**California Gnatcatcher Regional Vegetation Sampling Protocol**

The California Gnatcatcher Regional Sampling Program includes collection of vegetation covariate data to better understand gnatcatcher habitat relationships and management needs across conserved and participating military lands in southern California. California Gnatcatcher surveys are conducted along a wandering transect through randomly selected 150m x 150m plots (2.25 ha or 5.56 acres) within predicted high and very high suitability habitat (See California Gnatcatcher Regional Survey Protocol).

Vegetation data will be collected using a modified point intercept method. Photo point monitoring will also be conducted at the survey plot (150m x 150m) level.

Each California Gnatcatcher survey plot is subdivided into four 75m x 75m (0.56 ha or 1.38 acres) quadrats. A 15-m radius circular plot is centered in each quadrat. Vegetation will be collected using a modified point-intercept method along perpendicular transects bisecting the circular plots. Transects are oriented north-south and east-west. Vegetation data will be collected at 2-m intervals along each transect, for a total of 128 points per plot, 32 points per circle = 16 points along each transect.

150 m

15 m

2 m

Field maps (hard copy or digital) show the plot boundaries, center points and 15-m radius circular plots overlaid on high resolution aerial photography. Using our modified point-intercept method, the observer will navigate to the beginning of the first transect displayed on a GPS unit and drop a 2-m long measuring stick (hereafter “vegetation pole”) vertically to the ground. The observer will then record the plant species that the vegetation pole passes through and the highest point of the tallest tree (≥2 m) and/or tallest shrub (<2 m) canopy at the vegetation pole. The species recorded does not need to physically hit the vegetation pole (or a vertical line extending upward from the vegetation pole), as long as the line passes through the plant. Many species will occur as both trees and shrubs, depending on their height at the point. We will record height of a species as a tree when it is greater than 2m tall, and as a shrub when it is less than 2m. At points with no vegetation cover, substrate cover will be recorded as bare ground, boulder, or pavement. Vegetation data will be collected between 1 May and 31 May (possibly into mid-June in 2016 if weather conditions prevent completion of vegetation sampling by the end of May), after all three gnatcatcher monitoring surveys (15 March-30 April) are completed. Surveyors will also conduct photo monitoring from the center of each plot during the vegetation sampling period.

**Following are instructions for completing the modified Point-Intercept Form:**

*Site*  - County where surveys are conducted (Los Angeles, Orange, Riverside, San Bernardino, San Diego, Ventura).

*SubArea*- Name of the NCCP/HCP or the County where there surveys are conducted (Fallbrook, Los Angeles, Marine Corps Base Camp Pendleton, Miramar, Nature Reserves of Orange County, Orange other, Riverside, San Bernardino, San Diego other, Ventura, WashPlan HCP).

*PermID* - Each plot has an ArcGIS-generated number that will be provided to surveyors.

*Quadrat* # - Quadrats for each plot are numbered 1-4 and are shown on the plot map.

Transect – Orientation of transect within the Quadrat: NS = North/South, EW = East/West.

*Date, Surveyors, Affiliation* – Complete these fields. Affiliation is the organization conducting the survey (e.g., USGS, consulting firm contracted to do surveys, etc.).

*Time Start* & *Finish* - Record when the sampling starts and ends to document the time it takes to complete each quadrat. Record time in 24-hour format without a colon (For example 6:30am would be recorded as 0630 and 2:45pm would be recorded as 1445).

*CAGN Detected in Plot?* – Indicate whether California Gnatcatchers were detected in the plot during the vegetation sampling (NOT during the previous surveys).

*Point data*

Surveyor should start at one end of a transect and collect data every 2 meters along the length of the transect for a total of 16 points. Repeat for the perpendicular transect. A total of 32 points are sampled per circular plot.

Mark a “1” under each tree/shrub and herbaceous species that touches the vegetation pole dropped on the point. If the species is not listed, mark a “1” under “other tree or shrub” and/or “other herbaceous”. There can be more than one “other” species in each category at the point; it is not necessary to tally them separately.

For tree height, record the maximum height of any tree (≥2 m) canopy above the vegetation pole (not the height of the vegetation where it hits the vertical pole). This is where the level of the tree canopy is in the vicinity of the vertical line extending upward from the vegetation pole and may not actually touch the vertical line. If the tree species has lower hits, do not record them as a shrub. Leave blank if no tree is present.

For shrub height, record the maximum height of any shrub (<2 m) at the vegetation pole. Leave blank if no shrub is present.

Do NOT record the height of the tallest herbaceous vegetation at a point in the absence of any trees/shrubs.

Tree height

2m Veg Pole

Shrub height

If there is **no vegetation** at the point, record the substrate (Bare = Bare Ground, Boulder = Boulder, Pavement = Pavement). Do not record substrate if you have recorded any vegetation hits at the point.

Trees/Shrubs (If ≥2 m, record height as “Tree”; if <2 m, record height as “Shrub”). (Four letter codes indicate the corresponding field names in the data entry spreadsheet).

Oak (*Quercus sp.*)/ QUER

Laurel sumac *(Malosma laurina)* / MALA

Elderberry (*Sambucus mexicana*) / SAMX

Lemonadeberry (*Rhus integrifolia*) / RHIN

Lilac (*Ceanothus spp.*) / CEAN

California sagebrush (*Artemisia californica*) / ARCA

California buckwheat (*Eriogonum fasciculatum*) / ERFA

Bush sunflower(*Encelia californica*) / ENCA

Brittlebush (*Encelia farinosa*) / ENFA

San Diego sunflower (*Bahiopsis lanciniata*) / BALA

White sage (*Saliva apiana*) / SAAP

Black sage (*Salvia mellifera*) / SAME

Coyote bush (*Baccharis pilularis*) / BAPI

Deerweed (*Acmispon glaber*) / ACGL

Yucca (*Hesperoyucca whipplei* or *Yucca* spp.) / YUCC

Dead shrub / DEAD – entire shrub is dead

Other Shrubs – not listed or unknown

Herbaceous

Black mustard (*Brassica nigra*) / BRNI

Tocalote (*Centaurea melitensis*) / CEME

Artichocke thistle (*Cynara cardunculus) / CYCA*

Fennel (*Foeniculum vulgare*) / FOVU

Non-Native grasses

Other Herbs – not listed or unknown

Substrate (record **only** where there is no vegetation at the point)

*Bare -* bare ground, consists of sand, silt, soil and dirt, small gravel.

*Boulder -* large rock that a normal person could not lift.

*Pave –* Pavement*,* parking lots, roads, etc.

**Instructions for conducting Photo Plot Monitoring:**

Photo points are located in the center of each 150m x 150m survey plot. Photos should be taken facing in the four cardinal directions (North, South, East and West) with the picture number recorded for each photo. The coordinates should be recorded in decimal degrees Longitude and Latitude in WGS84 datum. It is important that the coordinates are accurate so pictures can be taken at the same location in subsequent years in order to document environmental change over time.