

Oregon White Oak/Garry Oak Acorn Survey Instructions

The survey is for Oregon white oak, also called Garry Oak (*Quercus garryana*). This is the only native oak in British Columbia, Washington, and the northern half of Oregon. In southern Oregon and California there are other species of oak. If you aren't sure which species you have, please trace a leaf outline and include a few acorns when you return the survey so we are sure which species you have observed.

Select one to several trees in close proximity in an area. Use a separate form for each area. It is NOT necessary that the trees you select have acorns – we need information on trees with and without acorns so we can see if the characteristics we have chosen to measure help explain which trees produce acorns. Trees should be taller than 1.3 m or 4.5 feet.

Survey acorns when they are mature but before they begin dropping from the tree, which occurs in September or October. Mid-August to mid-September is the best time to survey. It may be possible to survey as late as early October in some places or years. Mature acorns are yellow-green to brown in color. Size varies but is typically around 0.5-1.25 inches (1.25-3.2 cm). Brown acorns drop from trees rapidly making surveying difficult or impossible. Some trees, especially growing under harsh conditions, may have smaller mature acorns.

Write additional notes about your survey on the back of the survey form especially if you do not feel an answer on the form adequately describes the situation for that tree. Anything you feel is important about the trees or the site not adequately addressed on the form should be included. This will help us interpret your survey and improve the form. Feel free to include additional information such as: tree age, stand type, stand basal area, community type or plant association and reference, plant lists, fire history, date of last fire.

First time surveys

Complete the entire form. Data items in the bold box are required for all first time surveys (items 1-13). If at all possible complete items 14-19. Please provide a map (data item 20).

If you are resurveying a tree which was previously surveyed:

Only data items 1 (tree number) and 3 (acorn code) are required if the tree has been surveyed in the previous year and a complete form was sent in at that time. While surveying the tree look to see if anything has changed substantially. If so fill out the data items that describe the change. Also, please fill in data item 20 (tree shape) if you can.

Tree measurements such as diameter, crown width, height, etc. will need to be remeasured every 5 years.

Detailed Instructions for each survey item.

- 1) **Tree number.** Each tree should be given a unique number starting with the number 1 so the same trees can be resurveyed in future years. Tagging the trees (nailing or stapling a tag with a number on it), recording distance and direction from a known point or drawing a map of the tree locations are ways of keeping track of trees. Tagging should not be done on trees in public places or on private land without permission. Small metal tags with numbers stamped on them are ideal but other tags can be fashioned that will work. Plastic tags can be cut from thick plastic bottles, labeled with an indelible marker and nailed to the tree with the writing inward so it will fade less during the year. Replace plastic tags each year. Nails should penetrate just far enough to secure the tag as room needs to be left for tree growth. Aluminum nails should be used. Wildlife sometimes removes or damages tags so it is best to also record a written description or map of the tree's location. Flagging tape (plastic ribbon) is a cheap temporary solution that can be written on with an indelible marker pen.
- 2) **Diameter.** Diameters are taken 4.5 feet (1.3 m) up from the ground. Record whether English or metric measures have been used. If the tree forks below 4.5 ft. (1.3 m) or a branch or defect prevents measurement, measure the narrowest point below the fork or defect and record the height of the measurement. If you do not have access to a foresters diameter tape, use a standard tape measure to obtain circumference or a stretch a string around the tree and measured it. Diameter is obtained by

dividing the circumference by 3.14.

3) **Acorn code.** Wait until the acorns are mature, green to yellow-green and about ½-1 inch or 1-2.5 cm long (Acorns on some trees may be smaller). If acorns have already started to fall at the time of the survey you will have to judge whether to continue the survey. If you feel that you can still provide a good rating, then continue, but be sure to explain the situation on the back of the form. Our acorn codes are taken from a paper by Graves (1979). Warning: Once acorns turn brown they fall very rapidly!!

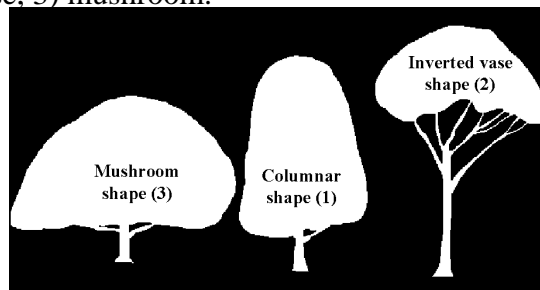
- a) Walk up to the tree and note if acorns are either readily visible or not visible.
- b) If acorns are not readily observed, the tree is either a Class 1 or a Class 2. Walk around the tree and look carefully for acorns. Use field glasses if necessary. If no acorns are observed, the tree is a Class 1. If one or more acorns are observed, the tree is a Class 2.
- c) If acorns are readily observed, the tree is either a Class 3 or 4. Walk around the tree to see if acorns are found all over the tree. The tree is a Class 3 if acorns are readily visible all around the tree or if acorns are common on one side or in one area. Acorns in Class 3 are predominantly born singly. However, if the acorns occur in clusters of two or more, all around the tree, it is a Class 4. In Class 4, the limbs are often bending from the weight of acorns.
- 4) **Contact trees:** Count or record the number of trees of any species that touch or strongly influence the canopy of the tree being surveyed.
- 5) **Percent of crown contact:** Estimate and record what percent of the crown circumference is making contact or merged with other trees of similar or larger size (see #4).
- 6) **Ground disturbance:** Record the percent of the area under the crown that is disturbed (barren from trampling or vehicle tracks). Vehicle traffic or too much foot or animal traffic can compact soils making root penetration more difficult and can actually injure roots. Describe the disturbance and the timeframe it appears to have occurred in on the back of the form.
- 7) **Ground Vegetation:** Knowing what kind of vegetation grows with the tree tells us something about the tree's setting. Look at the area directly under the canopy and record the term that best describes what is there. If there are 2 kinds or more kinds of vegetation use two or more terms separated by a "/" in order of abundance (dominance). (e.g. 70% grass and 30% shrubs would be 2/4). Bare ground is any exposed mineral soil, rock or duff. Grass is any species of grass, sedge or rush native or exotic. Forbs are non-woody stemmed plants exclusive of grass, sedges or rushes. Shrubs are woody-stemmed plants, which usually (but not always) develop multiple stems and a spreading form. Trees are woody-stemmed plants that usually (but not always) grow as single stems. Small refers to trees from seedling size to larger trees growing predominantly under the canopy of the surveyed tree. If you can identify the ground species present, record a list on the back of the form or on an additional sheet.
- 8) **Mistletoe** brooms are common from central Oregon south. Mistletoe is a parasitic plant that grows by using sugars manufactured by the tree. Mistletoe brooms are very obvious when the leaves are off the tree. They look something like balls of fine branches in the trees. Record one of the codes for each tree.
- 9) **Health:** Health Class 1 is the healthiest with no visible health problems. Health Class 2 trees are probably also healthy but there may be some question. Health Class 3 trees look unhealthy. Use the following codes: **1)** healthy, all bark and major limbs present and alive, no visible rot, full crown of healthy leaves; **2)** healthy but has one or more of: missing bark, broken major limbs, visible rot; **3)** tree appears unhealthy-- much visible rot, sparse foliage, major branches broken or dead.
- 10) **Setting:** **1) Urban** is any incorporated town or city. Some unincorporated areas also qualify so use your judgment. Trees growing in urban settings may be affected by air pollution, fertilization, irrigation, and construction damage around roots or pavement over roots. **2) Agricultural** is any farm, farmyard, fencerow, managed pasture, rural road leading through farmland, etc. In agricultural areas fertilization, irrigation tillage or livestock use by domestic stock looking for shade or protection from weather can be important. **3) Grasslands/savannas** are areas where natural (but not necessarily

native) vegetation is dominant but trees are widely scattered. **4) Woodlands/forests** are areas where trees are numerous enough to frequently or usually be in contact with each other. Grasslands/savannas and woodlands/forests usually have less disturbance, no irrigation and are rarely fertilized but may have some use by livestock.

- 11) **Water Availability:** 1) Irrigated at least weekly during summer (or usual irrigation season), 2) Irrigated at least monthly during summer (or usual irrigation season), 3) Irrigated 1-3 times during summer (or usual irrigation season), 4) Never irrigated, 5) Edge of stream or wetland, 6) In a wetland.
- 12) **Fertilized recently:** "Yes" if this site has been fertilized within the last 5 years. "dk" = don't know
- 13) **Stems per clump:** We want to know how many stems there are in the clump of trees you are surveying. *Record "1" for single stemmed trees.* Otherwise count the number of stems visibly joined at the base of the sample tree or separate if they are within 1 meter of the sample tree including the sample tree. Each stem is considered a separate tree if separate below breast height (1.3m).

The following data require equipment and skills not generally available. We will work with you if you wish, to get someone to help with these measurements if you do not have the necessary tools or skills.

- 14) **Tree height.** Heights will be measured to the nearest foot or meter.
- 15) **Crown width.** Use a long measuring tape. Record the average of the longest and shortest crown widths in feet or meters).
- 16) **Elevation:** Obtained from a U.S.G.S. Quadrangle map of the area or a field altimeter or GPS in feet or meters.
- 17) **Aspect:** Aspect (direction the land faces) is determined with a compass. If the area is flat, write the word "flat" in the aspect column. Record the aspect as azimuth in degrees (e.g. northeast=45, northwest=315)
- 18) **Slope:** Slope is the steepness of the land. Percent slope is the change in elevation divided by the horizontal distance. Slope is generally obtained with a clinometer or a similar instrument. If you only have an instrument that gives degrees use it and clearly label the data.
- 19) **Years** since last fire: Years since the last fire this tree survived (underburn). dk=don't know
- 20) **Shape** Tree crown shape: This is the shape of the tree crown as viewed from the side. Record: 1) columnar, 2) inverted vase, 3) mushroom.



21) **Map:** Not a data form entry, but we need the most accurate location information you can give us. Please include the most accurate map of each tree location you can give us. USGS quadrangle maps can be photo copied and locations marked on them. If you do not have access to a good map you can send us a general map location or description and request that we send you a more accurate map for you to mark and return. GPS coordinates are excellent if you have access to GPS equipment. Be sure to include the projection information with them. We work with UTM's but can re-project from other projections if needed.

*Graves WC. 1979. Annual oak mast yields from visual estimates. In Plumb TR, ed. Proceedings of the symposium on the ecology, management, and utilization of California oaks, GTR PSW-44. Berkeley, California: U.S. Dept. of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station, 1980: 270-74.

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