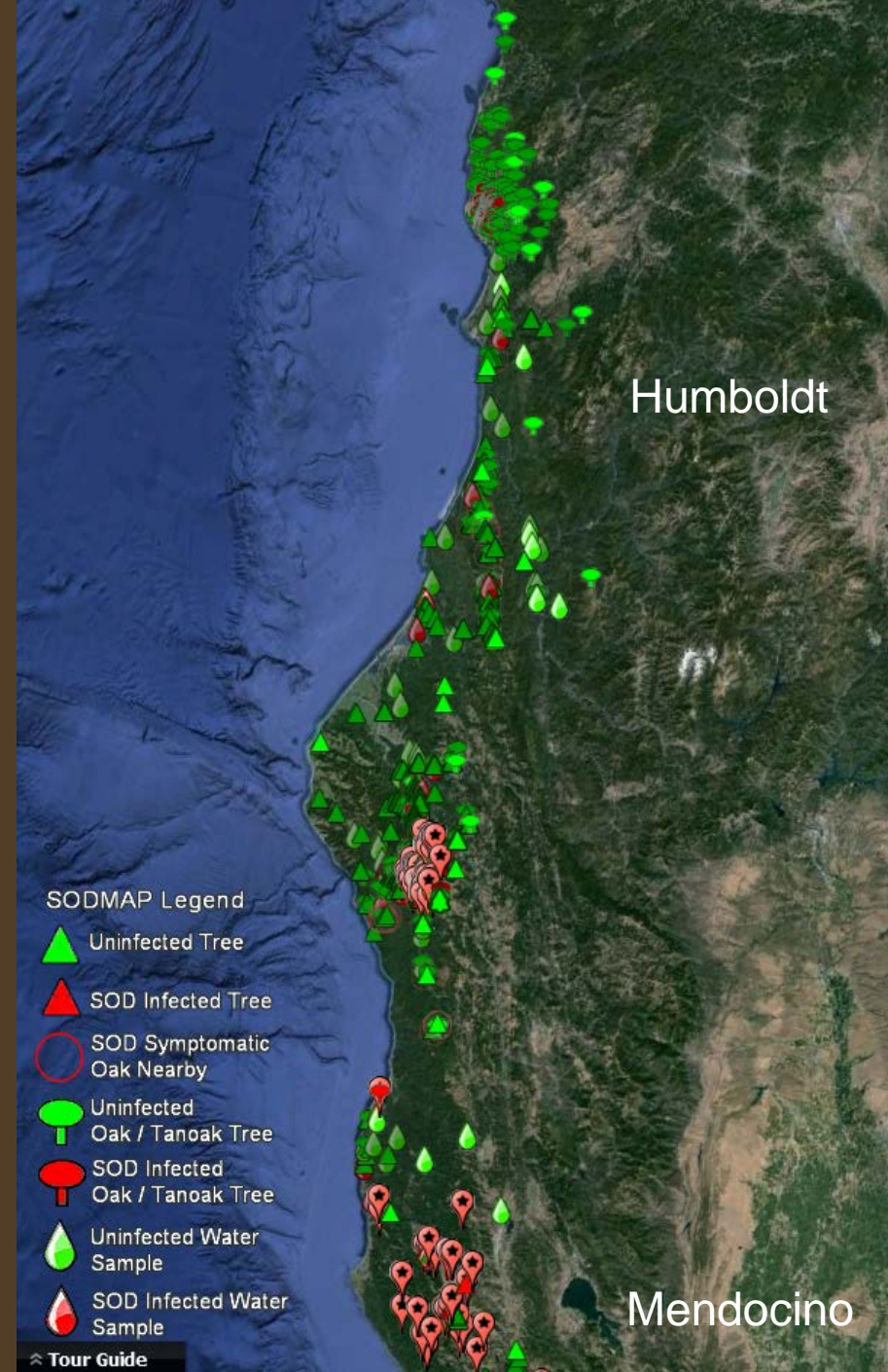
Map produced on 2/28/13 by UCB GIF: <http://oakmapper.org>, <http://gif.berkeley.edu>
 For more information about Sudden Oak Death, please visit the California Oak Mortality Task Force website at <http://www.suddenoakdeath.org/>



California
Oak Mortality Task Force



GeOSPATIAL
INNOVATION
FACILITY
Cutting-edge Mapping Technology at UC Berkeley



OakMapper and SODmap

beetles

Douglas-fir Beetle
(*Dendroctonus pseudotsugae*)



Fir Engraver
(*Scolytus ventralis*)

Western Pine Beetle
(*Dendroctonus brevicomis*)



Jeffrey Pine Needleminer



Ponderosa Pine Twig Scale
(*Matsucoccus bisetosus*)



Flatheaded Fir
Borer (*Phaenops drummondii*)



Jeffrey Pine Beetle
(*Dendroctonus jeffreyi*)



White Fir Sawfly
(*Neodiprion abietis*)



Mountain Pine Beetle
(*Dendroctonus ponderosae*)



Woodboring beetles and blue stain fungi



Dyer's Woad
Isatis tinctoria



Dalmatian Toadflax
Linaria dalmatica
subsp. *Dalmatica*



Puncturevine/Goatshead
Tribulus terrestris



Leafy Spurge
Euphorbia esula



Spotted Knapweed
Centaurea biebersteinii

Squarrose knapweed
C. virgata Lam. var.
squarrose



Shiny Geranium
Geranium lucidum