

CDFW-CNPS Protocol for the Combined Vegetation Rapid Assessment and Relevé Field Form

(November 4, 2022)

Introduction

This protocol describes the methodology for both the Relevé and Rapid Assessment (RA) vegetation sampling techniques as recorded in the Combined Vegetation Rapid Assessment and Relevé Field Form. The same environmental data are collected for both techniques. However, the relevé is a plot demarcated with a measuring tape, and all species within the plot are recorded along with cover values. The rapid assessment sample is not based on a taped plot, but is based on a visually estimated, usually circular area within a representative portion of the entire stand, with up to 20 of the dominant or characteristic species and their cover values recorded.

In general, collect rapid assessments in woody vegetation and relevés in herbaceous vegetation. When working in an area that has not been sampled before, RAs in woody vegetation may list more than 20 species.

Defining a Stand

A stand is the basic physical unit of vegetation in a landscape. It has no set size. Some vegetation stands are very small, such as a portion of a vernal pool, and some may be several square kilometers in size, such as a forest type.

A stand is defined by three main unifying characteristics:

- 1) It has compositional integrity. Throughout the site, the combination of species is similar. The stand is differentiated from adjacent stands by a discernable boundary that may be abrupt or indistinct.
- 2) It has structural integrity. It has a similar history or environmental setting that affords relatively similar horizontal and vertical spacing of plant species. For example, a hillside forest originally dominated by the same species that burned on the upper part of the slopes but not the lower would be divided into two stands. Likewise, sparse woodland occupying a slope with very shallow rocky soils would be considered a different stand from an adjacent slope with deeper, moister soil and a denser woodland or forest of the same species.
- 3) It is typically a repeating pattern on the landscape, in which the plant assemblage occurs in other sites with similar plant composition and environmental setting.

The structural and compositional features of a stand are often combined into a term called homogeneity. For an area of vegetated ground to meet the requirements of a stand, it must be homogeneous (uniform in structure and composition throughout).

Stands vary in size and may be sampled even if they are below a “minimum mapping unit” area (a mapping rule of set size such as 1 acre or 1/2 acre specific to a mapping project). For example, a vernal pool is often mapped at the group level because it is small in area, while multiple vernal pool alliances or associations may exist and be sampled as separate stands within a broader map polygon.

Selecting a bounded plot (Relevé) or representative area (Rapid Assessment) to sample within a stand

Stands to be sampled may be selected by evaluation prior to a site visit (e.g., from aerial photos) or they may be selected on site during reconnaissance to determine extent and boundaries, location of other similar stands, etc.

Because many stands are large, it may be difficult to summarize the species composition, cover, and structure of an entire stand. A sample of vegetation is selected to be representative of the entire stand and should be conducted in a standardized way to ensure that it can be compared to

samples of other stands. This means that you are not randomly selecting a plot; on the contrary, you are actively using your own best judgment to find a representative example of the stand.

Selecting a relevé plot or RA area requires that you see enough of the stand you are sampling to feel comfortable in choosing a representative plot location. Take a brief walk through the stand and look for variations in species composition and in stand structure. In hilly or mountainous terrain, look for a vantage point from which you can get a representative view of the whole stand. Variations in vegetation that are repeated throughout the stand should be included in your plot. Once you assess the variation within the stand, attempt to locate a sample area that captures the stand's common species composition and structural condition.

Tracking sampled vegetation types

For large projects, the number of samples should be tracked daily or weekly by field-assessed Alliance and Association type so that samples are distributed as evenly as possible over types and time is not wasted collecting excessive numbers of samples of certain types. When multiple teams are in the field in the same week, daily communication between teams about Alliances and Associations sampled can ensure even sampling. *Prior to selecting a stand to sample, determine if what you are going to sample is needed based on this tracking.*

Selecting samples to avoid spatial autocorrelation

Do not place more than one sample within a stand. For large projects, separate sample locations to limit spatial autocorrelation. Try to spread samples representing the same vegetation type at least 500 to 1000 meters apart. When possible, do not sample adjacent stands, especially if the adjacent stand is within the same life form (tree, shrub, herb). For example, samples taken from different formations, subclasses, or classes (e.g., wetlands vs. uplands, lithomorphic vs. mesomorphic) adjacent to one-another have a lower probability of sharing species and may be sampled within 1000 meters of each other. However, avoid sampling adjacent stands that tend to have overlapping species even if they are technically different formations, such as a grassland adjacent to an open oak woodland. Flexibility may be necessary in the case of sensitive natural community types that may have limited sampling opportunities across the landscape.

Plot Size

All relevés of the same type of vegetation need to be an equivalent size if they are to be analyzed together. Plot size is dependent on the type of vegetation under study. Therefore, general guidelines for plot sizes of tree, shrub, and herbaceous communities have been established. Sufficient work has been done in temperate vegetation to be confident the following conventions will capture a comprehensive list of species:

Herbaceous communities: 100 m² plot

Special herbaceous communities of small size, such as vernal pools, fens: 10 m² plot

Shrublands and riparian forest/woodlands: 400 m² plot

Open desert and other shrublands with widely dispersed but regularly occurring woody species: 1000 m² plot

Upland Forest and woodland communities: 1000 m² plot

Plot Shape

A relevé has no fixed shape, though plot shape should reflect the character of the stand and is either a square, rectangle, or circle. Adjust the orientation and dimensions of the plot to represent the best approximation of stand homogeneity. If the stand is about the same size as a Relevé, the plot boundaries may be similar to that of the entire stand. If sampling streamside riparian or other linear communities, the plot dimensions should not go beyond the community's natural ecological boundaries. Thus, a relatively long, narrow plot capturing the vegetation within the stand, but not outside it, would be appropriate. Overarching plants do not need to be rooted within the plot to be included in the species list, however, species present along the edges of the plot that are clearly part of the adjacent stand should be excluded from the plot.

Location of GPS Points

For Relevés, one point will be considered the plot identifier (ID point) and should be in the SW corner of a rectangular or square plot, if possible, or in the center of a circular plot. If it is taken in another location, this should be noted in the Site History section.

Definitions of fields in the Field Form

I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

Relevé or RA: Circle the appropriate survey type.

Database #: This is the unique ID number for Relevés and Rapid Assessments, in the form of *PPPPxxxx*, where *PPPP* is the 4-character project code and *xxxx* is a unique 4-digit number (e.g. CARR0001 for Carrizo sample #1). If this is a long-term plot, a character from A to Z can be added to the unique ID for each re-sampling survey; so the first re-sample for CARR0001 would be CARR0001A.

Base Points: For a projected RA (GPS within stand = No), a Base Point will be taken where the surveyors are standing and a separate point will be projected into the stand. The ID of the basepoint is *B_PPPPxxxx*, i.e. *B_CARR0001*.

Photo Points: Occasionally, stand photos will be taken from a vantage point outside the stand, or in a place other than the survey point. The ID for this point is *PPPPxxxx_P#*, i.e. the first Photo Point for CARR0001 will be *CARR0001_P1*.

Date: Date of the sampling.

UID: The unique ID number of a reference point or allocation target that this survey describes (optional).

Name of recorder: The full name of the recorder should be provided on the first field form of the day. On successive forms, initials can be recorded.

Other Surveyors: The full names of each person assisting should be provided on the first field form of the day. On successive forms, initials of each person assisting can be recorded.

Location Name: The name of the property, location or park, include the land owner name for large holdings (e.g. County Regional Park, USFS or BLM properties).

GPS name: The name/number assigned to each GPS unit. This can be the serial number if another number is not assigned.

Bearing°, left axis at ID point of Long / Short side: Relevé only. For square or rectangular plots: from the ID Point, looking towards the plot, record the bearing of the axis to your left. If the plot is a rectangle, indicate whether the left side of the plot is the long or short side of the rectangle by circling "long" or "short" side (no need to circle anything for square plots). If there are no stand constraints, set up the plot with boundaries running in the cardinal directions and place the ID Point in the SW corner.

UTM coordinates: Easting (**UTME**) and northing (**UTMN**) location coordinates using the Universal Transverse Mercator (UTM) grid. Record the information from your GPS unit. These coordinates are always the base point of the survey. Soil samples and photos are taken from this point, and exposure, steepness, topography, etc. are measured here. If the GPS point is not within the stand (i.e., the point is projected or digitized in the field), these are the UTM's of the base point. Important: a projected point or a point digitized in the field must always have a base point associated with it (projected surveys with estimates of distance and bearing are preferred over digitization). A base point can serve as the base for several distance surveys.

For Relevé plots, take the waypoint in the southwest corner of the plot whenever possible or in the center of a circular plot.

Zone: Universal Transverse Mercator zone. Zone 10 is for California west of the 120th longitude; zone 11 is for California east of 120th longitude (the straight portion of California's eastern boundary).

NAD83: This is the default GPS datum. If you use a different one, cross this out and write in the correct datum.

GPS error: ft./ m./ PDOP: Circle the appropriate unit of measure and record the error reading from the GPS unit.

Decimal degrees: *Use this only if your GPS unit will not record UTM coordinates.* Latitude–Longitude reading in decimal degrees. Record the information from your GPS unit. These coordinates are always the base point of the survey. Soil samples and photos are taken from this point, and exposure, steepness, topography, etc. are measured here.

For Relevé plots, take the waypoint in the southwest corner of the plot whenever possible or in the center of a circular plot.

GPS within stand? Yes / No: Circle “Yes” to denote that the GPS waypoint was taken directly within or at the edge of the stand being assessed for a Rapid Assessment, or circle “No” if the waypoint was taken at a distance from the stand (such as with a binocular view of the stand). If the point is taken at the edge of the stand, note direction to the center of the stand.

If No, cite from GPS to stand: distance (m), bearing°, inclination°: From the base GPS point, measure the distance to the projected point using a range finder. Record the compass bearing from the base point to the projected point; record the inclination if the base and projected points are not at the same elevation.

and record Base point ID: This is the ID of the base GPS point, where the surveyors were standing to record the distance survey. This is required for both projected points and points digitized in the field (gathering projection data is preferred).

and Projected UTM: These are the coordinates of the projected point, the point being surveyed. They are generated in the field if the GPS units have the ability to calculate projected points. If the GPS unit does not have this capability, make a note to that effect and leave these fields blank. Note that a digitized point, e.g., using your finger to plunk the location that you are surveying in Collector, is NOT a projected point and is not recommended.

Camera Name: Write the camera name or code as identified by the users.

Cardinal photos at ID point: Take four photos in landscape orientation for each cardinal direction (N, E, S, W) starting clockwise towards the north, from the ID Point, and record the jpeg numbers here. Try to include the horizon line in each photo (if possible while getting a good representation of the vegetation). If this is a distance survey to a projected point, take the four cardinal photos at the base point and at least one photo of the stand. A digital camera with a minimum 10 megapixel resolution is required.

Other photos: This may include cardinal photos at additional corners or other relevant photos. We recommend a diagonal photo facing NE from the SW corner when sampling an herbaceous relevé. Notes regarding photo locations or subjects can go here.

Stand Size: Estimate the size of the entire stand in which the sample is taken. As a measure, one acre is about 4,000 square meters (approximately 64 x 64 m), or 208 feet by 208 feet. One acre is similar in size to a football field.

Plot Area (m²): Relevé only. Circle “100” for a 100m² plot or record the appropriate plot size.

Plot Dimensions: Relevé only. Record the length and width of the plot in meters.

RA Radius: Rapid Assessments only. Estimate the radius of the area of the stand viewable from your sample point. This value is separate from the Stand Size of vegetation being sampled and any additional details/constraints can be documented in the Site History.

The radius must fall completely within the stand boundary and therefore cannot be greater than the distance from the sample point to the edge of the stand in any direction. If you can see the entire stand, then the radius will be the distance from your GPS point to the closest edge of the stand. For example, the radius will be constrained in long linear stands to the minimum width of the stand and thus the RA radius may not capture the full area that you survey. If your point is on the edge of the stand, record the radius into the stand, but note your location and the direction to which the RA
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Radius applies in the Site History section. RA Radius informs mappers and the image analysts of the dimensions of the stand visible from the sample point, so they can make connections between the vegetation on the ground and information in imagery and other GIS datasets.

Exposure: (Enter Actual ° and circle general category): While facing in the general downhill direction, read degrees of the compass for the aspect or the direction you are standing, using degrees from north, adjusted for declination. Average the reading over the entire stand, even if you are sampling a Relevé plot, since your plot is representative of the stand. If estimating rather than measuring the exposure, write “N/A” for the actual degrees, and circle the general category chosen. “Variable” may be selected if the same, homogenous stand of vegetation occurs across a varied range of slope exposures.

Steepness: (Enter Actual ° and circle general category): Read degree slope from your clinometer or compass with built in clinometer by following the manufacturer’s directions for use. Make sure to average the reading across the entire stand, even if you are sampling in a Relevé plot, since your plot is representative of the stand. If estimating rather than measuring, write “N/A” for the actual degrees, and circle the general category chosen.

Topography: First assess the broad (**Macro**) topographic feature or general position of the stand relative to the immediately surrounding landscape. This attribute does not refer to the watershed as a whole, but to a cross section of the topography at the location of your stand. For instance, if your stand is located along a small creek in a narrow, v-shaped canyon, your position would be at the “Bottom,” even if the canyon itself slopes downward. Since stands can occupy more than just a single slope position, **circle all the positions that apply.**

Then, assess the local (**Micro**) topographic features or the lay of the area within the stand being sampled (e.g., surface is flat or concave). **Circle only one of the microtopographic descriptors.**

Geology code: Geological parent material of stand. If exact type is unknown, use a more general category (e.g., igneous, metamorphic, sedimentary). *See code list for types.*

Soil Texture code: Record soil texture that is characteristic of the plot (e.g., coarse loamy sand, sandy clay loam). *See soil texture key for types.*

Upland or Wetland/Riparian: Indicate if the stand is in an upland or wetland/riparian setting. (wetland and riparian are one category.) Note that a site need not be officially delineated (as in the Army Corps of Engineer’s wetland delineation protocols) as a wetland to qualify as such in this context (e.g., seasonally wet meadow).

% Surface cover: The abiotic substrates of the plot. The total should sum to 100%. It is helpful to imagine “mowing off” all of the live vegetation at the base of the plants and removing it – you will be estimating what is left covering the surface. Note that non-vascular cover (lichens, mosses, cryptobiotic crusts), including “basal area” of ground attachment, is not estimated in this section.

H₂O:	Percent surface cover of running or standing water, ignoring the substrate below the water.
BA Stems:	Percent surface cover of the basal area of vascular plant stems at the ground surface. For most vegetation types, BA is 1-3% cover.
Litter:	Percent surface cover of litter, thatch, duff, or wood on the ground.
Bedrock:	Percent surface cover of bedrock, including outcrops.
Boulder:	Percent surface cover of rocks >60 cm in the longest dimension.
Stone:	Percent surface cover of rocks >25–60 cm in the longest dimension.
Cobble:	Percent surface cover of rocks >7.5–25 cm in the longest dimension.
Gravel:	Percent surface cover of rocks 2 mm–7.5 cm in the longest dimension.
Fines:	Percent surface cover of bare ground and fine sediment <2 mm in the longest dimension (e.g., dirt, sand).

% Current year bioturbation: Estimate the percent of the plot exhibiting soil disturbance by any organism that lives underground. Do not include disturbance by ungulates. Note that this is a separate estimation from surface cover.

Past bioturbation present? Circle Yes if there is evidence of bioturbation from previous years in the plot.

% Hoof punch: Note the percent of the plot surface that has been punched down by hooves (cattle or native grazers) in wet soil. Depressions must be >2 cm deep.

Fire Evidence: Circle Yes if there is visible evidence of fire within the stand, and note the type of evidence in the “Site history, stand age, comments section,” for example, “charred dead stems of *Quercus berberidifolia* extending 2 feet above resprouting shrubs.” If you are certain of the year of the fire, put this in the Site history section. You may also record more general historic information if you lack the precise date of a fire (such as most recent fire appears to be 10-20 years ago).

Site history, stand age, comments: Briefly describe the stand including details about age/seral stage, disturbance history, nature and extent of land use, and other environmental and vegetation factors, such as distribution of species. Examples of disturbance history: fire, landslides, avalanching, drought, flood, animal burrowing, or pest outbreak. Also, try to estimate year or frequency of disturbance. Examples of land use: grazing, timber harvest, or mining. Examples of other site factors: exposed rocks, soil with fine-textured sediments, high litter/duff build-up, multi-storied vegetation structure, or other stand dynamics. Note any structural and phenological constraints to estimates of strata cover and height and any peculiarities of the site or observation that impact the vegetation measurements taken. Examples include: late phenology within deciduous tree stands reducing cover estimates or pygmy forests or other stunted growth. Include any additional details or constraints about the extent of the area assessed, meaning the area that has contributed to strata, height, and cover estimates.

Disturbance code / Intensity (L,M,H): List codes for potential or existing impacts on the stability of the plant community. See code list for impacts and definitions of levels of disturbance. Characterize each impact each as **L** (=Light), **M** (=Moderate), or **H** (=Heavy). Disturbance is evaluated on a stand basis.

II. HABITAT AND VEGETATION DESCRIPTION

California Wildlife Habitat Relationships (CWHR)

For CWHR, identify a size/age/height class for the plot using the following tree, shrub, and/or herbaceous categories. These categories are based on functional life forms. This data links the structural components of sampled stands within the SCV classification to the CWHR classification.

Tree DBH: Circle one of the tree size classes provided when the tree canopy closure exceeds 10% of the total cover, or if young tree density indicates imminent tree dominance. Size class is based on the average diameter at breast height (dbh) of each trunk (standard breast height is 4.5ft or 137cm). When marking the main size class, make sure to estimate the mean diameter of all trees over the entire stand, weighing the mean toward the larger tree dbh's if large trees are consistent in the stand, though they may be low in cover. The “**T6 multi-layered**” dbh size class signifies a multi-layered tree canopy, with a size class T3 and/or T4 layer growing under a T5 layer and a distinct height separation between the classes. Stands in the T6 class must contain a total absolute tree cover that exceeds 60% including at least 10% cover of size class 5 (>24” dbh) trees growing over a distinct layer of trees in size classes 3 (>6-11” dbh) or 4 (>11-24” dbh) with at least 10% combined cover.

Shrub: Circle one of the shrub classes provided when shrub canopy closure exceeds 10% (except in desert types) by recording which class is predominant in the survey. Shrub class is based on the average amount of crown decadence (dead standing vegetation on live shrubs when looking across the crowns of the shrubs).

Herbaceous: Circle one of the herb height classes when herbaceous cover exceeds 2% by recording the predominant class in the survey. Note: *This height class is based on the average plant height at maturity, not necessarily at the time of observation.*

Desert Riparian Tree/Shrub: Circle one of the size classes by measuring mean stem height (whether tree and/or shrub stand).

Desert Palm/Joshua Tree: Circle one of the palm or Joshua tree size classes by averaging all the stem-base diameters (i.e., mean diameter of all stem-base sizes). Diameter is measured at the plant's base above the bulge near the ground.

III. INTERPRETATION OF STAND

Field-assessed vegetation Alliance name: Enter the name of the Alliance following the [Manual of California Vegetation \(MCV\) Online](#). Please use scientific nomenclature, e.g., *Quercus agrifolia* forest. Alliance and association names in the MCV follow the USDA Plants nomenclature in order to conform with the national standard. An Alliance is based on the dominant or diagnostic species of the stand, and usually reflects the uppermost and/or dominant height stratum. A dominant species tends to cover the greatest area, while a diagnostic species is consistently found in some vegetation types but not others.

The field-assessed Alliance name may not always exist in the current MCV, in which case you can provide a new or proposed Alliance name in this field. If this is the case, also make sure to state that it is not in the MCV under "Explain" below.

Field-assessed Association name (optional): Enter the name of the species in the Alliance and additional dominant/diagnostic species from any strata. In following naming conventions, species in differing strata are separated with a slash, and species in the uppermost stratum are listed first (e.g., *Quercus douglasii* / *Toxicodendron diversilobum*). Species in the same stratum are separated with a dash (e.g., *Quercus lobata* – *Quercus douglasii*).

The field-assessed Association name may not exist in the current MCV, in which you can provide a new or proposed Association name in this field.

Adjacent Alliances/direction: Identify other vegetation types that are directly adjacent to the stand being assessed by noting the dominant species (or known type). Also note the distance in meters from the GPS waypoint and the direction (general or in degrees) of the adjacent alliance (e.g., *Amsinckia tessellata* / 50m, 360° N or *Eriogonum fasciculatum* / 100m, 110°).

Confidence in Alliance identification: (L, M, H) With respect to the "Field-assessed Alliance name," note whether you have L (=Low), M (=Moderate), or H (=High) confidence in the interpretation of this Alliance name.

Explain: Please elaborate if your "Confidence in Alliance identification" is low or moderate. Low confidence can occur from such things as a poor view of the stand, an unusual mix of species that does not meet the criteria of any described Alliance, or a low confidence in your ability to identify species that are significant members of the stand.

Phenology: Indicate early (E), peak (P), or late (L) phenology for each of the strata. For herbs, this generally indicates if species are in flower and/or fruit and are therefore identifiable. For shrubs and trees, this attribute generally refers to cover, e.g., a tree that is fully leafed out will be considered peak (P) even if it is not in flower. Phenology is useful for cover estimation and species identification issues and can be elaborated upon in the next field or in the Site History.

Other identification or mapping information: Discuss any further problems with the identification of the assessment or issues that may be of interest to mappers. Note if this sample represents a type that is likely too small to map.

IV. VEGETATION DESCRIPTION

Database #: Copy the database # from Page 1.

Overall Cover of Vegetation

Provide an estimate of cover for the life-form categories below. Record a specific number for the total aerial cover or “bird’s-eye view” looking from above for each category, estimating cover for living plants only. Litter/duff should not be included in these estimates.

The *porosity* of the vegetation should be taken into consideration when estimating percent foliar cover for all categories below: consider how much of the sky you can see when you are standing under the canopy of a tree, or how much light passes through the canopy of the shrub layer to help you estimate foliar cover.

% NonVasc cover: The total cover of all lichens, bryophytes (mosses, liverworts, hornworts), and cryptogamic crust on substrate surfaces including downed logs, rocks and soil, and horizontal surfaces (tree branches) but not on standing or inclined trees or vertical rock surfaces.

Total % Vasc Veg cover: The total cover of all vascular vegetation taking into consideration the porosity, or the holes, in the vegetation, and disregarding overlap¹ of the various tree, shrub, and/or herbaceous layers and species.

% Cover by Layer

Conifer Tree /Hardwood Tree: The total foliar cover (considering porosity) of all live tree species, disregarding overlap¹ of individual trees. Estimate conifer and hardwood covers separately. **Please note:** These cover values should not include the coverage of regenerating tree species (i.e., tree seedlings and saplings).

Regenerating Tree: The total foliar cover of seedlings and saplings, disregarding overlap¹ of individual recruits. See seedling and sapling definitions below.

Shrub: The total foliar cover (considering porosity) of all live shrub species disregarding overlap¹ of individual shrubs.

Herbaceous: The total cover (considering porosity) of all herbaceous species, disregarding overlap¹ of individual herbs.

Height Class by Layer

Note the modal height for conifer tree / hardwood tree, regenerating tree, shrub, and herbaceous categories. Modal height is based on the count of the most frequent height of plants within each layer. Record a modal average height value for each category by estimating the mean height for each group. Please use the following height intervals to record a height class: 1 = <1/2 m, 2 = 1/2-1 m, 3 = 1-2 m, 4 = 2-5 m, 5 = 5-10 m, 6 = 10-15 m, 7 = 15-20 m, 8 = 20-35 m, 9 = 35-50 m, 10 => 50 m.

Note: For the herbaceous layer height, this height class is based on the modal average plant height at the time of observation, as opposed to how this is recorded in the CWHR section (at maturity).

Species List and Coverage

For Rapid Assessments: List up to 20 species that are dominant or that are characteristically consistent within the assessment area. These species may or may not be abundant, but they should be consistent representatives in the survey. When different layers of vegetation occur, make sure to list species from each stratum. As a general guide, make sure to list at least 1-2 of the most abundant species per stratum. There is a heavy line on the form under the 20th line to limit the RA section of the species list.

Note: If constant, diagnostic, or interesting species occur outside the assessment area but in the stand, list the species and estimated stand cover in the Site History section.

¹ Porosity reduces the total cover of the canopy. Overlapping strata should not be included in the total cover percent; for instance, if a shrub is growing under a tree, only the cover of the tree will be added into the total; the cover of the shrub will be disregarded, except for the amount by which it fills in the porosity of the tree canopy.

For Relevés: list all species present in the plot, using a second species list page if necessary.
 ** If using a second species list page, note “Continued” on the bottom of the first page and be sure to note the Database # on the second page.

For both sample types, provide the stratum:

T = Tree. A woody perennial plant that has a single trunk.

A = SApling. 1" - <6" dbh and young in age, OR small trees that are <1" dbh, are clearly of appreciable age, and are kept short by repeated browsing, burning, or other disturbance. Includes trees that are re-sprouting from roots or stumps following fire, logging or other disturbance. These re-sprouts may exhibit a shrubby form, with multiple small trunks, but are species that are generally considered trees. If a majority of the trunks are >6" dbh, then the re-sprouts would be included under the “Tree” stratum.

E = SEedling. A tree species clearly of a very young age that is <1" dbh OR has not reached breast height. Applies only to trees propagating from seed; resprouts are not recorded here even if they meet the size requirements.

S = Shrub. A perennial, woody plant, that is multi-branched and doesn't die back to the ground every year.

H = Herb. An annual or perennial that dies down to ground level every year.

N = Non-vascular. Includes moss, lichen, liverworts, hornworts, cryptogammic crust, and algae.

Be consistent and don't break up a single species into two separate strata. The only time it would be appropriate to do so is when one or more tree species are regenerating, in which case the SEedling and/or SApling strata should be recorded for that species. These may be noted on the same line, e.g.:

Strata	Species	%Cover	C
T/A/E	Quercus douglasii	40/<1/<1	

In some cases, the stratum of a particular species might not be obvious. Some examples are *Juniperus californica*, which has the size and growth habit of a shrub, but it is considered a tree, and mistletoe, which is considered a shrub. It is useful to have a list of species with ambiguous strata for each project. Consult the MCV or contact VegCAMP if you are unsure.

C. If a species collection is made, it should be indicated in the collection column with a “C” (for collected). If the species is later keyed out, cross out the species name or description and write the keyed species name in pen on the data sheet. Do not erase what was written in the field, because this information can be used if specimens get mixed up later. If the specimen is then thrown out, add a “T” to the “C” in the collection column (CT = thrown out after confirmation) or cross out the “C”. If the specimen is kept but is still not confidently identified, add a “U” to the “C” in the collection column (CU = collected and unconfirmed). In this case the unconfirmed species epithet should be put in parentheses [e.g., *Hordeum (murinum)*]. If the specimen is kept and is confidently identified, add a “C” to the existing “C” in the collection column (CC = collected and confirmed). If the specimen is later deposited in an herbarium, add a “D” to the existing “C” in the collection column (CD = collected and deposited) and note the receiving herbarium.

Using Jepson eFlora nomenclature, write out the scientific name of each plant to the finest taxonomic level possible. In general, do not abbreviate names except for dominant species that do not have ambiguous codes. If you aren't sure there aren't duplicate codes, don't use a code. When uncertain of an identification (which you intend to confirm later) use parentheses to indicate what part of the determination needs to be confirmed. For example, you could write out *Brassica (nigra)* if you are sure it is a *Brassica* but you need further clarification on the specific epithet.

Provide the % absolute foliar cover for each species listed, considering porosity. When estimating, it is often helpful to think of coverage in terms of the following cover intervals at first:

<1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%.

Keeping these classes in mind, refine your estimate to a specific percentage. The sum of all species percent covers may total over 100% because of overlap.

Include the percent cover of snags (standing dead) of trees and shrubs. Use the code "SNAG." Note their species, if known, in the "Species" column (i.e. SNAG – *Quercus wislizeni*).

For Rapid Assessments, make sure that the major non-native species occurring in the stand also are listed in the space provided in the species list with their strata and % cover.

For Relevés, all native and non-native species should be included in the species list.

Also for Relevés, record the <1% cover in one of two categories: "r" for trace (i.e., rare in plot, or solitary individuals) and "+" for <1% but not rare or solitary individuals.

Unusual species: List species that are locally or regionally rare, endangered, or atypical (e.g., range extension or range limit) within the stand. This field will be useful to the Program for obtaining data on regionally or locally significant populations of plants.

Note: Field forms are generally filled out in pencil, so that changes may be made easily while working in the plot or stand. Once out of the stand, however, entries on the field form should not be erased, but should be crossed out and corrected in a different-colored ink.