Lessingia hololeuca survey at Jasper Ridge Biological Preserve 2012

Lessingia hololeuca is an annual herb that blooms June through October, and is a CNPS Rank 3 (needs review) plant. *L. hololeuca* is found historically in San Mateo County, California at 6 locations: Jasper Ridge Biological Preserve (JRBP), Edgewood Natural Preserve, Emerald Lake in Redwood City, Peninsula Watershed near Crystal Springs Reservoir, Huddart Park, and Farm Hill Boulevard.

The JRBP Herbarium team (Teri Barry, Toni Corelli, Alice Cummings, Ann Lambrecht, John Rawlings, and Diane Renshaw) conducted surveys at JRBP covering all known occurrences of *L. hololeuca* during the flowering season (between 8/14/2012 and 10/8/2012). Two main occurrences, one near the Leslie Shao-ming Sun Field Station and another off Fire Road F near the Escobar Gate, were observed. Coordinates were recorded using a Trimble Geo XT (datum WGS84), plants were counted or estimated for each sub-occurrence, and plant densities were calculated for the larger sub-occurrences.

Field Station Occurrence (3432 plants counted)

Location description: non-native grassland overlooking Searsville Lake, Trail 18 (dirt), Road G (dirt), and the Main Road (gravel).

Plant distribution: Overlooking Searsville Lake, along the Main Road, Road G, Trail 18, and Trail 21 extension to the Main Road a total of 3,432 plants were counted.

Searsville Lake Overlook:

Plant count protocol for this site: The perimeter of the plant occurrence was marked with flags about one meter apart, and each flag was recorded as a point using a Trimble GeoXT to determine the bounaries. All plants were counted in about 1.5 meter sections marked off by flags.

2259 plants, occurring at variable densities, were counted within the polygon at the Searsville Lake overlook NE of the Field Station (northernmost point: +37.405841327 -122.238931077, southernmost point: +37.405282353 -122.238913475, easternmost point: +37.405413286 -122.238852432, westernmost point: +37.405512010 -122.239104617 WGS84; approximate dimensions: 82m x 23m). This main area of occurrence is low growing non-native grassland (soil is compacted) ending in a slight swale at the east end. The plants here appear more prostrate than the plants growing near the Escobar Gate occurrence where soil is less compacted. Associated plants in the overlook area and the roadside locations mentioned below include *Avena babata, Stipa pulchra, Bromus hordeaceus, Plantago* sp., *Gastitium* sp., *Hemizonia congesta* ssp. *luzulifolia,*

Trifolium hirtum, *Centaurea solstitialis,* and *Cordylanthus* (probably *C. pilosus* ssp. *pilosus*).

Plant density for the 82m x 23 area of the overlook were calculated as follows:

$$\text{Plant density} = \frac{\text{total plants}}{\text{Total area (estimated)}} = \frac{2259}{1886\ m^2} = 1.2\ \text{plants}/\ m^2$$

Main Road, Road G, Trail 21 and 14:

Occurrences along nearby roads were 129 plants on Road G (near Main Road), and 1010 plants along the edges of the Main Road between the Sun Station and the lake. Plants on the Main Road were observed in the gravel and upslope; and plants on Road G occurred along and in the middle of the little used dirt road, with no plants in the tire-track regions. Outlier occurrences were 19 plants on the extension from the Main Road to Trail 21, 14 plants on Trail 18 near its intersection with the Main Road, and one plant (in poor health) on an unmarked trail off Road L across from the Old Field Station. The total count for the entire occurrence was 3432 plants.

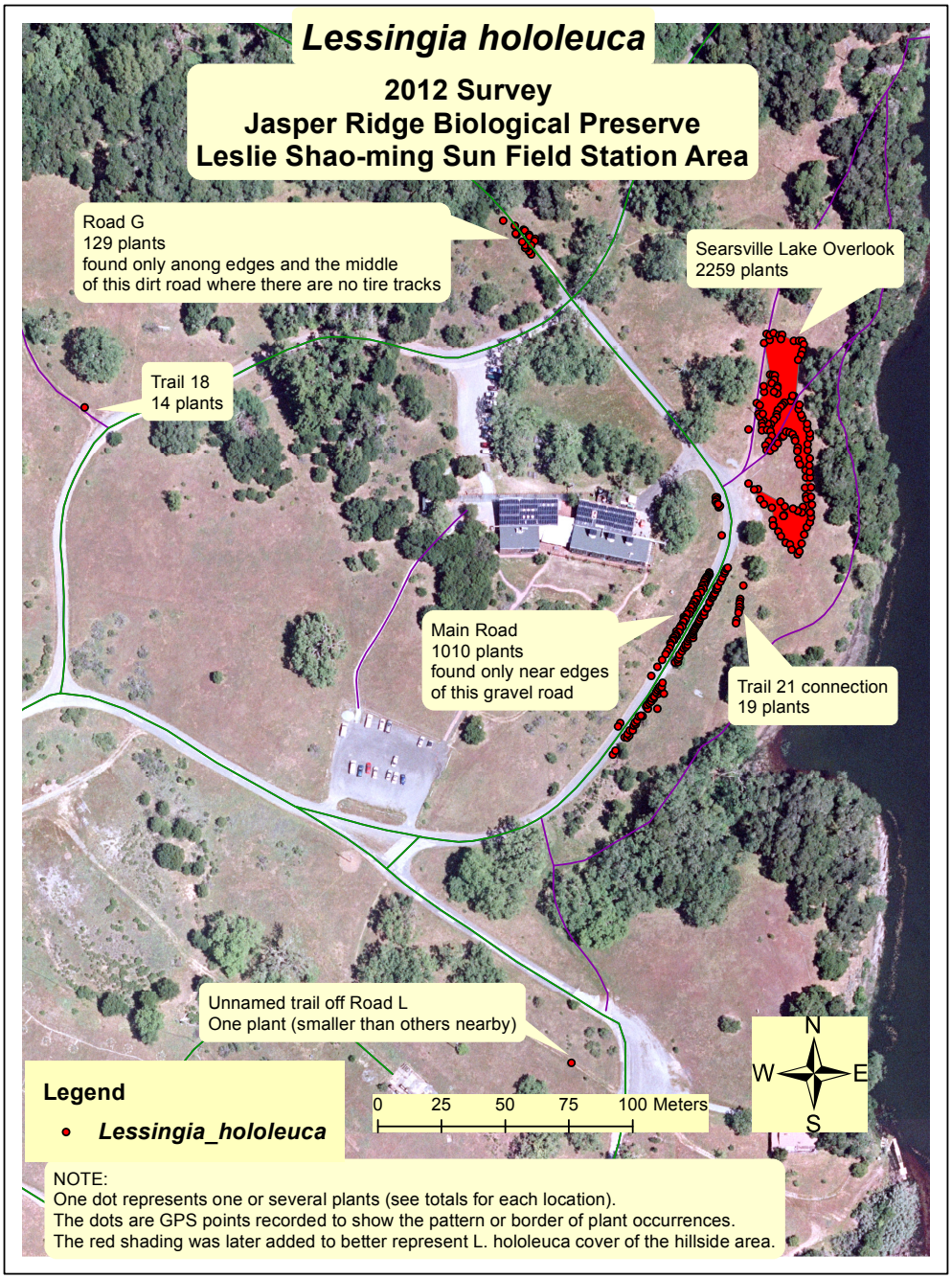

Figure 1. *L. hololeuca* occurrences near the Sun Field station. Red dots and shading show outline of most abundant areas.

Figure 2. Flags mark *L. hololeuca* distribution on Road G near its intersection with Road C.

Figure 3. Close up of plants found on the side of Road G.

Figure 4. Plants along the Main Road only occur at the edges where gravel is thinner or not present.

Escobar Gate/ Road F occurrence (39,000 plants estimated)

Plant distribution/habitat: The largest area of occurrence is about a 9873.47 square meter area of the grassland hillside (figure 6) north of Road F starting at 37.400229949 -122.2112727040 then spreading west and north. There is a relatively clear boundary where the occurrence ends along the hillside, but there are 25 outliers in the middle of the grassland portion where no other *L. hololeuca* exist. Plants also are dispersed along Road F, Trail 15, a mowing trail west of Trail 17, and deer trails as seen in figure 5. Associated plants in the area include *Elymus multisetus* (dominant), *Melica californica, Koeleria macrantha, Stipa lepida* (dominant), *Epilobium* sp., *Hemizonia congesta* ssp. *luzulifolia* (dominant), and a small patch of *Eriogonum luteolum* var. *luteolum* (in a disturbed area of the grassland).

Hillside North of Road F:

Hillside density was estimated by counting the number of plants in 16 separate square meter plots along two transects (one east to west, one north to south) near the center of the occurrence. The south to north transect was stared 100 feet from the east end of the road F occurrence, and the middle of the east to west transect was established at the 50 meter point of the north south transect to create a "+" design. Two 1x1 meter plots were counted at every 25 meters. We did not have the Trimble with us that day so transect coordinates were not recorded.
Density = $\frac{30 \text{plants}}{}$=1.875 plants/$m^2$

$16m^2$

Estimated number of plants on the hillside = 9873.47 m^2 x 1.875 plants/ m^2 = 18,513

Road F:

Plant density on the road F was estimated to be a lot greater than on the hillside, but the plants were smaller and more prostrate:

Road F plant density = $\frac{315 \text{ plants}}{4 \text{ m}^2}$ = 78.75 plants/m^2

The estimated count for Road F was 252.4 m^2 x 78.75 plants/ m^2 = 19,876.5 plants. Some outliers (10) were observed 22 m west of the main occurrence along road F.

Other Roads and Trails Near Hillside Occurrence:

There were 329 plants along a small stretch of Trail 15, and 44 plants along a mowing Trail west of Trail 17. The total number of plants in the area is estimated to be about 38,797.5.

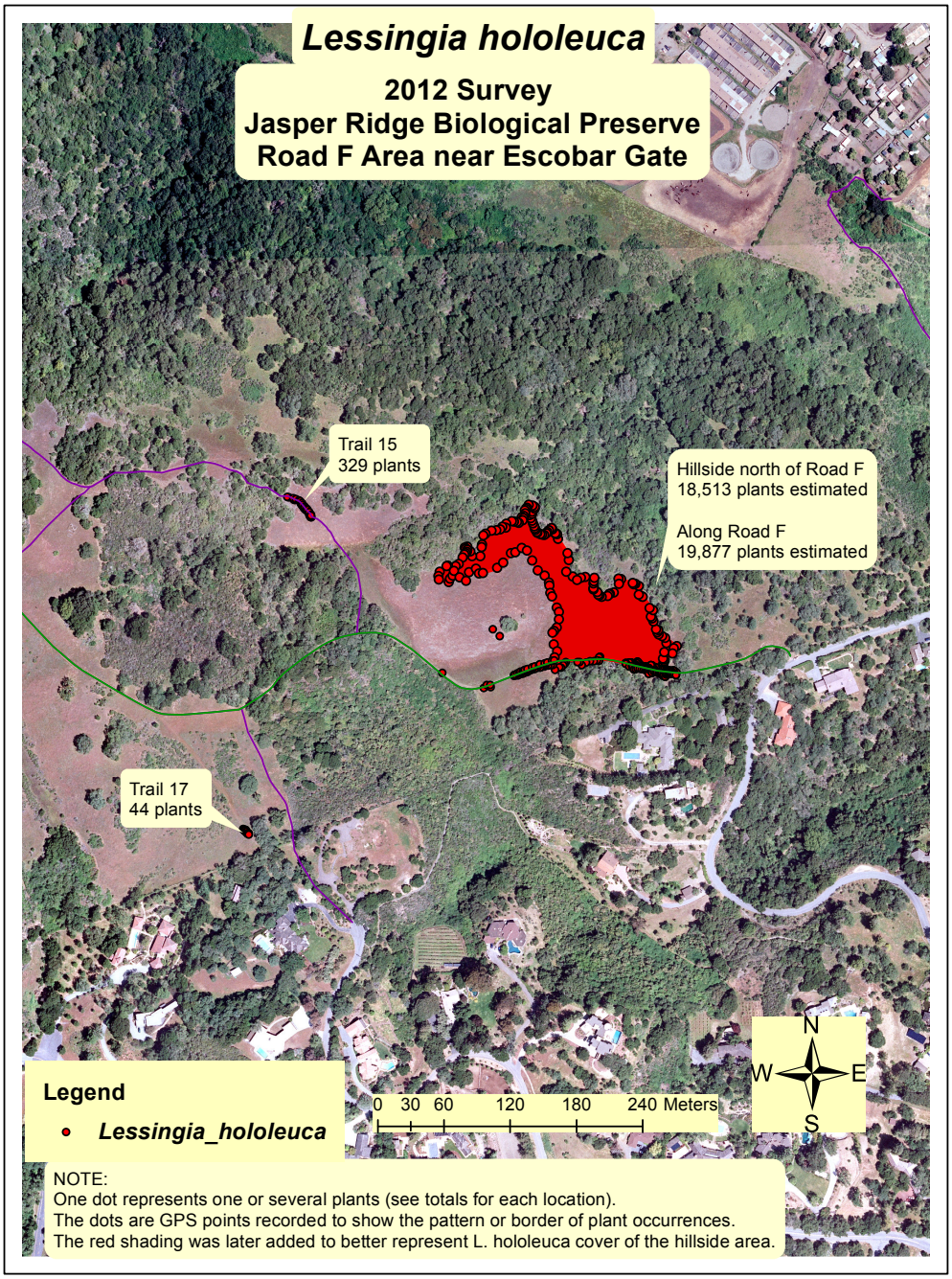

Figure 5. *L. hololeuca* occurrence (red shading and dots) on hillside north of Road F, along Road F, Trail 15, and Trail 17 (west) near Escobar gate.

Figure 6. Alice, Ann, and Diane scoping out the extent of the hillside occurrence (border marked by flags where coordinates where recorded).

Figure 7. *L. hololeuca* in fruit on 9/20/2012 on Road F.