

PLANT COMMUNITIES

Below are brief descriptions of each of the alliances and associations observed within the WOD Project survey area, following the CNPS's *Manual of California Vegetation [MCV]* (Sawyer et al. 2009). Taxonomic nomenclature follows Flora of North America Editorial Committee (1993+) and *The Jepson Manual* (Baldwin et al. 2011).

Thirty-one alliances were observed within the WOD study area, subdivided into 92 associations. The alliances are described below, listed alphabetically, with each association also listed alphabetically. Figure 4, Sheets 1 through 11, Vegetation Alliances, illustrates the location of the alliances.

Herbaceous Communities

Herbaceous communities include alliances, stands, and associations that are dominated by, and almost exclusively, herbaceous, non-woody plants. Communities with woody dominants, even when they contain significant amounts of herbaceous species, are included under Shrubland or Woodland communities.

Herbaceous communities found in the WOD Project survey area are divided into two groups: forblands and grasslands. The alliances and stands are: *Amsinckia* Herbaceous Alliance, California Herblands, *Corethrogyne filaginifolia* Herbaceous Alliance, *Croton californicus* Herbaceous Alliance, *Brassica* and Other Mustards Semi-Natural Herbaceous Stands, *Bromus* Semi-natural Herbaceous Stands, and *Juncus mexicanus* Herbaceous Alliance.

Forblands

Forblands are areas dominated by forbs with sparse or no shrubs or trees. Some nonnative stands contain a diversity of native species (Sawyer et al. 2009). The most abundant forblands were dominated by Summer (or Short-podded) Mustard classified under the alliance "Upland Mustards". These were scattered, mostly on slopes throughout the chaparral and coastal sage scrub. In flatter areas, a few "Yellow Star-thistle Fields" (*Centaurea solstitialis*) were mapped.

Other common species in forblands were *Helianthus annuus*, *Lactuca serriola*, *Centaurea melitensis*, *Eremocarpus setigerus*, *Trichostemma lanceolatum*, *Bromus diandrus*, and *Bromus hordeaceus*. One wetter area included: *Silybum marianum*, *Cirsium vulgare*, *Urtica dioica*, *Juncus* spp., *Hirschfeldia incana*, and *Arundo donax*.

***Amsinckia* Herbaceous Alliance**

Amsinckia Herbaceous Alliance (Fiddleneck Fields) is a seasonal community dominated by *Amsinckia intermedia* (with greater than 10% relative cover) and numerous native and naturalized annual and perennial forbs and grasses. This alliance occupies upland slopes and valleys, and fallow fields with well-drained loamy soils. *Amsinckia* Herbaceous Alliance has a Global and State Rarity ranking of G4/S4 (Sawyer et al. 2009).

Two associations of *Amsinckia* Herbaceous Alliance were observed within the WOD Project survey area, neither of which has been formally described (Sawyer et al. 2009):

- *Amsinckia-Phacelia distans* Association
- *Amsinckia intermedia-Plagiobothrys* Association

California Herblands

California Herblands within the WOD Project survey area consists of the three associations listed below. These stands are generally of low stature, below 1 m high and may be found in open areas in foothills and forests and rangelands. Emergent trees or shrubs may be present at low cover (Sawyer et al. 2009).

- *Cryptantha-Chamaesyce albomarginata* Association
- *Plagiobothrys-Avena barbata-Bromus diandrus* Association
- *Deinandra-Erodium-Schismus* Association

Corethrogyne filaginifolia Herbaceous Alliance

Corethrogyne filaginifolia Herbaceous Alliance consists of herbaceous vegetation dominated by *Corethrogyne filaginifolia*. These stands are generally of low stature, below 1 m high and may be found in open areas in foothills and forests and rangelands. Emergent trees or shrubs may be present at low cover (Sawyer et al. 2009).

One association of *Corethrogyne filaginifolia* Herbaceous Alliance has been observed within the WOD Project survey area:

- *Corethrogyne filaginifolia/Avena barbata-Eremocarpus setigerus* Association

Croton californicus Herbaceous Alliance

Croton californicus Herbaceous Alliance consists of herbaceous vegetation dominated by *Croton californicus*. These stands are generally of low stature, below 1 m high and may be found in open areas in foothills and forests and rangelands. Emergent trees or shrubs may be present at low cover (Sawyer et al. 2009).

One association of *Croton californicus* Herbaceous Alliance has been observed within the WOD Project survey area:

- *Croton californicus/Bromus diandrus* Association

Brassica and Other Mustards Semi-Natural Herbaceous Stands

Brassica and Other Mustards Semi-Natural Herbaceous Stands consist of herbaceous vegetation dominated by various nonnative mustard forbs, mostly annual and biennial species, including *Brassica nigra*, *B. rapa*, *B. tournefortii*, *Hirschfeldia incana*, *Isatis tinctoria*, or *Raphanus sativus*. Most of these species are invasive exotics. These stands are generally of low stature, below 3 m high; however, *Brassica nigra* often attains a height of 3 m. Emergent shrubs may be present but only at low relative and absolute cover. The nonnative herbs clearly dominate the landscape. These

stands occupy fallow fields, grasslands, roadsides, disturbed scrublands, riparian areas, and other waste places.

Brassica and Other Mustards Semi-Natural Herbaceous Stands within the WOD Project survey area consists of two associations:

- *Brassica tournefortii* Association
- *Hirschfeldia incana* Association

Grasslands

Grasslands are similar to forblands, but with a much higher grass component. Most grasslands encountered were scattered in flatter areas throughout the chaparral and coastal sage scrub. In desert areas they were dominated by *Bromus madritensis* ssp. *rubens* and *Schismus arabicus* and classified under the alliance “Non-native grassland.” Chaparral and coastal sage scrub areas were dominated by *Bromus diandrus*, *B. hordeaceus*, and/or *Avena barbata* and classified under the alliances “Annual brome grasslands” and “Wild oats grasslands.” Like the forblands, it was difficult to assess what species may have occurred on these in the spring. Some non-native stands contain a diversity of native species (Sawyer et al. 2009). Properly timed surveys may be needed to detect these.

***Bromus* Semi-Natural Herbaceous Stands**

Bromus Semi-natural Herbaceous Stands consist of grasslands where *Bromus* species are dominant or co-dominant. These stands are generally of low stature, below 1 m high and may be found in open areas in foothills and forests, rangelands, and waste places. Emergent trees or shrubs may be present at low cover (Sawyer et al. 2009).

Bromus Semi-natural Herbaceous Stands within the WOD Project survey area consist of 6 associations:

- *Avena barbata*-*Bromus diandrus*-*Brassica tournifortii* Association
- *Bromus diandrus*-*Amsinckia intermedia* Association
- *Bromus diandrus*-*Brassica tournefortii* Association
- *Bromus diandrus*-*Eremocarpus setigerus* Association
- *Bromus diandrus*-*Hirschfeldia incana* Association
- *Ricinus communis*/*Datura wrightii*-*Hirschfeldia incana* Association

***Juncus mexicanus* Herbaceous Alliance**

Juncus mexicanus Herbaceous Alliance consists of grasslands where *Juncus mexicanus* is dominant or co-dominant. These stands are generally of low stature, below 1 m high. This alliance and related associations are found in wet and mesic meadows and along wetlands and water bodies. Emergent trees or shrubs may be present at low cover (Sawyer et al. 2009).

Juncus mexicanus Herbaceous Alliance within the WOD area contains this association:

- *Carex*-*Juncus mexicanus* Association

Shrubland Communities

Shrubland communities are vegetation alliances dominated by woody shrubs. Three basic types of shrubland community types are found in the WOD Project survey area: chaparral, coastal sage scrub, and desert scrub.

Chaparral

Chaparral consists of dense evergreen shrubs with distinctive sclerophyllous leaves, which are small, stiff, and thick. Four different alliances and one ambiguous group of chaparral were mapped within the WOD Project area: “Chamise Chaparral”, “Hoaryleaf Ceanothus Chaparral”, “Scrub Oak – Chamise Chaparral”, “Sugarbush Chaparral”, and “Mixed Mesic Chaparral”. These habitats are found primarily on the north facing slopes and hilltops. Chaparral is most common in the central part of the Project Area and forms a mosaic with Coastal Sage Scrub, forblands, and grasslands throughout the western third of the Project Area. Much of these areas are disturbed by fire and invasive species.

The “Chamise Chaparral” alliance was dominated by *Adenostoma fasciculatum* with associated species including *Ceanothus oliganthus*, *Rhus ovata*, and *Salvia mellifera*. The “Hoaryleaf Ceanothus Chaparral” alliance was dominated by *Ceanothus crassifolius* and *Adenostoma fasciculatum* in a mosaic with *Quercus berberidifolia*, *Salvia mellifera*, *Rhus ovata*, and *Ceanothus oliganthus*. The “Scrub Oak – Chamise Chaparral” alliance was dominated by *Quercus berberidifolia* and *Adenostoma fasciculatum* with associated species including: *Artemisia californica*, *Rhamnus crocea*, *Cercocarpus betuloides*, *Rhus ovata*, and *Rhus trilobata*. The “Sugarbush Chaparral” alliance was dominated by *Rhus ovata* with associated species including: *Artemisia californica*, *Keckiella antirrhinoides*, *Adenostoma fasciculatum*, and *Heteromeles arbutifolia*. The “Mixed Mesic Chaparral” group was a mosaic of “Californian Mesic Chaparral” species usually growing in a mosaic that did not clearly fit in the MCV classification. Common shrub species associated with this group included: *Fraxinus dipetala*, *Rhamnus crocea*, *Rhamnus ilicifolia*, *Heteromeles arbutifolia*, *Keckiella cordifolia*, *Eriogonum fasciculatum* ssp. *foliolosum*, *Rhus ovata*, *Artemisia californica*, *Adenostoma fasciculatum*, and *Salvia mellifera*.

Adenostoma fasciculatum Shrubland Alliance

Adenostoma fasciculatum Shrubland Alliance (Chamise Chaparral) is a typical chaparral plant community dominated by *Adenostoma fasciculatum* var. *fasciculatum* as the primary and characteristic shrub species, with over 60% relative cover occupied by *Adenostoma fasciculatum*. *Adenostoma fasciculatum* is the most common chaparral community in California and grows to just under 4 m high and 3 m wide. *Adenostoma fasciculatum* is pre-adapted to fire and typically resprouts from a lignotuber following wildfires. The canopy of this alliance is continuous to intermittent, with a sparse to intermittent herbaceous layer. *Adenostoma fasciculatum* Shrubland Alliance is common in California with a Global and State Rarity ranking of G5/S5. Several other alliances with *Adenostoma fasciculatum* as a dominant are also described.

Two associations of *Adenostoma fasciculatum* Shrubland Alliance occur within the WOD Project survey area, both consisting of vernal herbaceous species, and can be lumped into the *Adenostoma fasciculatum*/annual grass-forb Association (Sawyer et al. 2009).

- *Adenostoma fasciculatum/Bromus diandrus* Association
- *Adenostoma fasciculatum/Cryptantha* Association

***Adenostoma fasciculatum/Artemisia californica* Shrubland Alliance**

Adenostoma fasciculatum/Artemisia californica Shrubland Alliance is similar to *Adenostoma fasciculatum* Shrubland Alliance; however, it is also dominated nearly equally with *Artemisia californica*, a summer-deciduous open, gray-colored, narrow-leaved shrub to 1.5 m high. This alliance is more open structurally than *Adenostoma fasciculatum* Shrubland Alliance.

Eight associations of *Adenostoma fasciculatum/Artemisia californica* Alliance were observed within the WOD Project survey area:

- *Adenostoma fasciculatum/Artemisia californica/Centaurea melitensis* Association
- *Adenostoma fasciculatum/Artemisia californica-Hesperoyucca whipplei* Association
- *Adenostoma fasciculatum/Artemisia californica/Poa secunda* Association
- *Adenostoma fasciculatum/Artemisia californica-Rhus ovata* Association
- *Artemisia californica/Adenostoma fasciculatum/Eriogonum fasciculatum foliolosum* Association
- *Artemisia californica/Adenostoma fasciculatum-Heteromeles arbutifolia* Association
- *Artemisia californica/Adenostoma fasciculatum-Rhus ovata* Association
- *Adenostoma fasciculatum/Artemisia californica-Salvia mellifera* Association

***Adenostoma fasciculatum-Ceanothus perplexans* Shrubland Alliance**

Adenostoma fasciculatum-Ceanothus perplexans Shrubland Alliance is similar to *Adenostoma fasciculatum* Shrubland Alliance; however, it is also dominated nearly equally with *Ceanothus perplexans*, a large white-flowered, thick-leaved evergreen shrub to 4 m high and wide.

Three associations of *Adenostoma fasciculatum-Ceanothus perplexans* Shrubland Alliance were observed within the WOD Project survey area:

- *Adenostoma fasciculatum-Ceanothus perplexans* Association
- *Adenostoma fasciculatum-Ceanothus perplexans-Fraxinus dipetala* Association
- *Adenostoma fasciculatum-Ceanothus oliganthus* var. *sorediatus-Ceanothus perplexans* Association

***Adenostoma fasciculatum/Eriogonum fasciculatum* Shrubland Alliance**

Adenostoma fasciculatum-Eriogonum fasciculatum Shrubland Alliance is similar to *Adenostoma fasciculatum* Alliance except that *Eriogonum fasciculatum* var. *foliolosum* occurs as a dominant subshrub about as common as *Adenostoma fasciculatum*. *Eriogonum fasciculatum* var. *foliolosum* is a narrow-leaved, grayish-green-colored shrub to 0.8 m high with dense glomerules of white to pinkish flowers that occur on long stems above the body of the shrub. It is an important source of nectar for a wide variety of invertebrate species.

Adenostoma fasciculatum-Eriogonum fasciculatum Alliance occurs within the WOD Project survey area as one association:

- *Adenostoma fasciculatum/Eriogonum fasciculatum foliolosum* Association

***Adenostoma fasciculatum/Salvia mellifera* Shrubland Alliance**

Adenostoma fasciculatum/Salvia mellifera Shrubland Alliance is similar to *Adenostoma fasciculatum* Alliance; however, it is also dominated nearly equally with *Salvia mellifera*, an evergreen/summer-deciduous open, dark-green-colored, broad-leaved shrub to 2 m high. *Salvia mellifera* is typically a dominant of Coastal Sage Scrub alliances. It has strongly fragrant leaves and whitish/pale blue flowers arranged in dense glomerules on long peduncles. *Adenostoma fasciculatum/Salvia mellifera* Shrubland Alliance has a Global and State Rarity ranking of G5/S5, and is common in California. It ranges from the San Francisco Bay Area south to Baja del Norte, Mexico within the coastal ranges of central and southern California (Sawyer et al. 2009). This alliance is more open structurally than *Adenostoma fasciculatum* Alliance.

One association of *Adenostoma fasciculatum/Salvia mellifera* Alliance was observed within the WOD Project survey area:

- *Adenostoma fasciculatum/Salvia mellifera-Rhamnus ilicifolia* Association

Coastal Sage Scrub

Coastal Sage Scrub is dominated by low-statured, drought-deciduous shrubs and subshrub species. The composition of this community frequently varies depending upon the successional stage and physical circumstances of the area in which it occurs. Seven alliances and one tentative alliance of coastal sage scrub were mapped in the Project Area: “Black Sage Scrub”, “Brittlebush Scrub”, “Bush Penstemon Scrub”, “California Buckwheat Scrub”, “California Sagebrush – Black Sage Scrub”, “California Sagebrush Scrub”, “California Sagebrush – California Buckwheat Scrub”, and “Redberry Buckthorn – Black Sage Scrub”. The “Brittlebush Scrub” grows in two different habitat types, the other being desert slopes. Coastal Sage Scrub is primarily found on slopes and hilltops in the western third of the Project Area where it forms a mosaic with chaparral, grasslands, and forblands. Much of these areas are disturbed by fire and invasive species. For the most part, the Coastal Sage Scrub alliances observed list the dominant species in their name. The exception is “Bush Penstemon scrub”, which was often dominated by *Keckiella antirrhinoides*, but was also frequently codominant with *Artemisia californica* and had associated species including *Salvia mellifera*, *Heteromeles arbutifolia*, *Cercocarpus betuloides*, *Rhus ovata*, and *Rhus trilobata*. The “Bush Penstemon Scrub” community type is of conservation concern and is rated G3/S3 by CDFG (2009a), meaning that it is considered vulnerable and at moderate risk of extinction. The “Redberry Buckthorn – Black Sage Scrub” tentative alliance didn’t fit well with any of the alliances within MCV. It usually was dominated by *Rhamnus crocea* and/or *Salvia mellifera* with *Artemisia californica* and/or the forb *Acourtia microcephala* as common associated species.

***Artemisia californica* Shrubland Alliance**

Artemisia californica Shrubland Alliance is dominated or co-dominated by *Artemisia californica*. Annuals within this alliance may vary seasonally and annually. Taller shrubs like *Rhus integrifolia* and *Sambucus nigra* may be present in low abundance; the canopy is less than 2 meters (m) high

unless taller shrub species are present in which case the canopy is less than 5 m high. This alliance is found on steep slopes with shallow soils (Sawyer et al. 2009).

Two *Artemisia californica* Shrubland Alliance associations were observed during the botanical surveys.

- *Artemisia californica/Bromus* Association
- *Artemisia californica/Phacelia distans* Association

***Artemisia californica-Salvia mellifera* Shrubland Alliance**

Artemisia californica-Salvia mellifera Shrubland Alliance is dominated or co-dominated by *Artemisia californica* and *Salvia mellifera*. The canopy is usually less than 2 m high unless emergent taller shrubs like *Rhus integrifolia*, *Malosma laurina*, or *Rhus ovata* are present. This alliance is found on steep, east to southwest-facing slopes (Sawyer et al. 2009).

One *Artemisia californica-Salvia mellifera* Shrubland Alliance was found during the botanical surveys:

- *Artemisia californica-Salvia mellifera/Phacelia distans* Association

***Ceanothus perplexans* Shrubland Alliance**

Ceanothus perplexans Shrubland Alliance is dominated or co-dominated by *Ceanothus perplexans*. The canopy is usually less than 2 m high. This alliance is found on steep slopes with shallow soils (Sawyer et al. 2009).

One *Ceanothus perplexans* Shrubland Alliance was found during the botanical surveys:

- *Ceanothus perplexans/Artemisia californica-Salvia mellifera* Association

***Encelia farinosa* Shrubland Alliance**

Encelia farinosa Shrubland Alliance is dominated or co-dominated by *Encelia farinosa* in the shrub canopy. The canopy is usually less than 2 m high. This alliance is found on well-drained, rocky soils and occurs in alluvial fans, bajadas, rock hillsides, and slopes of small washes (Sawyer et al. 2009).

Seventeen *Encelia farinosa* Shrubland Alliance associations were found during the botanical surveys:

- *Encelia farinosa* Association
- *Encelia farinosa-Ambrosia salsola/Bromus tectorum* Association
- *Encelia farinosa-Artemisia californica/Amsinckia intermedia* Association
- *Encelia farinosa-Artemisia californica/Hirschfeldia incana* Association
- *Encelia farinosa-Atriplex canescens-Ephedra viridis* Association
- *Encelia farinosa-Bahiopsis parishii/Selaginella eremophila* Association
- *Encelia farinosa/Amsinckia intermedia-Brassica tournefortii* Association
- *Encelia farinosa/Bromus diandrus* Association
- *Encelia farinosa/Centaurea melitensis* Association

- *Encelia farinosa*-*Cylindropuntia bigelovii* Association
- *Encelia farinosa*/*Eriogonum palmerianum* Association
- *Encelia farinosa*/*Eschscholzia* Association
- *Encelia farinosa*-*Larrea tridentata* Association
- *Encelia farinosa*/*Mirabilis californica* Association
- *Encelia farinosa*/*Phacelia distans* Association
- *Encelia farinosa*-*Prosopis glandulosa* Association
- *Encelia farinosa*-*Salazaria mexicana* Association

***Encelia farinosa*-*Eriogonum fasciculatum* Shrubland Alliance**

Encelia farinosa-*Eriogonum fasciculatum* Shrubland Alliance is dominated or co-dominated by *Encelia farinosa* and *Eriogonum fasciculatum* in the shrub canopy. The canopy is usually less than 2 m high. This alliance is found on well-drained, rocky soils and occurs in alluvial fans, bajadas, rock hillsides, and slopes of small washes (Sawyer et al. 2009).

Two *Encelia farinosa*-*Eriogonum fasciculatum* Shrubland Alliance associations were found during the botanical surveys:

- *Encelia farinosa*-*Eriogonum fasciculatum foliolosum* Association
- *Encelia farinosa*-*Eriogonum fasciculatum polifolium* Association

***Ericameria palmeri* Shrubland Alliance**

Ericameria palmeri Shrubland Alliance is dominated by *Ericameria palmeri* in the shrub canopy. The canopy is open and typically less than 1.5 m tall. There is a continuous herbaceous layer (Sawyer et al. 2009). This alliance is found on well-drained soils in flats and low slopes.

One *Ericameria palmeri* Shrubland Alliance association was found during the botanical surveys:

- *Ericameria palmeri*/*Rhamnus crocea* Association

***Eriogonum fasciculatum* Shrubland Alliance**

Eriogonum fasciculatum Shrubland Alliance is dominated by *Eriogonum fasciculatum* var. *foliolosum* in the shrub canopy. The canopy is continuous or intermittent and typically less than 2 m tall. The herbaceous layer is variable and may be grassy. This alliance is found in intermittently flooded arroyos, channels, and washes on well-drained soils (Sawyer et al. 2009).

Five *Eriogonum fasciculatum* Shrubland Alliance associations were found during the botanical surveys:

- *Eriogonum fasciculatum foliolosum*-*Acmispon glaber* Association
- *Eriogonum fasciculatum foliolosum*/*Adenostoma fasciculatum* Association
- *Eriogonum fasciculatum foliolosum*-*Lepidospartum squamatum* Association
- *Eriogonum fasciculatum foliolosum*/*Logfia filaginoides* Association
- *Eriogonum fasciculatum foliolosum*-*Salvia mellifera* Association

***Keckiella antirrhinoides* Shrubland Alliance**

Adenostoma fasciculatum/Keckiella antirrhinoides Shrubland Alliance is similar to *Adenostoma fasciculatum* Alliance except that *Keckiella antirrhinoides* occurs as a dominant subshrub about as common as *Adenostoma fasciculatum*. *Keckiella antirrhinoides* is a small-leaved, dark-green-colored shrub to 2.5 m high with inflorescences of deep yellow flowers. It is an important source of nectar for a wide variety of invertebrate species. The *Adenostoma fasciculatum/Keckiella antirrhinoides* Shrubland Alliance has not yet been formally described; however, it was found at several locations with the WOD Project survey area and mapped by GANDA.

The *Adenostoma fasciculatum/Keckiella antirrhinoides* Shrubland Alliance occurs within the WOD Project survey area as three associations:

- *Keckiella antirrhinoides-Adenostoma fasciculatum-Sambucus nigra* Association
- *Keckiella antirrhinoides/Bromus diandrus-Amsinckia intermedia* Association
- *Keckiella antirrhinoides/Eriogonum fasciculatum polifolium* Association

***Lepidospartum squamatum* Shrubland Alliance**

Lepidospartum squamatum Shrubland Alliance is dominated or co-dominated by *Lepidospartum squamatum* in the shrub canopy. The canopy is open to continuous and typically less than 2 m tall. The herbaceous layer is open variable and may be grassy. This alliance is found in intermittently or rarely flooded, low-gradient alluvial deposits along washes, streams, and fans (Sawyer et al. 2009).

Three *Lepidospartum squamatum* Shrubland Alliance associations were found during the botanical surveys:

- *Atriplex canescens-Lepidospartum squamatum-Ephedra californica* Association
- *Lepidospartum squamatum/Ambrosia dumosa-Acmispon glaber* Association
- *Lepidospartum squamatum-Ericameria paniculata* Association

***Rhamnus crocea* Shrubland Alliance**

Rhamnus crocea Shrubland Alliance is dominated or co-dominated by *Rhamnus crocea* in the shrub canopy. The canopy is open to continuous and typically less than 2 m tall. This alliance is found on gentle to abrupt slopes on loam or clay soils. This alliance has not yet been formally described (Sawyer et al. 2009).

Two *Rhamnus crocea* Shrubland Alliance associations were found during the botanical surveys:

- *Rhamnus crocea/Bromus diandrus-Phacelia distans* Association
- *Rhamnus crocea/Salvia apiana-Rhus trilobata* Association

***Rhus ovata* Shrubland Alliance**

Rhus ovata Shrubland Alliance is dominated or co-dominated by *Rhus ovata* in the shrub canopy. The canopy is open to continuous and typically less than 5 m tall. The herbaceous layer is sparse, and this alliance is found in uplands and steep slopes on shallow and coarse soils (Sawyer et al. 2009).

Three *Rhus ovata* Shrubland Alliance associations were found during the botanical surveys:

- *Rhus ovata-Adenostoma fasciculatum* Association
- *Rhus ovata-Heteromeles arbutifolia* Association
- *Salvia mellifera-Rhus ovata-Keckiella antirrhinoides* Association

***Rhus trilobata* Shrubland Alliance**

Rhus trilobata Shrubland Alliance is dominated or co-dominated by *Rhus trilobata* in the shrub canopy. The canopy is intermittent to continuous and typically less than 2 m tall. The herbaceous layer is grassy or open, and this alliance is found in stream terraces, shallow valleys, or in uplands (Sawyer et al. 2009). This alliance is called *Rhus trilobata* Provisional Shrubland Alliance by Sawyer et al. 2009.

One *Rhus trilobata* Shrubland Alliance association was found during the botanical surveys:

- *Rhus trilobata/Bromus diandrus* Association

***Toxicodendron diversilobum* Alliance**

Toxicodendron diversilobum Alliance is dominated or co-dominated by *Toxicodendron diversilobum* in the shrub canopy. The canopy is intermittent to continuous and typically less than 4 m tall. The herbaceous layer is variable, and this alliance is found in mesic hollows and disturbed dry slopes (Sawyer et al. 2009).

One *Toxicodendron diversilobum* Shrubland Alliance association was found during the botanical surveys:

- *Toxicodendron diversilobum/Bromus diandrus* Association

Desert Scrub

Desert Scrub plant communities are dominated and characterized by generally low-growing and widely spaced shrubs. Herbaceous species are generally ephemeral during the substantial rainfall occurs, and may be absent for several seasons until sufficient precipitation has occurred to stimulate germination. Herbaceous vegetation also consists of perennial herbs and grasses. Eight shrubland alliances found in desert habitats: *Ambrosia dumosa* Shrubland Alliance, *Encelia farinosa-Ephedra* Shrubland Alliance, *Ericameria paniculata* Shrubland Alliance, *Larrea tridentata* Shrubland Alliance, *Senegalia greggii* Provisional Shrubland Alliance, *Stillingia linearis* Shrubland Alliance, *Thamnosma montana* Shrubland Alliance, and *Yucca schidigera* Shrubland Alliance.

***Ambrosia dumosa* Shrubland Alliance**

Ambrosia dumosa Shrubland Alliance consists of widely scattered low-growing shrubs to less than 1 m high and 1 m wide. *Ambrosia dumosa* is a common dominant of the Mojave and Sonoran Deserts and abundant in the eastern reaches of the WOD Project survey area.

Two *Ambrosia dumosa* Shrubland Alliance associations were observed during the botanical surveys:

- *Ambrosia dumosa-Acmispon glaber-Thamnosma montana* Association

- *Ambrosia dumosa* Association

***Encelia farinosa-Ephedra* Shrubland Alliance**

Encelia farinosa-Ephedra Shrubland Alliance is dominated or co-dominated by *Encelia farinosa* and *Ephedra* in the shrub canopy. The canopy is usually less than 2 m high. This alliance is found on well-drained, rocky soils and occurs in alluvial fans, bajadas, rock hillsides, and slopes of small washes (Sawyer et al. 2009).

Three *Encelia farinosa* Shrubland Alliance associations were found during the botanical surveys:

- *Encelia farinosa-Ephedra californica* Association
- *Encelia farinosa-Ephedra viridis* Association
- *Salvia vaseyi-Ephedra californica-Encelia farinosa* Association

***Ericameria paniculata* Shrubland Alliance**

Ericameria paniculata Shrubland Alliance is dominated by *Ericameria paniculata* in the shrub canopy. The canopy is open and typically less than 5 m tall. There is an open herbaceous layer. This alliance is found in intermittently flooded arroyos, channels, and washes on well-drained soils (Sawyer et al. 2009).

Two *Ericameria paniculata* Shrubland Alliance associations were found during the botanical surveys:

- *Ericameria paniculata/Chilopsis linearis* Association
- *Ericameria paniculata/Eriogonum fasciculatum foliolosum* Association

***Larrea tridentata* Shrubland Alliance**

Larrea tridentata Shrubland Alliance is dominated by *Larrea tridentata* var. *tridentata* in the shrub canopy. The canopy is continuous or intermittent and typically less than 3 m tall. The herbaceous layer is open to intermittent with seasonal annuals or perennial grasses. This alliance is found in alluvial fans, bajadas, upland slopes and minor intermittent washes on well-drained soils (Sawyer et al. 2009).

Seven *Larrea tridentata* Shrubland Alliance associations were found during the botanical surveys:

- *Larrea tridentata/Ambrosia dumosa* Association
- *Larrea tridentata-Atriplex canescens* Association
- *Larrea tridentata/Cylindropuntia bigelovii* Association
- *Larrea tridentata/Echinocereus engelmannii* Association
- *Larrea tridentata/Encelia farinosa* Association
- *Larrea tridentata/Simmondsia chinensis* Association
- *Larrea tridentata-Zizypus parryi parryi* Association

***Senegalia greggii* Shrubland Alliance**

Senegalia greggii Provisional Shrubland Alliance is dominated or co-dominated by *Senegalia greggii* in the shrub canopy. The canopy is open intermittent and typically less than 3 m tall. The herbaceous layer is sparse to intermittent with seasonal annuals, and this alliance is found in arroyos, channels, washes, bajadas, canyon walls, rocky slopes, and valleys on coarse, well-drained soils (Sawyer et al. 2009). This alliance is called *Acacia greggii* Provisional Shrubland Alliance by Sawyer et al. 2009; the taxonomy for the dominant species has recently been changed and this change is reflected here.

Three *Senegalia greggii* Shrubland Alliance associations were found during the botanical surveys:

- *Senegalia greggii*/*Ericameria paniculata* Association
- *Senegalia greggii*/*Eriogonum fasciculatum polifolium* Association
- *Senegalia greggii*-*Prosopis glandulosa* Association

***Stillingia linearis* Shrubland Alliance**

Stillingia linearis Shrubland Alliance is dominated or co-dominated by *Stillingia linearis* in the shrub canopy. The canopy is open to intermittent and typically less than 1 m tall. The herbaceous layer is intermittent or open with seasonal annuals, and this alliance is found in older washes and river terraces, alluvial fans, bajadas, or in upland slopes (Sawyer et al. 2009). The description for *Ambrosia dumosa* Shrubland Alliance by Sawyer et al. 2009 was used for this description, as *Stillingia linearis* co-occurs in the same range and habitats as *Ambrosia dumosa* in the West of Devers Upgrade Project survey areas.

One *Stillingia linearis* Shrubland Alliance association was found during the botanical surveys:

- *Stillingia linearis* Association

***Thamnosma montana* Shrubland Alliance**

Thamnosma montana Shrubland Alliance is dominated or co-dominated by *Thamnosma montana* in the shrub canopy. The canopy is open to intermittent and typically less than 1 m tall. The herbaceous layer is intermittent or open with seasonal annuals, and this alliance is found in older washes and river terraces, alluvial fans, bajadas, or in upland slopes (Sawyer et al. 2009). The description for *Ambrosia dumosa* Shrubland Alliance by Sawyer et al. 2009 was used for this description, as *Thamnosma montana* co-occurs in the same range and habitats as *Ambrosia dumosa* in the WOD Project survey areas.

One *Thamnosma montana* Shrubland Alliance association was found during the botanical surveys:

- *Thamnosma montana* Association

***Yucca schidigera* Shrubland Alliance**

Yucca schidigera Shrubland Alliance is dominated or co-dominated by *Yucca schidigera* in the shrub canopy. The canopy is open to intermittent and typically less than 5 m tall. The herbaceous layer is

open to intermittent, and this alliance is found in alluvial fans, rocky slopes, and bajadas (Sawyer et al. 2009).

One *Yucca schidigera* Shrubland Alliance association was found during the botanical surveys:

- *Yucca schidigera*-*Zizypus parryi* Association

Woodland Communities

Woodland communities are plant communities with multiple layers, the dominant and characteristic layer composed of trees. The tree canopy ranges in cover from open, with broad spaces between the trees, to a closed canopy, where the canopy of the trees intertwine to some extent, leaving little or no gaps, usually referred to as forest. Two basic types of woodland communities occurring within the WOD Project survey area are terrestrial and riparian.

TERRESTRIAL WOODLANDS

Terrestrial woodlands are those found in upland habitats, such as on hillsides and hilltops. One terrestrial woodland alliance was found within the WOD Project survey area: *Quercus agrifolia* Woodland Alliance.

Quercus agrifolia Woodland Alliance

Quercus agrifolia Woodland Alliance “Coast live oak woodland” is a single vegetation alliance dominated by *Quercus agrifolia* trees. It is rare in the WOD Project survey area. *Quercus agrifolia* Woodland Alliance typically occurs in or adjacent to drainages and slopes and provides habitat for species that prefer shady, moister sites such as *Toxicodendron diversilobum*, *Claytonia perfoliata*, and *Pholistoma menziesii*. *Quercus agrifolia* Woodland Alliance were only observed in Banning and just east of San Timoteo Canyon Road.

RIPARIAN WOODLANDS

Riparian woodlands are directly associated with stream courses where water is present year-round at or near the surface for a long duration during the growing season. Riparian woodlands are areas dominated by trees along a riparian corridor. Three riparian woodland alliances were mapped in the WOD Project area: *Chilopsis linearis* Woodland Alliance “Desert willow woodland”, *Populus fremontii* Forest Alliance “Fremont Cottonwood Forest”, and *Salix laevigata* Woodland Alliance “Red Willow Thickets”. All three of these communities are of conservation concern and are rated G3/S3 or G4/S3 by CDFG (2009a), meaning that they are considered vulnerable and at moderate risk of extinction.

Chilopsis linearis Woodland Alliance

Chilopsis linearis Woodland Alliance is an open riparian wash woodland previously referred to as “Desert Willow Woodland” in washes east of the Banning area, with one stand observed south of

Redlands. It was on a floodplain next to a flowing stream and dominated by *Chilopsis linearis* ssp. *arcuata*.

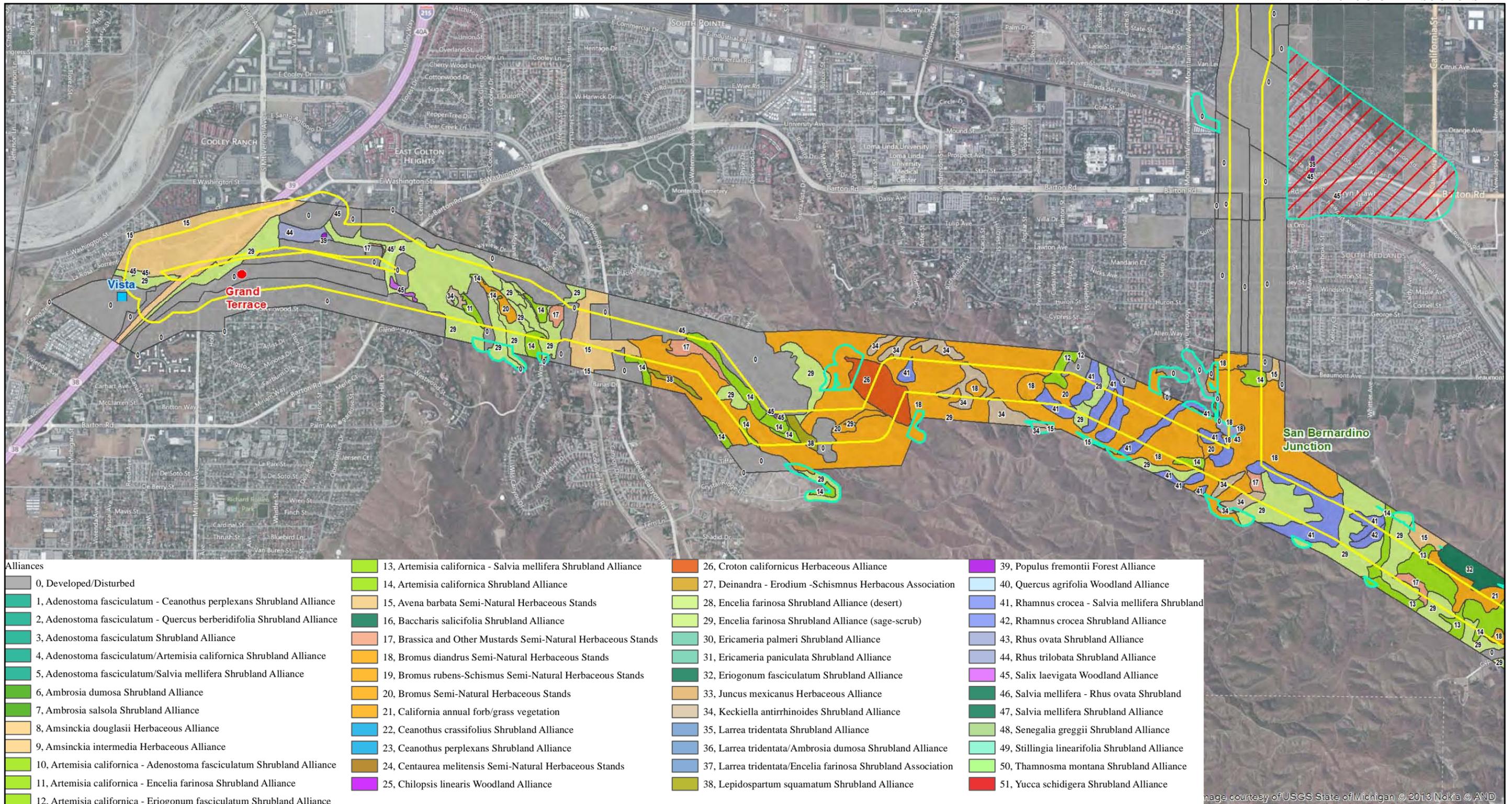
***Populus fremontii* Forest Alliance**

Populus fremontii Forest Alliance “Fremont Cottonwood Forest” consists of open canopy forest dominated by *Populus fremontii*. Two stands were observed along San Timoteo Creek near El Casco. Associated species include: *Salix laevigata* (Red Willow), *Platanus racemosa* (Western Sycamore), and willow shrubs (*Salix* spp.). The other *Populus fremontii* Forest Alliance was in narrow canyon north of Banning surrounded by chaparral.

***Salix laevigata* Woodland Alliance**

Salix laevigata Woodland Alliance is dominated by *Salix laevigata*. One highly disturbed *Salix laevigata* Woodland Alliance thicket was observed with the additional species willow shrubs, *Baccharis salicifolia*, *Tamarix ramosissima*, *Hirschfeldia incana*, *Cirsium vulgare*, *Lactuca serriola*, and *Bromus diandrus*. The *Salix laevigata* Woodland Alliance was along San Timoteo Canyon Road.

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- Approximate Area of Summit Fire

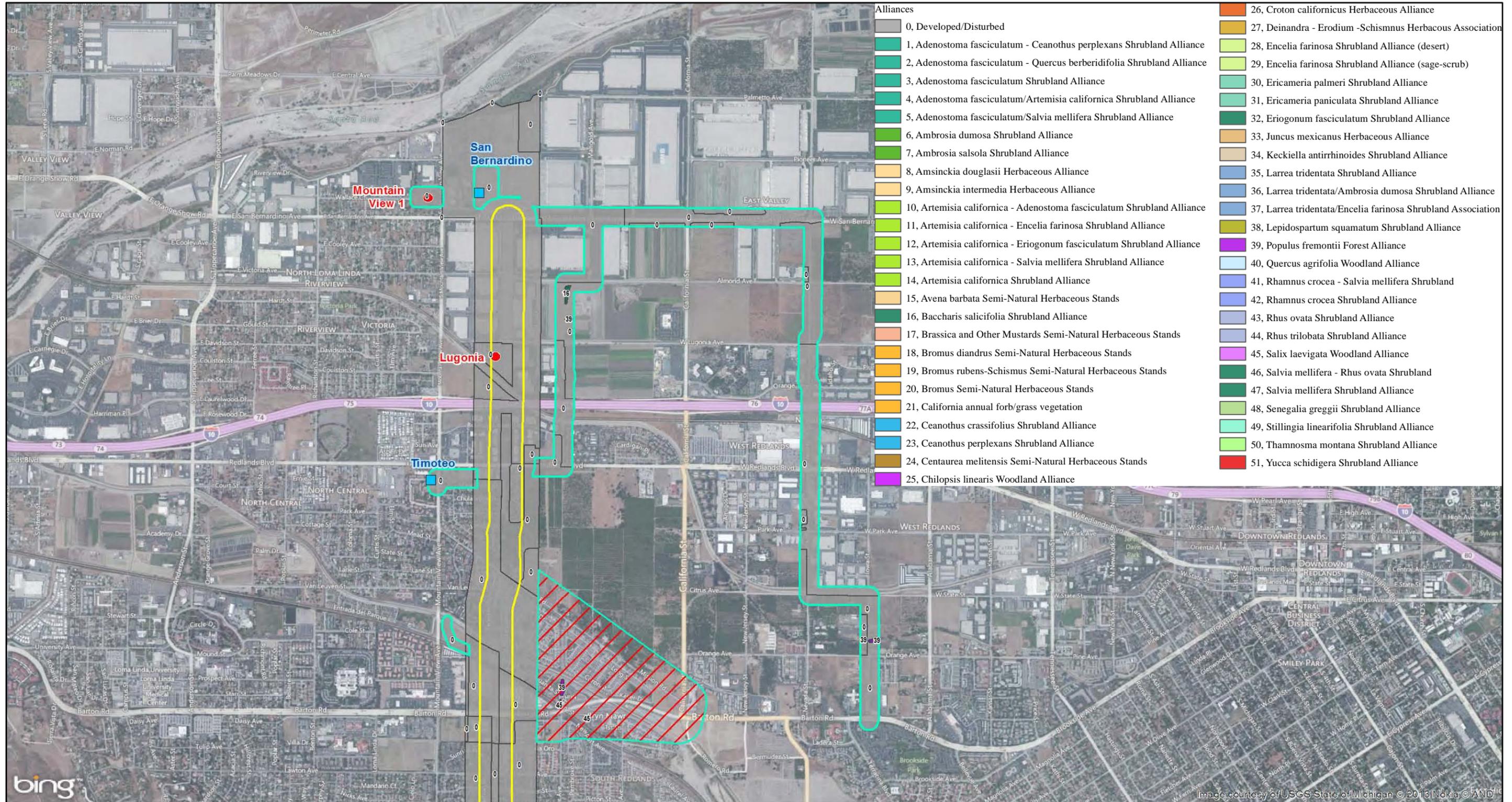
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- Approximate Area of Summit Fire

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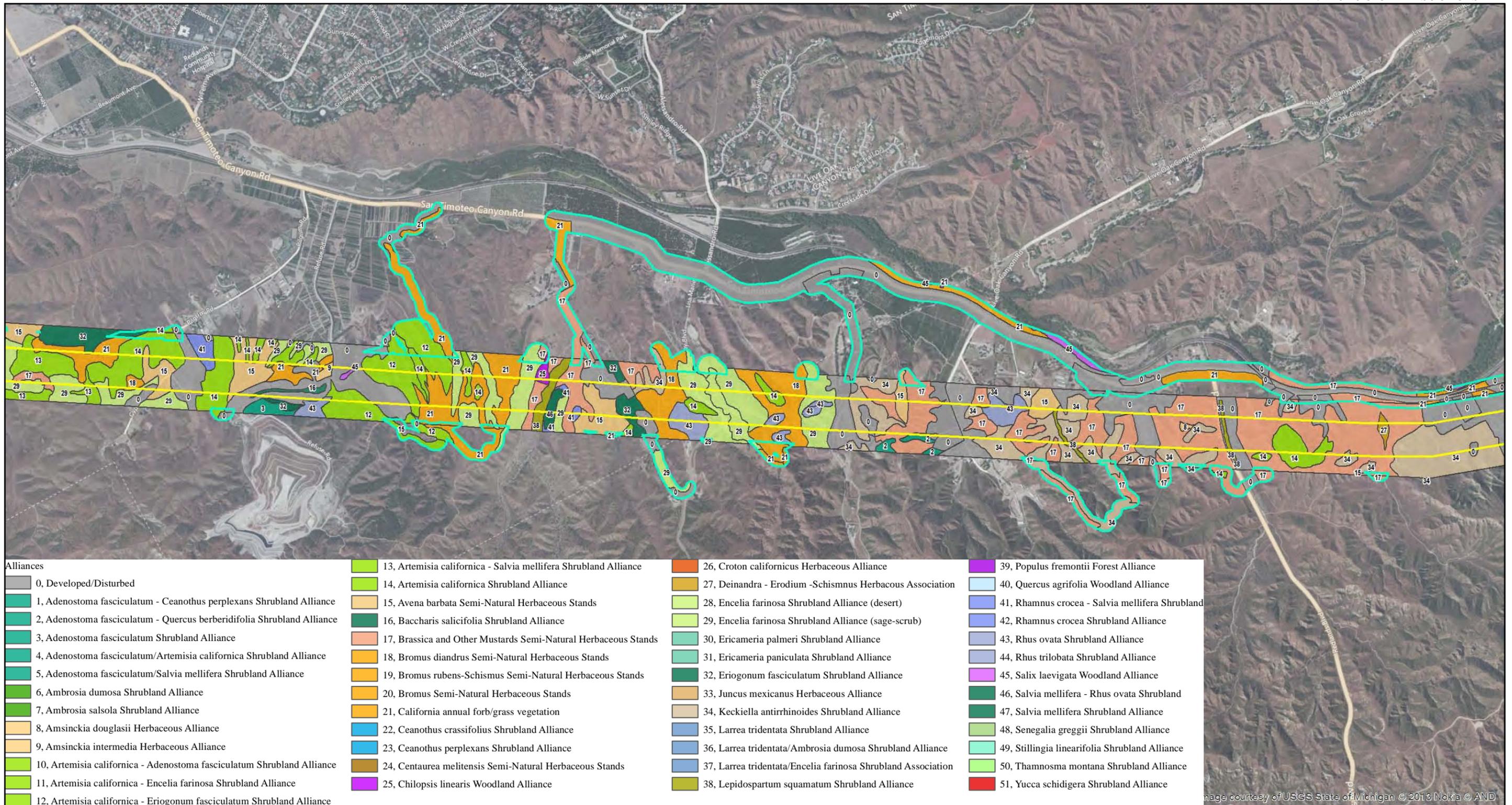
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Vegetation Alliances

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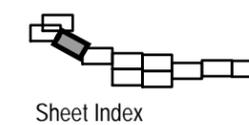


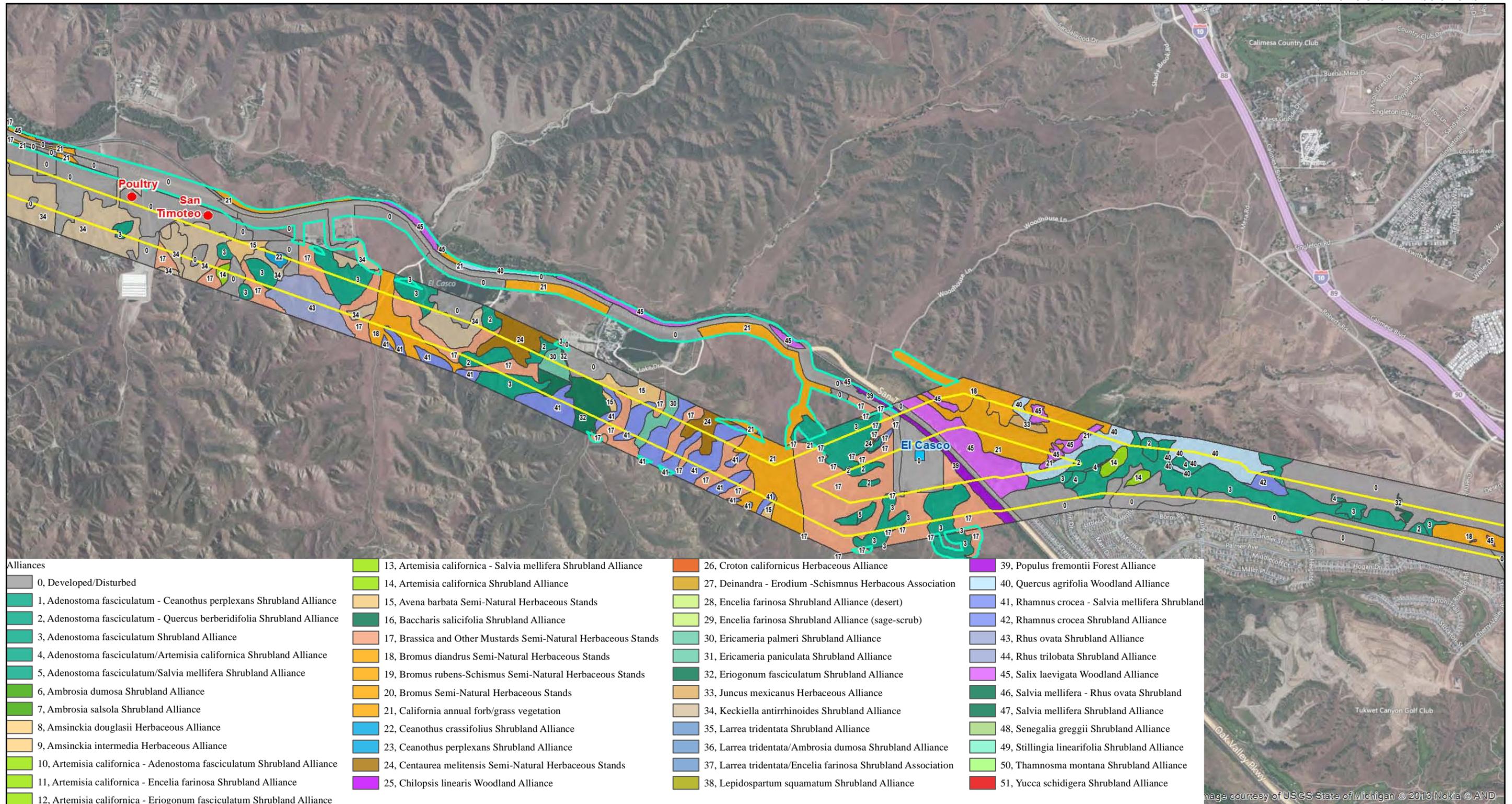
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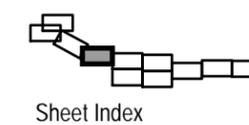
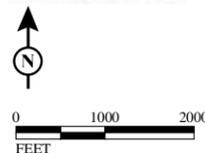


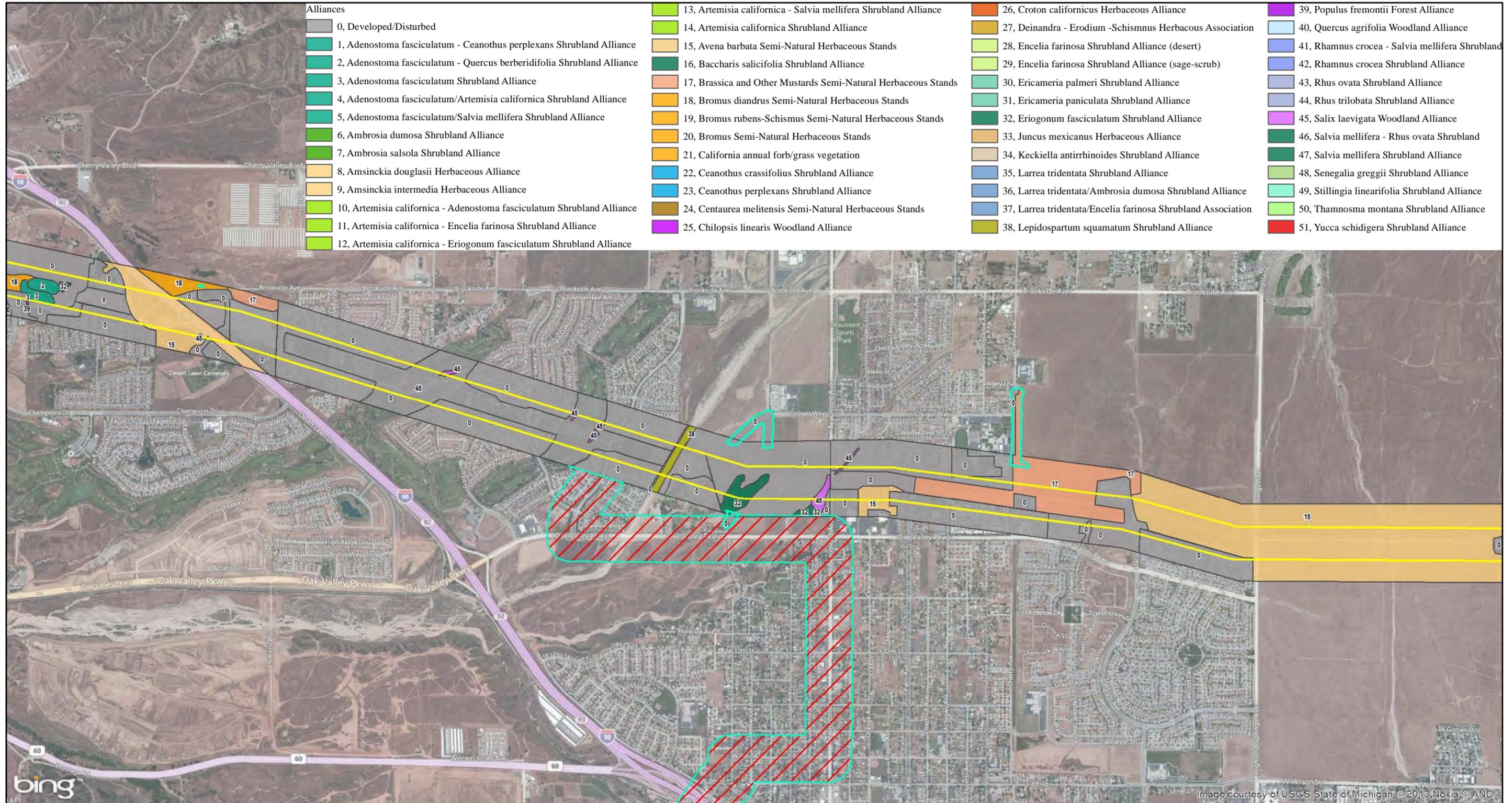
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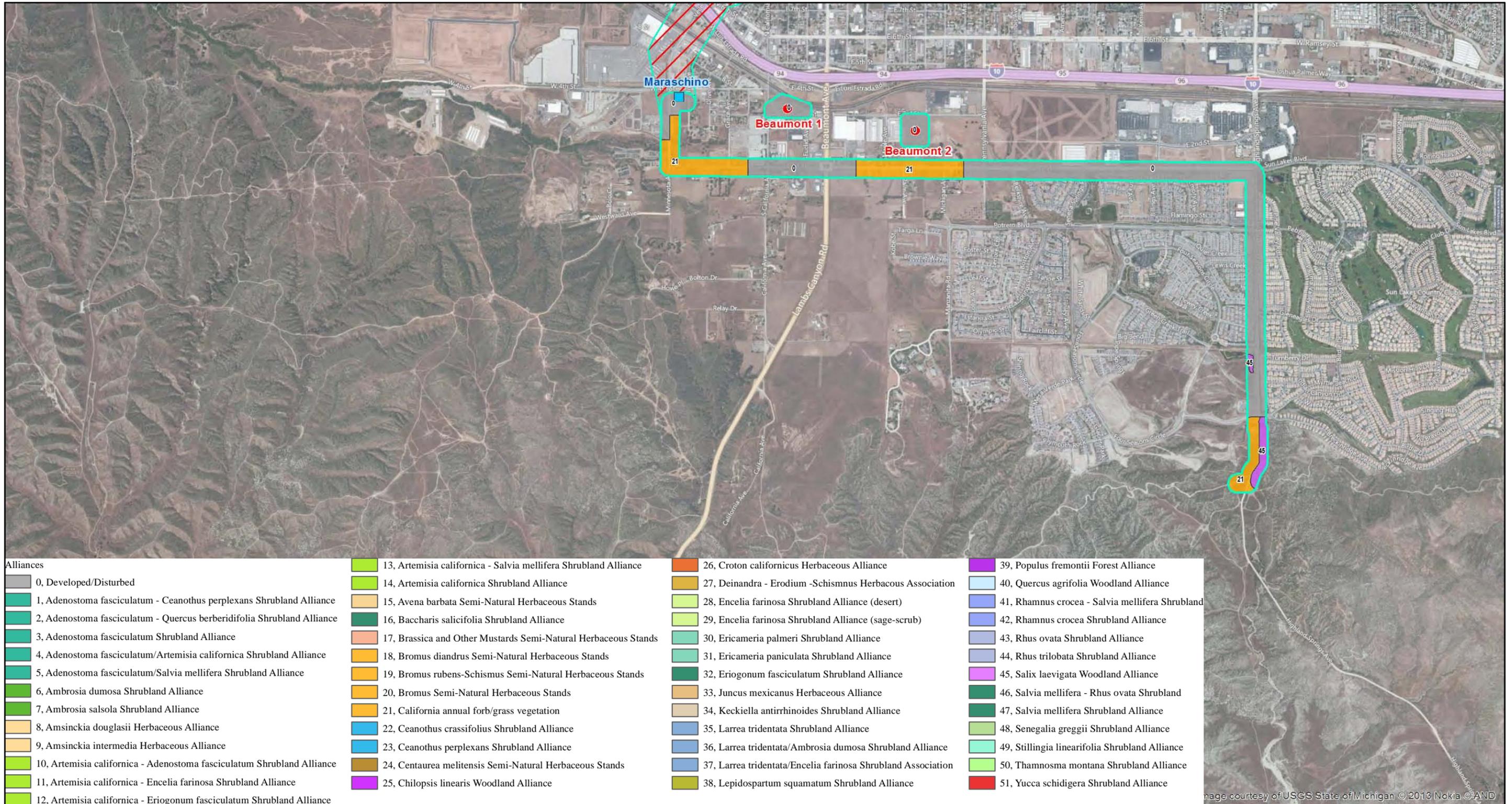
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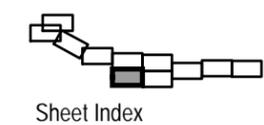
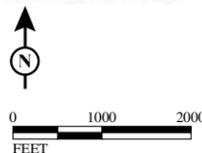


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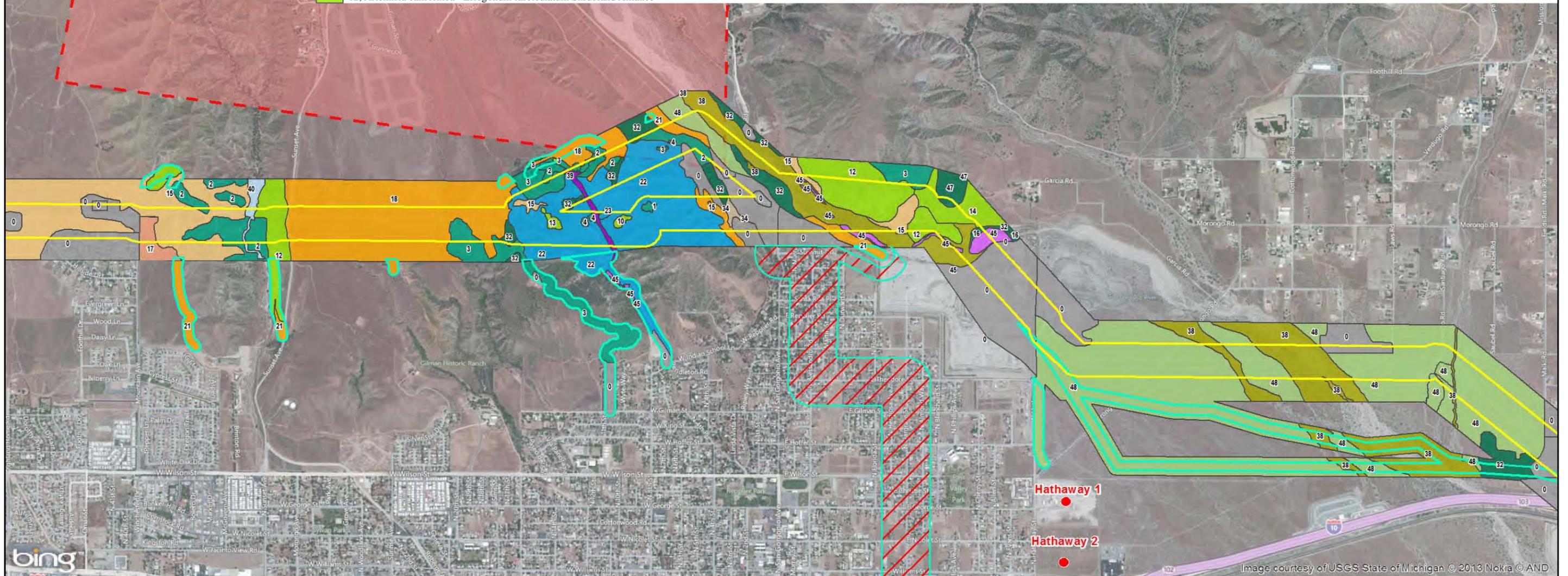
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		51, Yucca schidigera Shrubland Alliance



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- West of Devers Project 2012 Botanical Survey Area
- West of Devers Project 2013 Botanical Survey Area
- Substations
- Staging Yards
- Not Surveyed for Biological Resources
- Approximate Area of Summit Fire

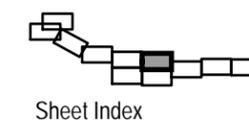
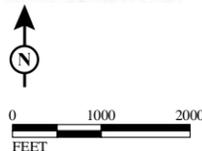


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Source: Bing Maps Hybrid (c) 2012 Microsoft Corporation and its data suppliers; SCE, BRC

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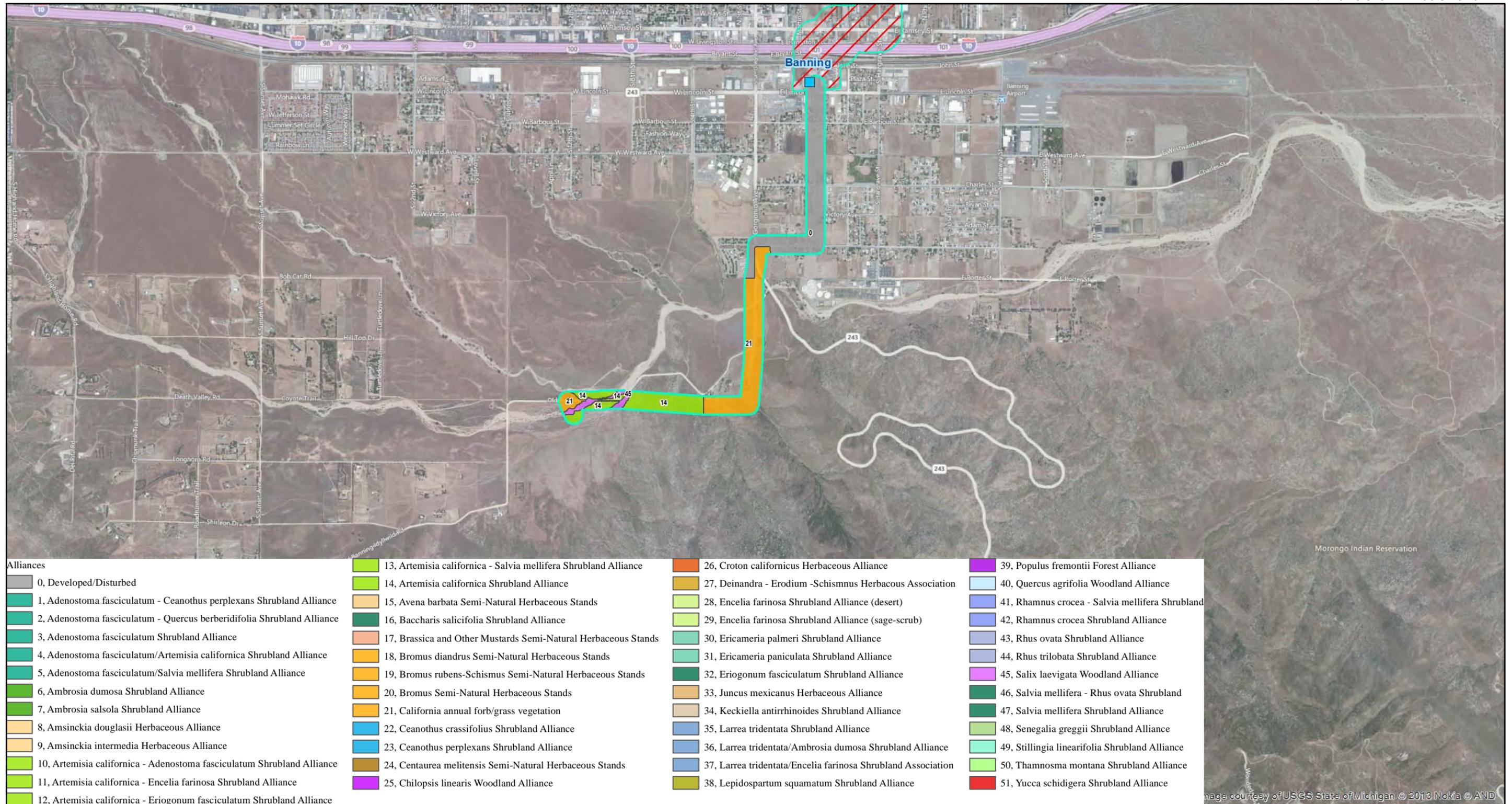


Image courtesy of USGS State of Michigan © 2013 Nokia © AND

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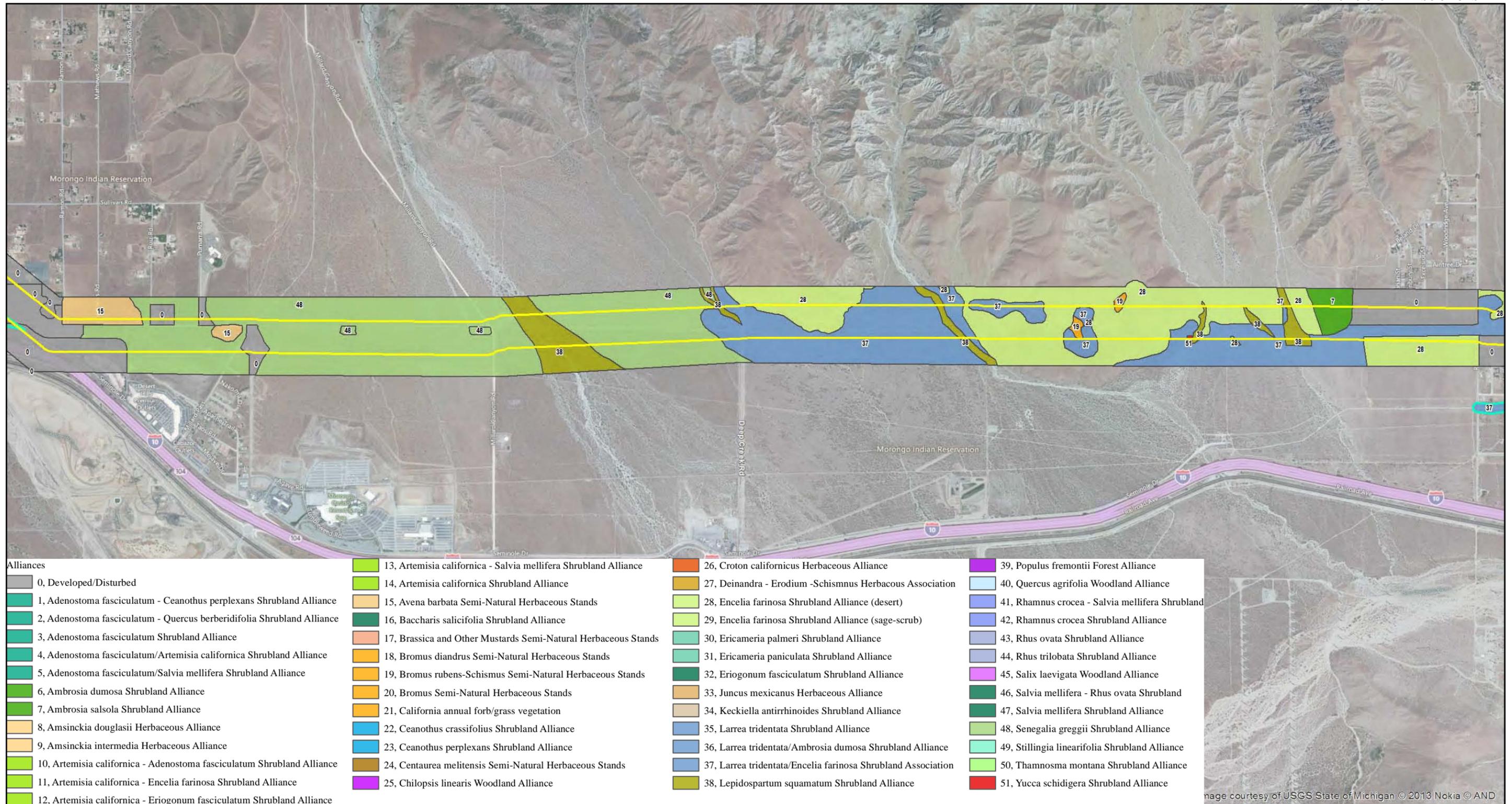
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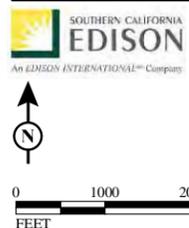
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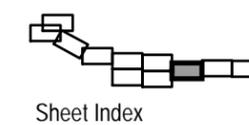


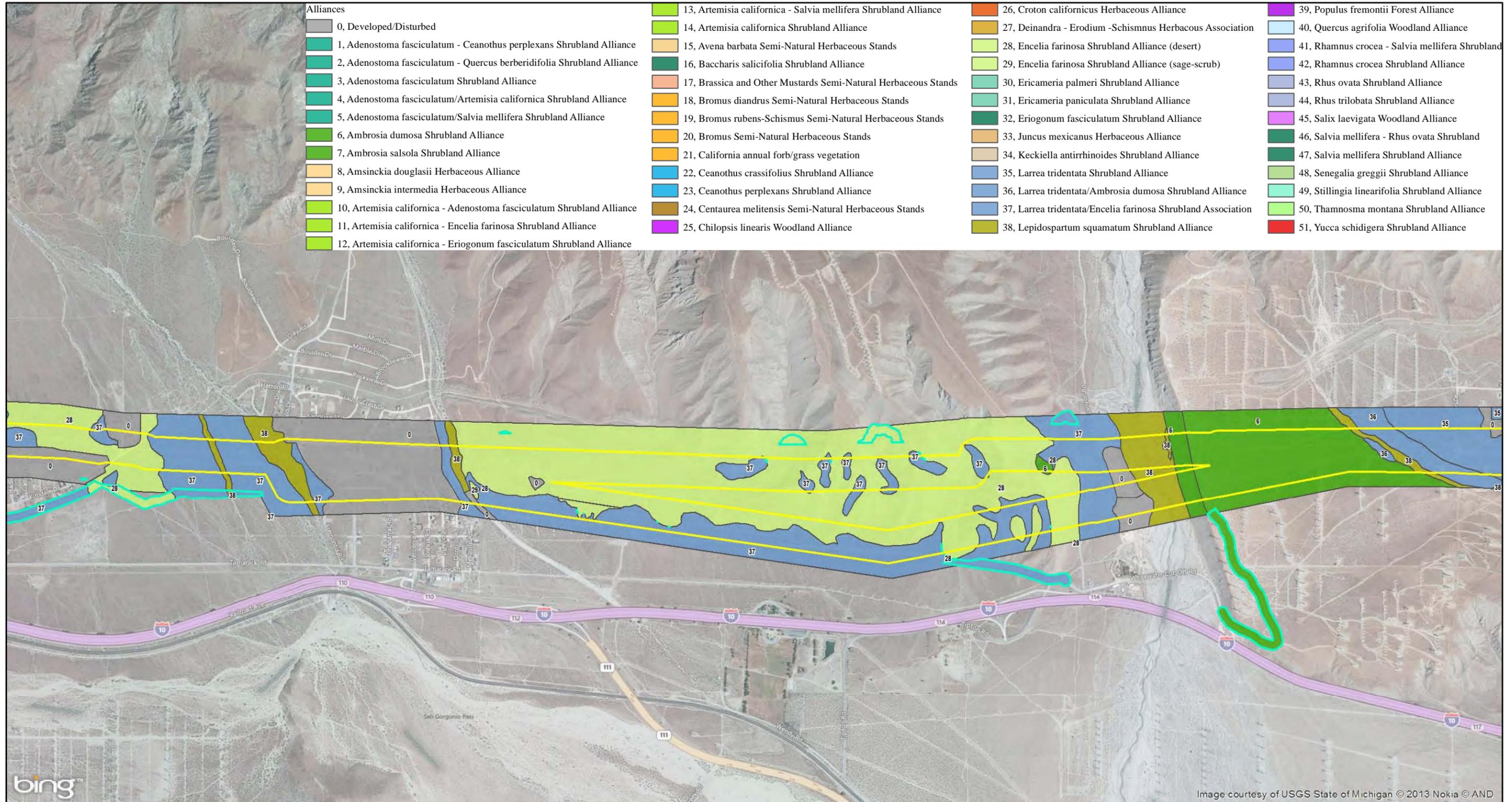
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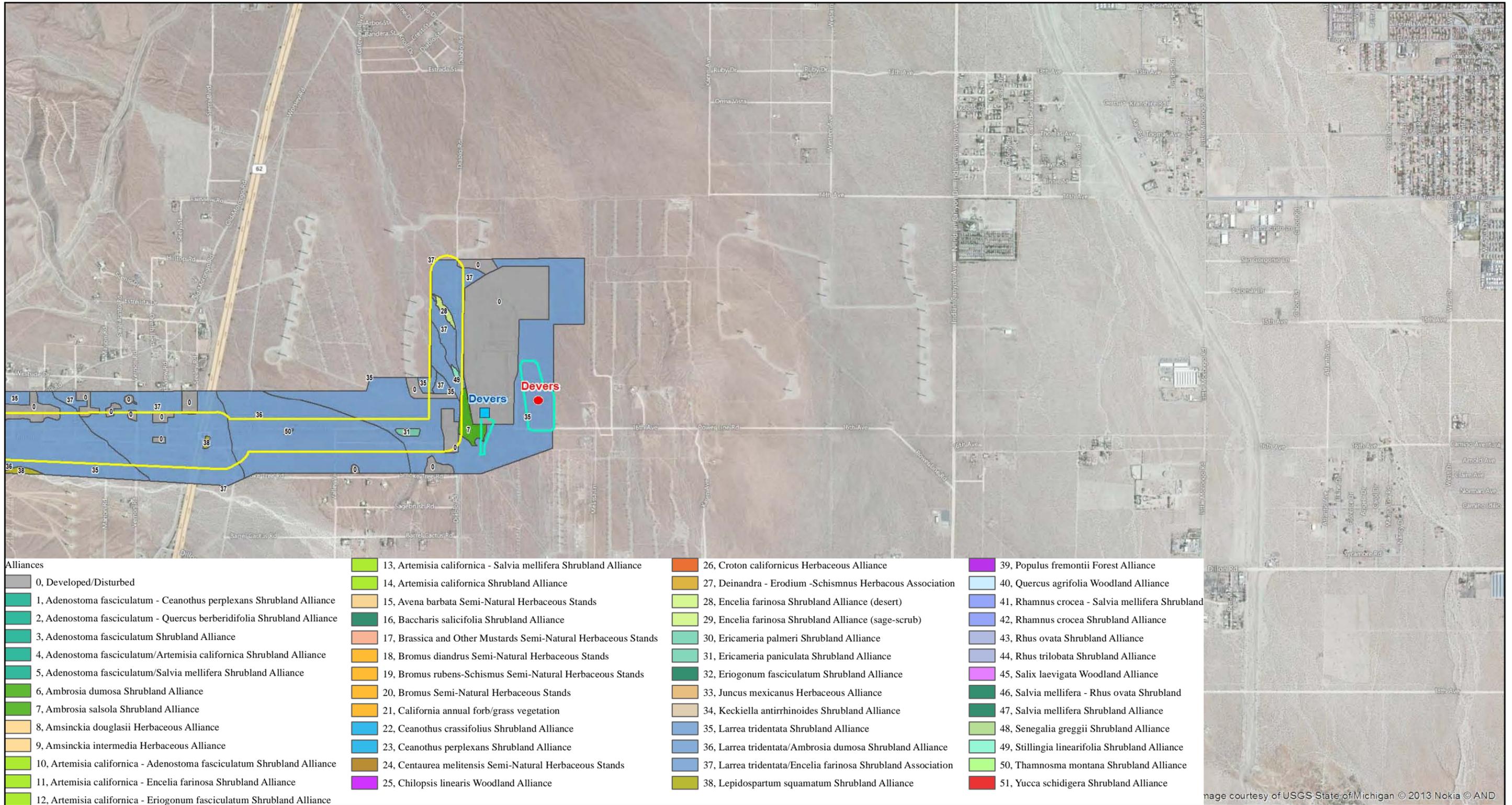
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