Southern California Citizen Scientist Tree Health Survey

New threats to forest health are commonly first diagnosed in urban environments and initially discovered by concerned citizens. Early detection of introduced/exotic pests can assist with mitigating these new threats. The southern oak woodlands of California represent crucial habitat for plants and wildlife, improve ecosystem services, and contribute to aesthetics. Observations by citizens can assist with protecting these valuable woodlands.

The Southern California Oak Resource Assessment Reference Guide was developed to assist with filling-out this form. Use this guide to determine injury symptoms associated with insects and diseases.

For each site visited, fill out a new tree health survey form.

Section 1. Site Information
1. Begin by filling in the site information (county, town, specific location, and ownership) on page 2.
2. If available, take the GPS coordinate from the tree(s) of concern or the general location.

Section 2. Forest/Tree Data
1. Determine the oak species that are of concern and count the number in each species.
2. Assess the general size of the oaks being surveyed and provide the count in each size class.
3. Rate the health of each oak crown on a 1-4 scale and count the total number of trees seen in each crown class. Tally the number of any additional crown injuries observed on trees.

Section 3. Tree Injury Data
1. Examine the leaves for any injury and count the total number of trees with these symptoms. Rate the severity of each injury either as low (L), moderate (M), or high (H). If multiple trees surveyed shows a different severity rating check all that apply.
2. Assess the main stem and larger branches for presence of bark staining , decay fungus conks, insect emergence holes, canker fungi, caterpillar cocoons, woodpecker foraging, insect boring dust, insect larval galleries, and insect frass. Provide the total number of trees with each symptom and the severity level for each symptom. Also, note the location of specified injury symptoms.
3. Mark the suspected cause of injury to the trees in the area (check all that apply).
4. Count the total oaks surveyed, the total number of oaks showing injury symptoms, the total number of healthy trees (no injury symptoms and crown rating of 1), the total number of recently killed trees (died <1 yr), and the total number of dead oaks in the area.

Section 4. Surveyor Information
1. Fill in surveyor name and email information.
2. If available, take pictures of trees surveyed and specific insect and disease symptoms. Try to take three pictures: 1) the entire tree with crown; 2) main stem symptoms; and 3) a close-up of specific problems with a ruler for an estimate of scale.
3. When finished, upload or send form and questions/comments to the Citizen Scientist Program Coordinator: **Tara Piraneo at tpiraneo@ucr.edu**

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Citizen Scientist Tree Health Survey Form

1. SITE INFORMATION

County: _____	**Town:** _____	**Ownership:**
Location (street address, park): _____	**GPS:** N _____ W _____	Private ☐ County ☐ Federal ☐ Unknown ☐ State ☐

2. FOREST/ TREE DATA

Count the number of trees surveyed in each oak:
1) California black ____ 2) Cork ____ 3) Holly ____ 4) Blue ____ 5) Interior live ____ 6) Engelmann ____
7) Valley ____ 8) Coast live oak ____ 9) Canyon live oak ____ 10) Other oak sp. ____ 11) Unknown ____
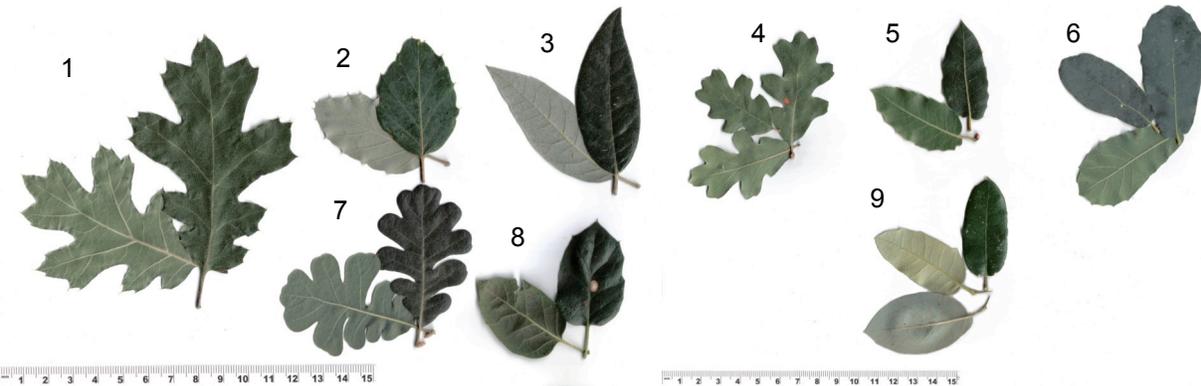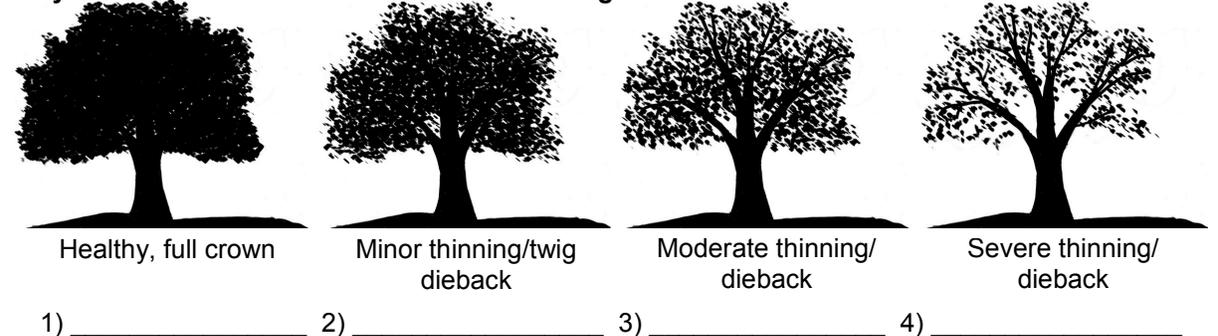
Holly oak (3), cork oak (2), and coast live oak (8) are very common in urban landscapes in southern California. Coast live oak is also prolific in lower elevation oak woodlands. Valley oak (7) and blue oak (4) are found primarily north and west of Los Angeles. California black oak (1), interior live oak (5), and canyon live oak (9) are found in higher elevation forested areas throughout southern California. Engelmann oak (6) is found mostly in natural settings in isolated areas of San Diego, Riverside, and Los Angeles Cos.

Determine the size of each oak surveyed in each size class:
1) Sapling (stem <5″ (13 cm) diameter) _____

2) Mature (stem 5-25″ (13-64 cm) diameter) _____

3) Old-growth (stem >25″ diameter) _____

Tally the number of oaks with each crown rating:

Healthy, full crown	Minor thinning/twig dieback	Moderate thinning/ dieback	Severe thinning/ dieback
1) _____	2) _____	3) _____	4) _____

**Count the number of oaks with additional crown injury:**
  Flagging _____   Resprouting from stem/branches _____   No injury _____

3. TREE INJURY DATA

Leaves: **Tally the number of oaks with each injury symptom and note severity (check all that apply)**

1) Leaf feeding _____ L M H
2) Skeletonization _____ L M H
3) Discoloration/mildew _____ L M H
4) Leaf rolling/tiering _____ L M H
5) Leaf/twig galls _____ L M H
5) Oak mistletoe _____ L M H
6) No significant injury _____
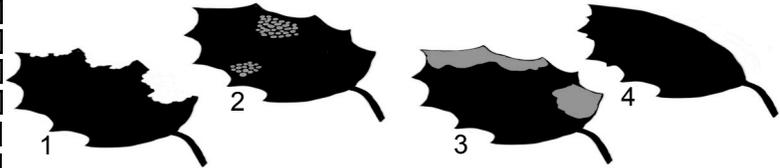
Stem/branches: **Tally the number of trees found with each symptom and determine the level of severity**

1) Bark staining: Severity
  Solidified _____ L M H
  Red oozing, bleeding _____ L M H
  Dark-colored and wet _____ L M H
  Staining from a wound _____ L M H

2) Decay fungus conk: _____ (present or absent)

3) Insect emergence holes on bark (note location):

Circle   Severity   Location
 • _____   L M H   STEM BRANCHES
 ⬤ _____   L M H   STEM BRANCHES
 ⬤ _____   L M H   STEM BRANCHES

Oval
  _____   L M H   STEM BRANCHES
  _____   L M H   STEM BRANCHES
  _____   L M H   STEM BRANCHES

D-shaped
  _____   L M H   STEM BRANCHES

4) Canker fungi: Severity
  Sloughing bark _____ L M H
  Carbon balls _____ L M H

5) Caterpillar cocoons: _____ L M H

6) Woodpecker foraging: _____ (present or absent)

7) Insect boring dust on outer bark: Location
  Fine white powder _____   STEM   BRANCHES
  Reddish and granular _____   STEM   BRANCHES

Note: For questions 8 and 9, only observe galleries and frass if the wood is exposed or bark is flaking off. Do not injure trees to observe symptoms.

8) Insect larval galleries:
  Irregular pattern on wood _____ L M H
  Straight horizontal lines on wood _____ L M H
  Irregular galleries in outer bark _____ L M H

9) Insect frass: Severity
  Granular and tightly-packed _____ L M H
  Fibrous and loosely-packed _____ L M H
  Pellet-like in outer bark _____ L M H

Suspected cause of injury: **(Note the number of trees with each injury symptom)**

Insect ➔ Wood borer____ Bark beetle_____ Leaf feeder_____ Sucking insect_____ Unknown_____
Disease ➔ Stem canker____ Branch/twig canker____ Leaf disease/fungus_____ Unknown____
Abiotic_____
Mechanical_____
Unknown_____
No injury_____

Survey information:

Total number of trees surveyed: _____   Number of trees affected: _____

Number of healthy, unaffected trees: _____   Number of recently dead trees (<1 yr): _____

Total number of dead trees: _____

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4. SURVEYOR INFORMATION

Date: _____   Name: _____   E-mail: _____