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## MEMORANDUM

TO: Robert Fletcher, San Diego Gas & Electric

FROM: Melissa Busby, Busby Biological Services, Inc.

DATE: October 29, 2014

RE: Response to Data Request 105: Provide a habitat assessment for the thread-leaved brodiaea (Bf; *Brodiaea filifolia*).

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The California Public Utilities Commission (CPUC) has identified data needs for the proposed San Diego Gas & Electric Company (SDG&E) Sycamore to Peñasquitos 230 Kilovolt Transmission Line Project (Proposed Project), Application No. 14-04-011. Data Request 105 states the following:

***“Provide a habitat assessment for the thread-leaved brodiaea (Bf; Brodiaea filifolia).***

*The [Proponent’s Environmental Assessment (PEA)] indicates that the [Biological Survey Area (BSA)] is outside of the known range of Bf. Several occurrences of Bf were shown on Figure 6 of Appendix A, however, and the June 27, 2014, Special-Status Plant Survey Summary Report for the Project (prepared by Busby and Rocks) documents Bf in the BSA in close proximity to the alignment (page 11 of Figure 3).*

*A habitat assessment for this species needs to be completed to identify areas where the species has potential to occur in the BSA, based on appropriate soils, vegetation communities, and any other habitat requirement for this species. Provide GIS data of the potential Bf habitat areas based on a field assessment and a write-up of how the habitat assessment was completed.”*

To respond to this data request, Busby Biological Services, Inc. (BBS) and Rocks Biological Consulting, Inc. (RBC) have:

- analyzed the available data for thread-leaved brodiaea
- conducted a focused habitat assessment within the BSA to map areas of suitable habitat

This memorandum provides a brief description of thread-leaved brodiaea followed by a summary of the methods and results used for this task. This information is intended to supplement the information provided in the Biological Technical Report (BTR) prepared for

the Proposed Project (BBS 2014a). For additional information pertaining to the biological resources associated with the Proposed Project, please refer to the BTR.

### **THREAD-LEAVED BRODIAEA – SPECIES INFORMATION**

Thread-leaved brodiaea is listed as a federally listed threatened species, a state-listed endangered species, a California Rare Plant Rank (CRPR) 1B.1 species, and an *SDG&E Subregional NCCP*-covered species. This species is a perennial, bulbiferous herb that regrows annually from an underground corm. Typically, not all thread-leaved brodiaea individuals in a population emerge and/or flower each year. Thus, many non-emergent corms remain dormant below the ground.

Thread-leaved brodiaea is typically found in habitats that range from grasslands to ephemeral wetlands, such as vernal pools at low elevations, and meadows in montane habitat (CNPS 2014). Specifically, this species occurs in open areas within herbaceous communities, including valley needlegrass grassland, valley sacaton grassland, nonnative grassland, alkali playa, southern interior basalt vernal pools, San Diego mesa hardpan vernal pools, and San Diego mesa claypan vernal pools. It often grows in interstitial areas (often narrow bands of habitat surrounded by other vegetation) in association with coastal sage scrub in some locations when suitable soils and site conditions are present. Thread-leaved brodiaea is associated with clay soils, subsurface clay soils, or clay lenses within loamy, silty loam, loamy sand, silty deposits with cobbles, or alkaline soils (USFWS 2009).

Thread-leaved brodiaea is distributed in southern California from San Diego to Los Angeles counties and east to the San Bernardino Mountains. Thread-leaved brodiaea occurs at elevations ranging from 80 feet to 2,400 feet above mean sea level in San Diego County.

Threats to thread-leaved brodiaea include loss of habitat from urbanization, agricultural conversion, alteration of hydrology and impacts from livestock grazing, unauthorized off-highway vehicles (OHV), discing for fire suppression, and competition from nonnative plants. Thread-leaved brodiaea was state-listed as endangered in 1982 (CNPS 2014) and federally listed as threatened in 1998. When the species was listed in 1998, there were only 39 extant occurrences; however, by 2009 this number increased to about 68 extant occurrences (USFWS 2009).

Thread-leaved brodiaea was found in one location within the BSA adjacent to a known historical location (CNDDDB occurrence 89, Figures 1 and 2), which is the southern-most record for this species across its entire range (Figure 1). Approximately 62 flowering individuals were observed growing in clay soils, within a mix of native and non-native grassland, at the City of San Diego's Black Mountain Open Space Preserve. However, as discussed above, many non-flowering corms remain dormant underground during each blooming period. As such, the population size is often much larger than the number of individuals observed flowering. Additional potentially suitable habitat occurs within the BSA

(Figures 1 through 3) in locations where thread-leaved brodiaea was not observed during previous special-status plant species surveys.

## **METHODS**

To evaluate the potential for thread-leaved brodiaea to occur within the BSA, a literature and database review was performed, the special status-plant species survey summary report prepared for the Proposed Project (BBS 2014b) was reviewed, and a focused habitat assessment was conducted in the BSA. The methods for each of these are described in detail below.

### **Literature & Database Review**

A literature review for thread-leaved brodiaea was conducted to supplement the information provided in the BTR (BBS 2014a). In addition, historical occurrence databases (e.g., CNDDDB, SanGIS, SDG&E's internal Sunrise Powerlink) were searched and other references were consulted to better understand the historical location data and distribution of this species in San Diego County.

### **Special-Status Plant Species Surveys Conducted for the Proposed Project**

Focused special-status plant species surveys were conducted for the Proposed Project by walking meandering transects throughout the BSA, which includes (1) a 500-foot-wide survey corridor along the approximately 16.5-mile alignment, (2) the existing Sycamore Canyon and Peñasquitos Substations, and (3) the proposed Sycamore and Stowe construction yards. These surveys included three survey rounds – one in fall 2013, one in early spring 2014, and one in late spring 2014.

Thread-leaved brodiaea was included in the target species list for the focused special-status plant species surveys conducted for the Proposed Project. Areas with suitable clay soils were assessed during the special-status plant species surveys for potentially suitable habitat by highly qualified botanists who are familiar with this species and its phenology. No focused habitat assessment was conducted for thread-leaved brodiaea during the three previous surveys; however, botanists noted the locations of clay soils in the alignment because of their high potential to support many special-status species, including thread-leaved brodiaea.

### **Focused Habitat Assessment in BSA**

A focused habitat assessment for special-status plant species was conducted in fall 2014 to evaluate the BSA, including areas previously surveyed for special-status plant species and areas that were not previously surveyed areas that are part of the Proposed Project but that were not included in the original BSA. During these focused habitat assessments, potentially suitable habitats with clay soils in grassland vegetation communities were

assessed for the potential to support thread-leaved brodiaea. Suitable habitats were mapped in the field using aerial imagery of the BSA (1 inch = 200 feet) and handheld Global Positioning Systems (GPS) units. Suitable habitat areas were digitized using Google™ Earth based on field notes and waypoints collected in the field.

## **RESULTS**

The results of the literature and database review, special-status plant species survey summary report review, and the focused habitat assessment in the BSA are provided, below.

### **Literature & Database Review**

The results of the detailed literature and database review were used to prepare the thread-leaved brodiaea species information provided above. CNDDDB occurrence 89 – which was inadvertently overlooked during the initial fall 2013 assessment – is located adjacent to the eastern boundary of the BSA (Figure 1), and a new population of thread-leaved brodiaea was documented within the BSA during the late spring 2014 plant surveys (Figure 2). Extant CNDDDB occurrences 66, 70, 84, and 90 also occur north of the BSA, within approximately 5 miles of the BSA.

### **Focused Special-Status Plant Species Surveys Conducted for the Proposed Project**

All suitable thread-leaved brodiaea habitat was surveyed during the fall 2013, early spring 2014, and late spring 2014 surveys. Thread-leaved brodiaea was found in one location within the BSA adjacent to a known location (CNDDDB occurrence 89), which is located outside of and adjacent to the BSA. Approximately 62 flowering individuals were observed growing in deep clay soils, within a mix of native and non-native grassland, at the City of San Diego's Black Mountain Open Space Preserve.

### **Focused Habitat Assessment in BSA**

Suitable thread-leaved brodiaea habitat, specifically appropriate clay soils, was mapped during the fall 2014 focused habitat assessment. All of the thread-leaved brodiaea suitable habitat included clay soils in grassland habitat adjacent to coastal sage scrub.

Based on the suitable habitat mapping, approximately 4.49 acres of suitable habitat were mapped at two primary locations, in the Black Mountain Open Space Preserve (Figure 2) and near the junction of Carmel Valley Road and Black Mountain Road (Figure 3). These areas include both the areas where thread-leaved brodiaea was observed during the spring 2014 surveys (Figure 2) as well as areas within the BSA that support suitable habitat but where thread-leaved brodiaea was not observed during the previous surveys. Photographs 1 through 3, below, provide examples of suitable habitat within the BSA. No suitable

habitat was identified during the fall 2014 habitat assessment in areas that were previously not surveyed.

Photograph 1, below, shows thread-leaved brodiaea in bloom in the Black Mountain Open Space Preserve. This photograph was taken on May 12, 2014, during the focused special-status plant species surveys conducted for the Proposed Project.



**Photograph 1:** Thread-leaved Brodiaea (Spring 2014)

Photograph 2, below, shows potentially suitable thread-leaved brodiaea habitat within the Black Mountain Open Space Preserve. This photograph was taken during the fall 2014 habitat assessment. The green arrow indicates the location of the thread-leaved brodiaea population that was observed during the spring 2014 focused special-status plant species surveys. The red arrows point to potentially suitable habitat where thread-leaved brodiaea was not observed during any of the focused special-status plant species surveys conducted for the Proposed Project.



**Photograph 2:** Black Mountain Open Space Preserve (Fall 2014)

Photograph 3, below, shows the potentially suitable thread-leaved brodiaea habitat that was identified during the fall 2014 habitat assessment near the junction of Black Mountain Road and Carmel Valley Road. This photograph was taken during the fall 2014 habitat assessment. No thread-leaved brodiaea was observed in this suitable habitat during the special-status plant species surveys conducted for the Proposed Project.



**Photograph 3:** Black Mountain Road and Carmel Valley Road (Fall 2014)

## **DISCUSSION**

As discussed above, not all individuals of thread-leaved brodiaea emerge and/or flower each year. Many corms remain dormant underground and are not observable during focused special-status plant species surveys. As such, a thread-leaved brodiaea population is often much larger than the number of individuals observed.

Thread-leaved brodiaea was found in one location within the BSA adjacent to a known historical location located outside of and adjacent to the BSA (CNDDDB occurrence 89, Figures 1 and 2), which is the southern-most record for this species across its entire range (Figure 1). Approximately 62 flowering individuals were observed growing in clay soils, within a mix of native and non-native grassland, at the City of San Diego's Black Mountain Open Space Preserve. However, the population size is likely much larger based on the phenology of the species, which is described above.

Additional potentially suitable habitat occurs within the BSA (Figures 1 through 3). These areas were surveyed during the previous special-status plant species surveys and were assessed during the fall 2014 habitat assessment, thread-leaved brodiaea was not observed during any of these survey efforts.

## REFERENCES

Busby Biological Services, Inc. (BBS)

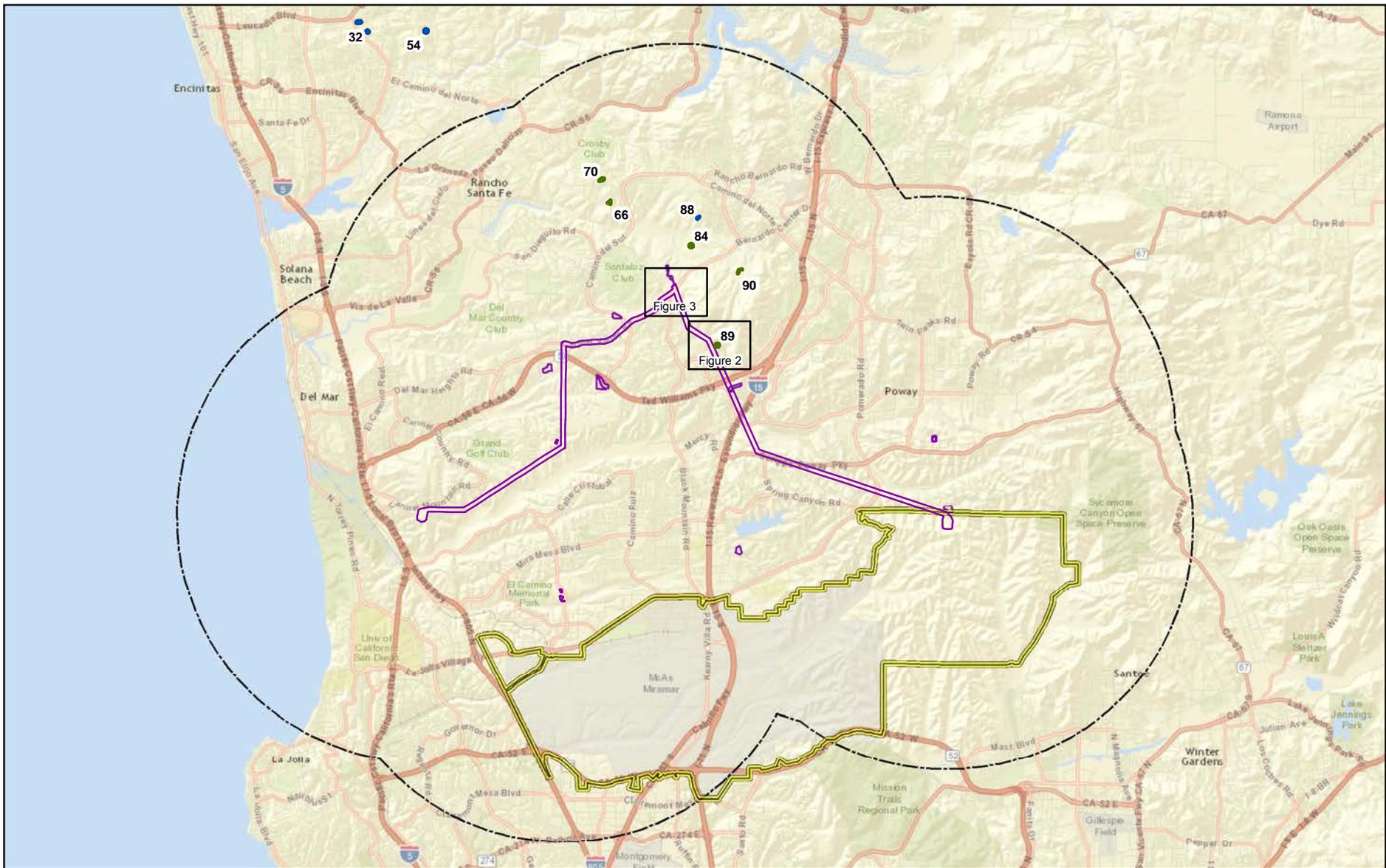
- 2014a Biological Technical Report for Sycamore to Peñasquitos 230 Kilovolt Transmission Line Project, City of San Diego, San Diego County, California. March 2014.
- 2014b Special-Status Plant Survey Summary Report for the Proposed San Diego Gas & Electric Company Sycamore to Peñasquitos 230 Kilovolt Transmission Line Project, San Diego County, California. June 2014.

California Native Plant Society (CNPS)

- 2014 Rare Plant Program. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website <http://www.rareplants.cnps.org> [accessed 20 October 2014].

U.S. Fish and Wildlife Service (USFWS)

- 2009 *Brodiaea filifolia* (thread-leaved brodiaea). Carlsbad Fish and Wildlife Office, CA August 13, 2009. 47 pgs.



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## Sycamore to Peñasquitos 230 kV Transmission Line Project Historical *Brodiaea filifolia* Locations

Figure 1

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- |   |                             |  |                          |
|---|-----------------------------|--|--------------------------|
|  | Extirpated CNDBB Occurrence | #  | CNDBB Occurrence Number  |
|  | Extant CNDBB Occurrence     |  | BSA                      |
|  | MCAS Miramar                |  | 5-Mile Buffer Around BSA |

0 2 4 6 Miles





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**Sycamore to Peñasquitos 230 kV Transmission Line Project**  
 Suitable Habitat for *Brodiaea filifolia* in BSA

**Figure 2**

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-  BSA
-  Suitable Habitat # CNDDB Occurrence Number
-  Population of *Brodiaea filifolia* documented during 2014 plant surveys
-  Extant CNDDB Occurrence

0 200 400 600 Feet



Sources: CNDDB October 2014 Database, CA Dept. Fish and Wildlife; Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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**Sycamore to Peñasquitos 230 kV Transmission Line Project**  
 Suitable Habitat for *Brodiaea filifolia* in BSA

**Figure 3**

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- BSA
- Suitable Habitat

0 200 400 600 Feet



Sources: CNDDB October 2014 Database, CA Dept. Fish and Wildlife; Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community