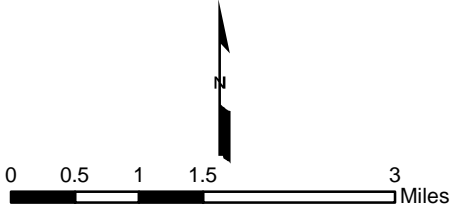


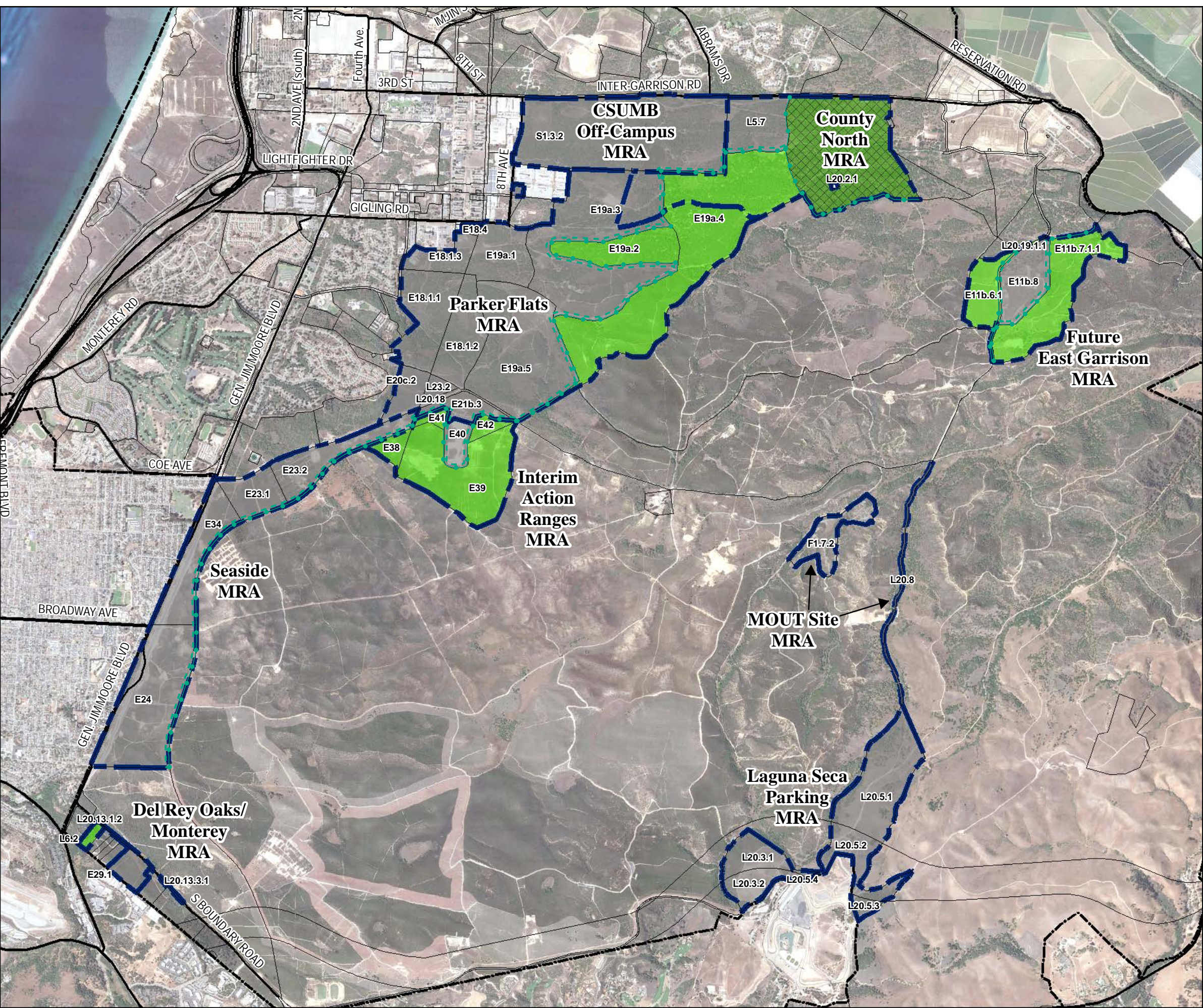
- ESCA Munitions Response Area
- Impact Area Boundary
- Former Fort Ord Boundary
- Major Road



2016 Annual Natural Resource Report  
Former Fort Ord  
Location Map  
FORA ESCA RP  
Monterey County, California

Figure 1

Document Path: Z:\GIS\PROJECTS\ENV\FOR\095956\_GIS\Projects\AIMRAs\Habitat\_Monitoring\2015 Annual Natural Resource Report\Fig 2 ALLMRA ESCA\_Property Proposed Future Land Use.mxd  
 C:\B\IN\095956



### Legend

- Munitions Response Area
- Major Road
- Borderland Interface
- 100-Foot Buffer from Borderland Interface
- E11b.8 USACE Parcel
- Former Fort Ord Boundary
- Development Parcel
- Habitat Reserve
- Habitat Corridor

#### Former Fort Ord Location Map

Aerial Source: Google Earth Pro,  
 Accessed 11/21/2014 - Image Date: 8/25/2013

2016 Annual Natural Resource Report

**ESCA RP**

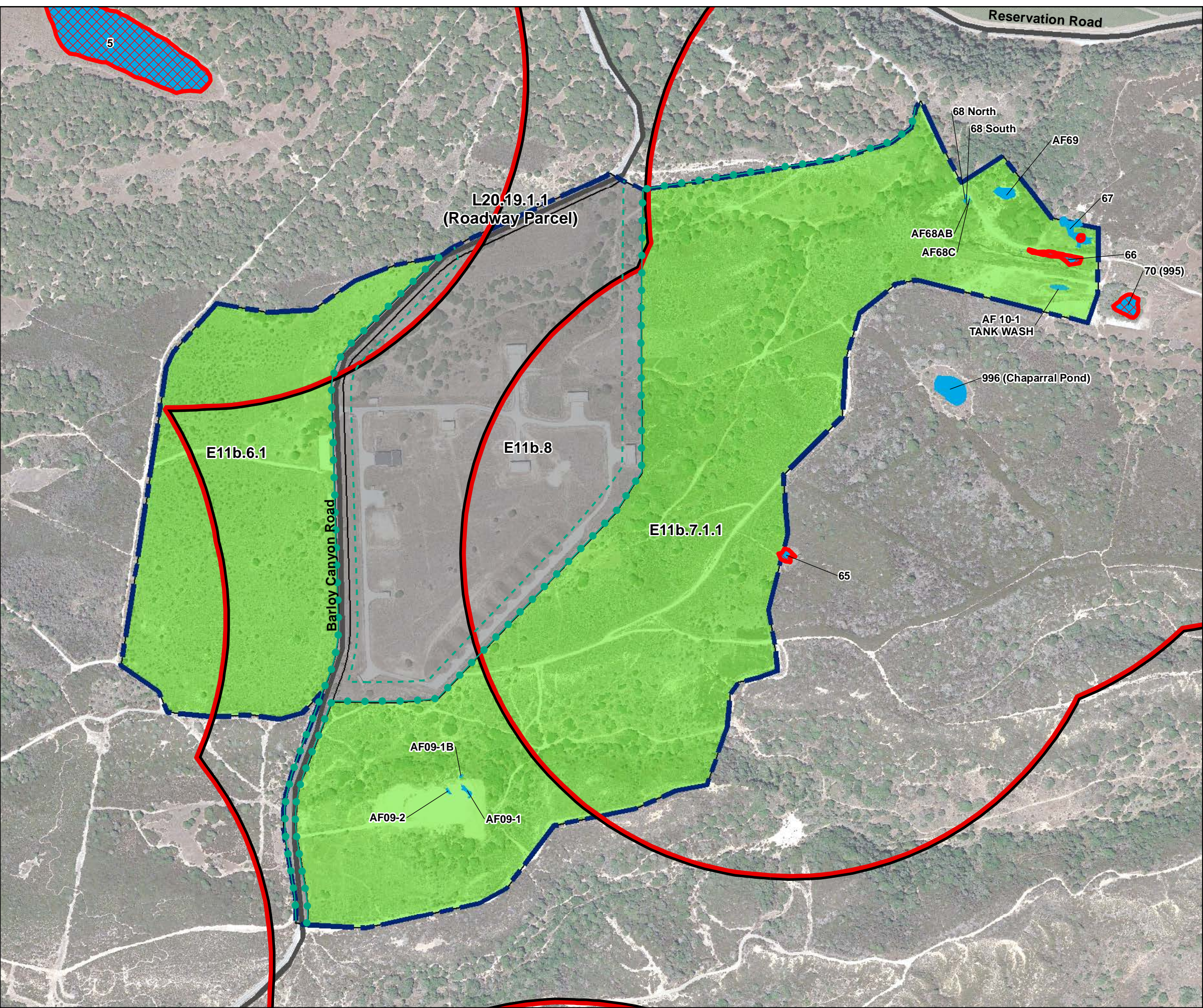
2016 Proposed Future Land Use

FORA ESCA RP

Monterey County, California

**Figure 2**

Document Path: Z:\GIS\PROJECTS\ ENV\FORd\095956\_GIS\Projects\AIMRAs\Habitat\_Monitoring\2015 Annual Natural Resource Report\Fig 3a Future East Garrison MRA.mxd

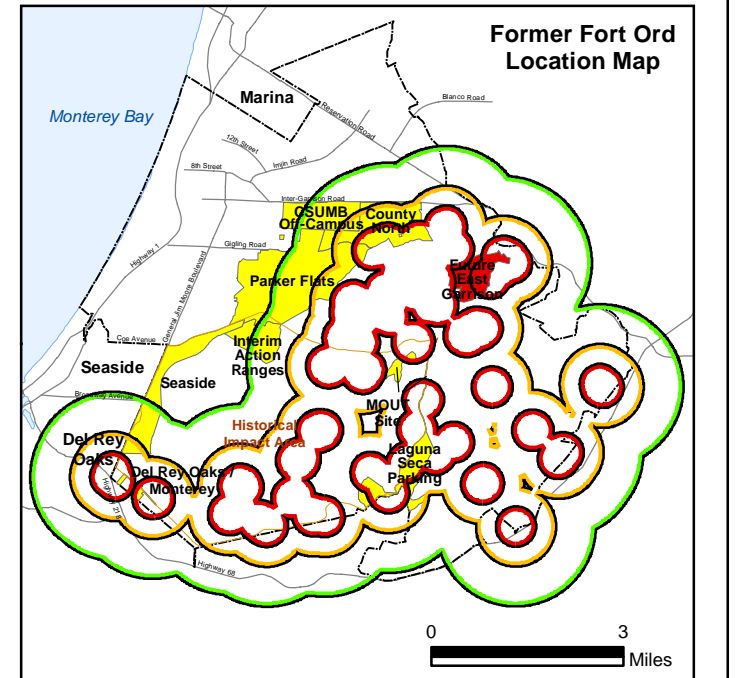


### Legend

- Munitions Response Area
- Major Road
- USACE Parcel
- Aquatic Features
- Aquatic Feature with Documented CTS Presence
- Habitat Reserve
- Development Parcels
- Borderland Interface
- 100-Footer Buffer from Borderland Interface

California Tiger Salamander Buffer

- 500 m
- 1 km
- 2 km



Aerial Source: Google Earth Pro,  
 Accessed 11/21/2014 - Image Date: 8/25/2013

0 500 1,000 Feet

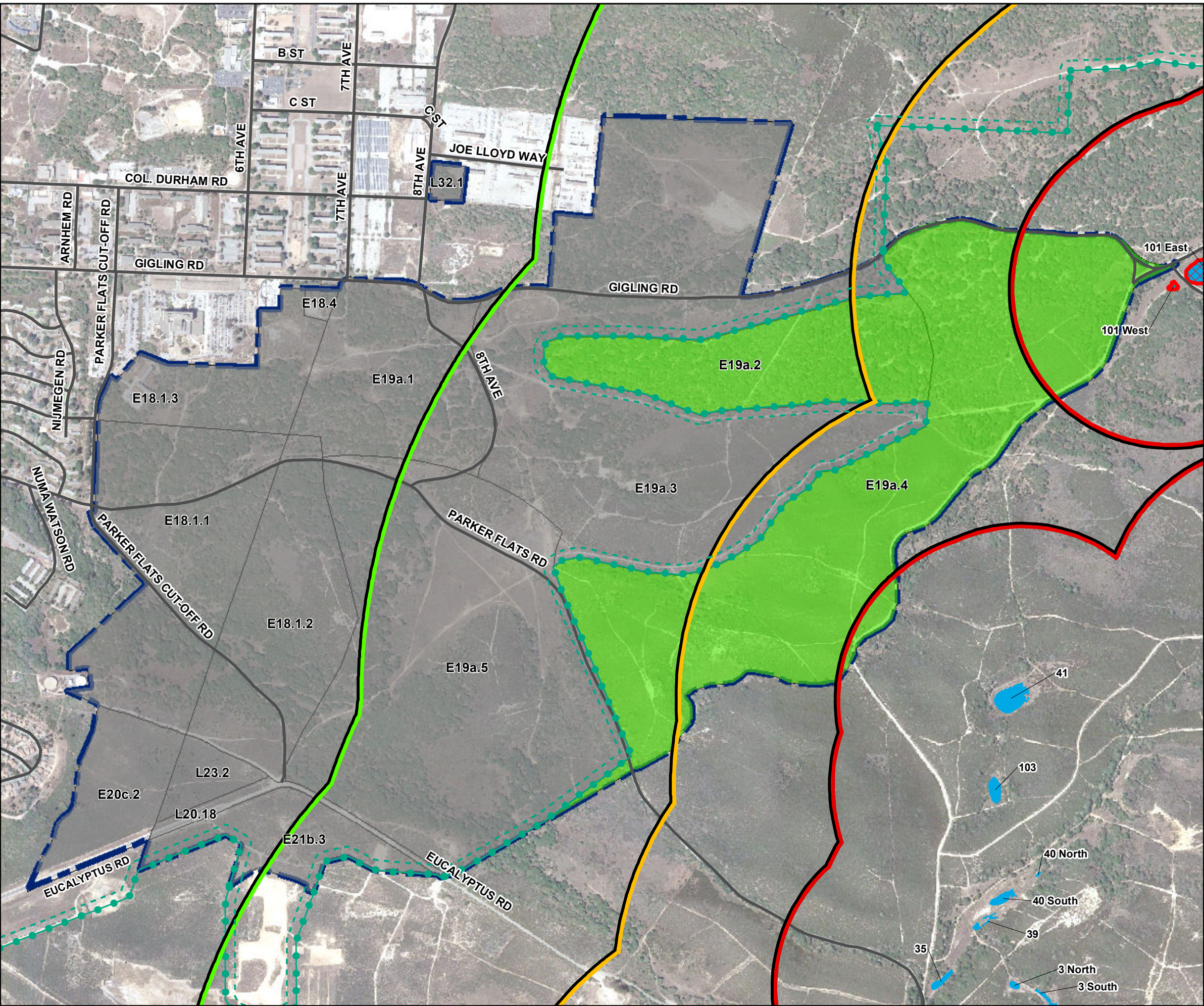
2016 Annual Natural Resource Report

**Munitions Response Areas with  
 Habitat Parcels Overview  
 Future East Garrison MRA**

FORA ESCA RP  
 Monterey County, California

**Figure 3a**

Document Path: Z:\GIS\PROJECTS\ENV\FortOrd\0959516\_GIS\Projects\A\IMR\AsHabitat\_Monitoring\2015 Annual Natural Resource Report\Fig 3b Parker Flats MRA Phase I and II Areas.mxd

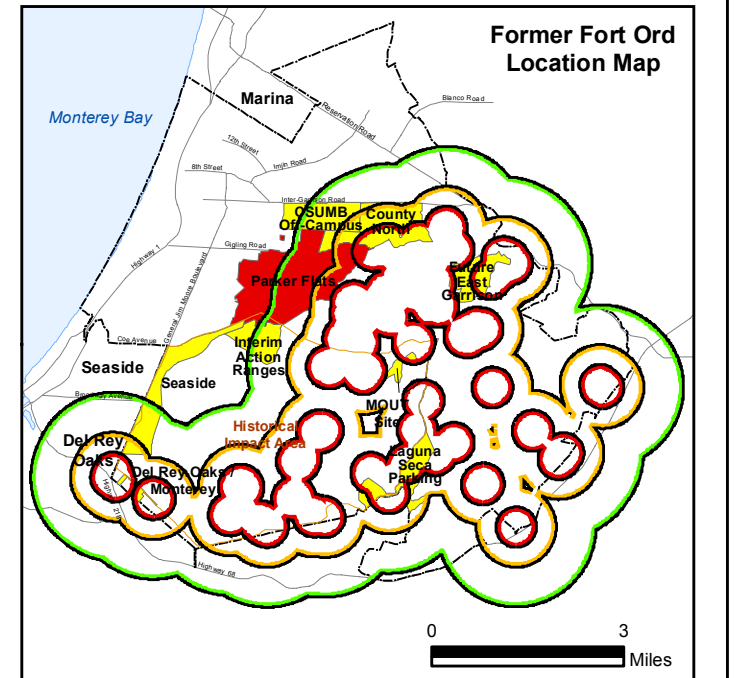


### Legend

- Munitions Response Area
- Major Road
- USACE Parcel
- Aquatic Features
- Aquatic Feature with Documented CTS Presence
- Habitat Reserve
- Development Parcels
- Borderland Interface
- 100-Foot Buffer from Borderland Interface

California Tiger Salamander Buffer

- 500 m
- 1 km
- 2 km



Aerial Source: Google Earth Pro,  
 Accessed 11/21/2014 - Image Date: 8/25/2013

0 1,000 2,000 Feet

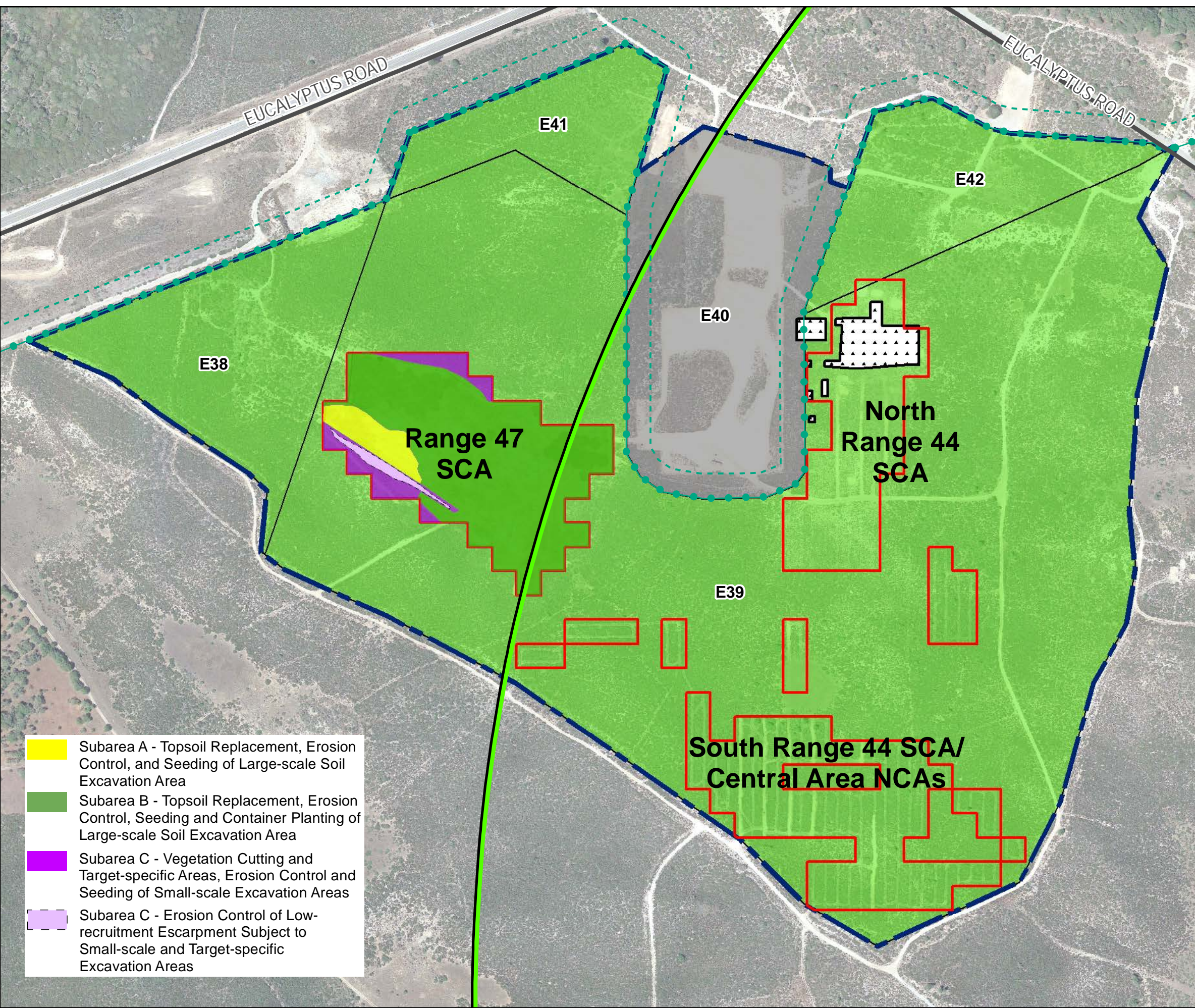
2016 Annual Natural Resource Report

**Munitions Response Areas with  
 Habitat Parcels Overview  
 Parker Flats MRA**

FORA ESCA RP  
 Monterey County, California

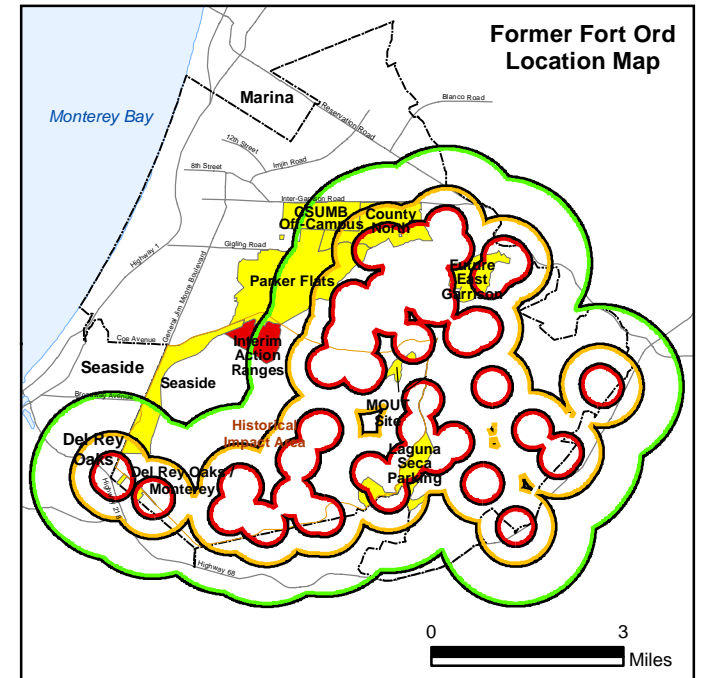
**Figure 3b**

Document Path: Z:\GIS\PROJECTS\ENV\FORd\0959516\_GIS\Projects\AIRMRA\Habitat\_Monitoring\2015 Annual Natural Resource Report\Fig 3c IAR MRA.mxd



- Subarea A - Topsoil Replacement, Erosion Control, and Seeding of Large-scale Soil Excavation Area
- Subarea B - Topsoil Replacement, Erosion Control, Seeding and Container Planting of Large-scale Soil Excavation Area
- Subarea C - Vegetation Cutting and Target-specific Areas, Erosion Control and Seeding of Small-scale Excavation Areas
- Subarea C - Erosion Control of Low-recruitment Escarpment Subject to Small-scale and Target-specific Excavation Areas

- ### Legend
- Munitions Response Area
  - Major Road
  - USACE Parcel
  - Site 39 (HA44) US Army Action
  - Special Case and Non-Completed Areas (Work Areas)
  - Habitat Reserve
  - Development Parcels
  - Borderland Interface
  - 100-Foot Buffer from Borderland Interface
- California Tiger Salamander Buffer
- 500 m
  - 1 km
  - 2 km



Aerial Source: Google Earth Pro,  
 Accessed 4/17/2014 - Image Date: 8/25/2013

0 400 800 Feet



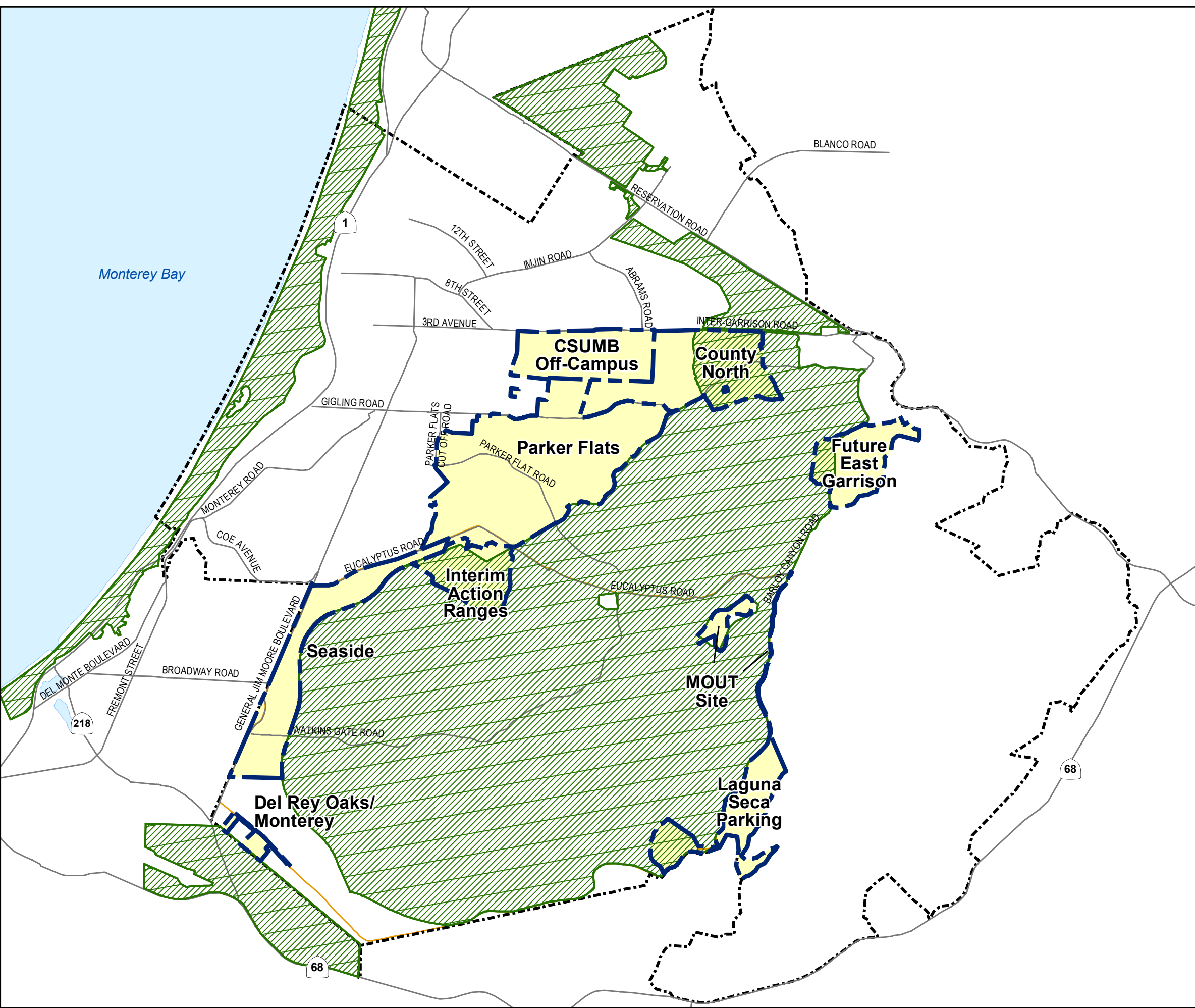
**2016 Annual Natural Resource Report**

**Munitions Response Areas with Habitat Parcels Overview Interim Action Ranges MRA**


FORA ESCA RP  
 Monterey County, California

**Figure 3c**

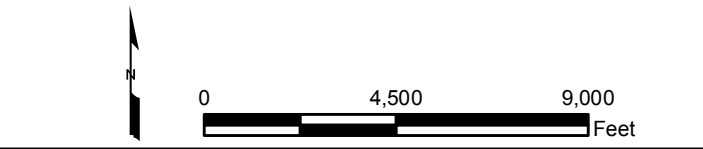
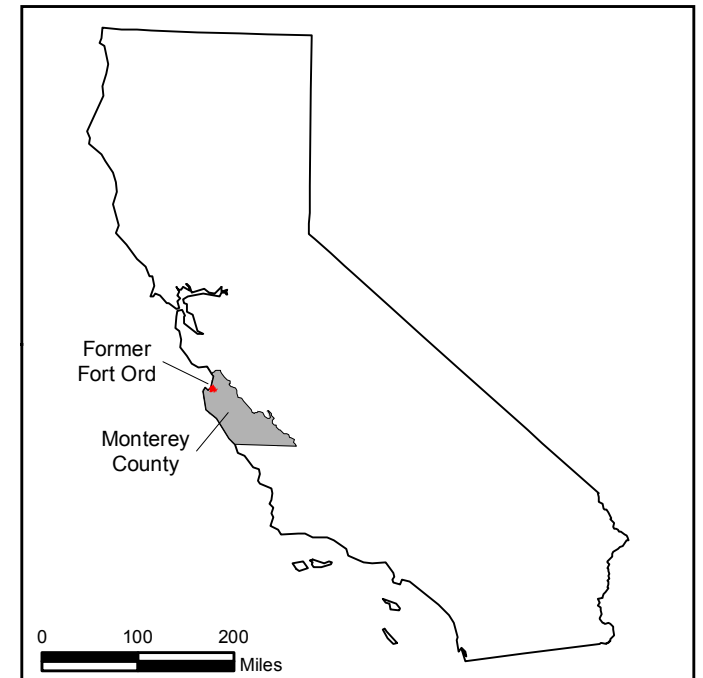
Document Path: Z:\GIS\PROJECTS\ENV\FORTD\0959516\_GIS\Projects\A\IMR\AsHabitat\_Monitoring\2015 Annual Natural Resource Report\Fig 4 Monterey Spineflower Critical Habitat Location.mxd



### Legend

-  Major Roads
-  Former Fort Ord Boundary
-  ESCA Munitions Response Areas
-  Impact Area Boundary
-  U.S. Fish and Wildlife Designated Monterey Spineflower Critical Habitat

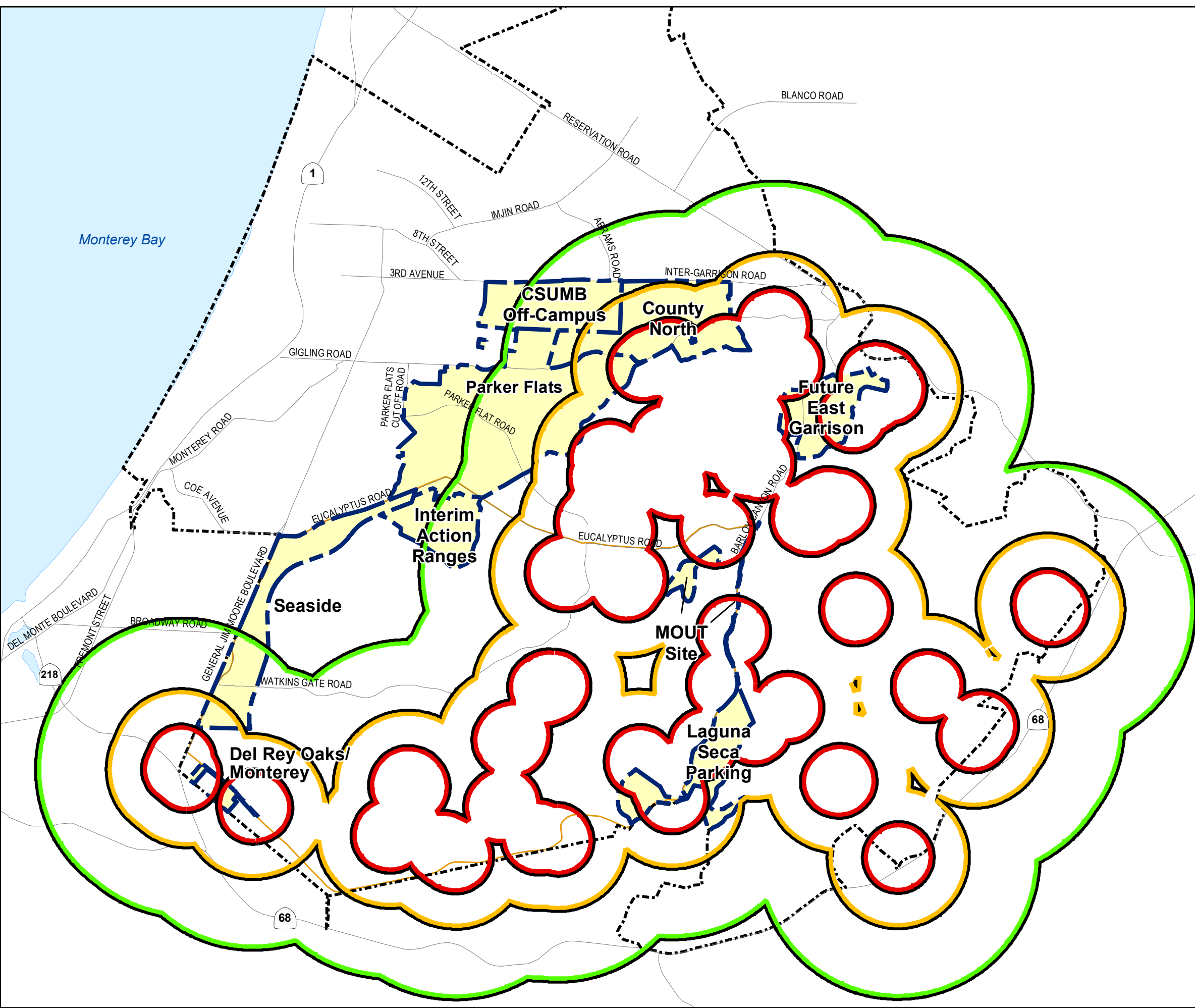
Source: USFWS. 2002. Biological Opinion on the Closure and Reuse of Fort Ord, Monterey County, California as it affects California Tiger Salamander and Critical Habitat for Contra Costa Goldfields (1-8-04-F25-R)



2016 Annual Natural Resource Report  
 Former Fort Ord Monterey Spineflower Critical Habitat Locations  
 FORA ESCA RP  
 Monterey County, California

Figure 4

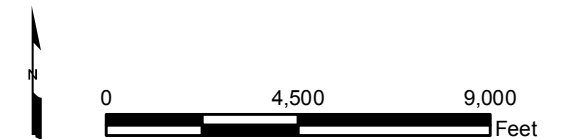
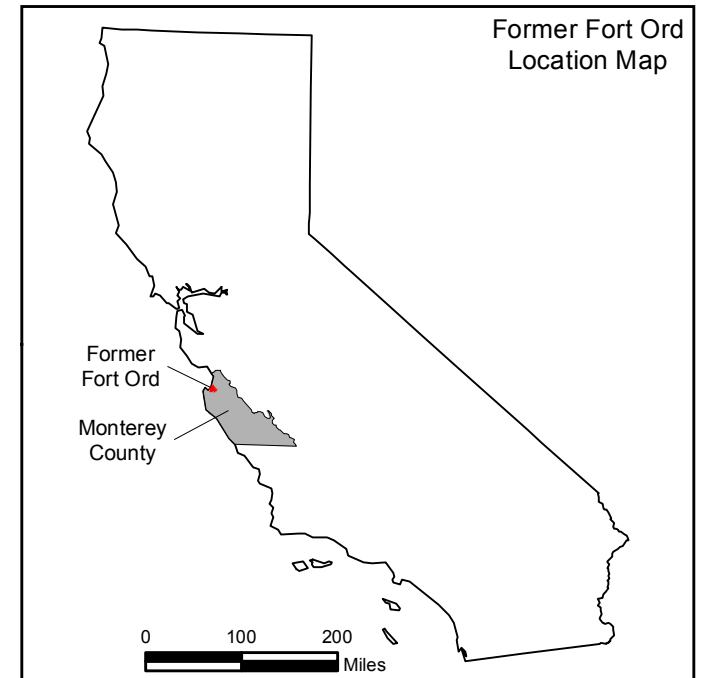
Document Path: Z:\GIS\PROJECTS\ENV\FORd\0959516\_GIS\Projects\A\IMR\AS\Habitat\_Monitoring\2015 Annual Natural Resource Report\Fig 5 CTS Potential Habitat Zones.mxd



### Legend

- Major Roads
  - Former Fort Ord Boundary
  - ESCA Munitions Response Areas
  - Historical Impact Area Boundary
- California Tiger Salamander - Habitat Zones
- 500 M
  - 1 KM
  - 2 KM

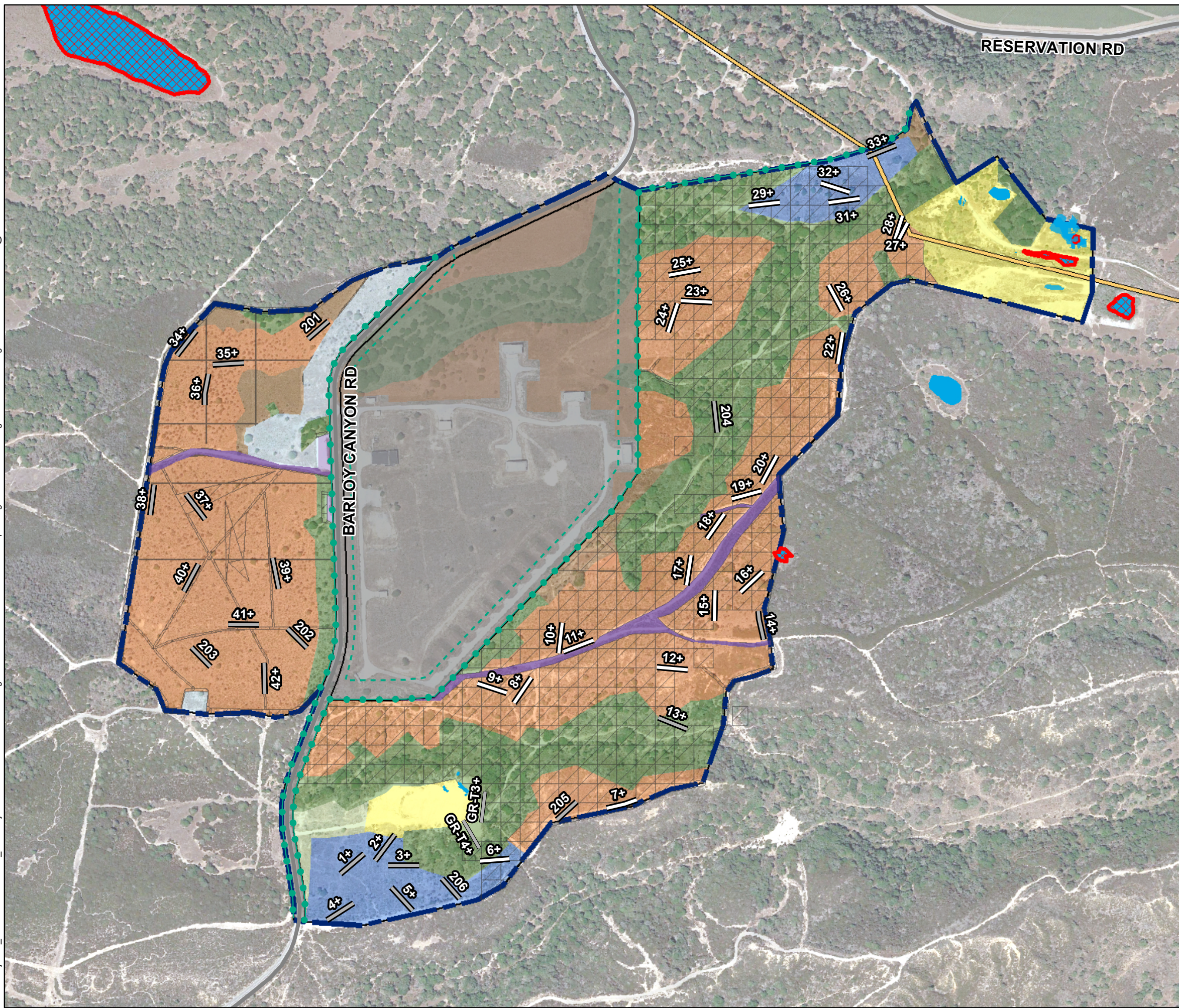
Source: USFWS. 2005. Cleanup and Reuse of Former Fort Ord. Monterey County, California as it affects California Tiger Salamander and Critical Habitat for Contra Costa Goldfields (1-8-04-F25-R)



2016 Annual Natural Resource Report  
**California Tiger Salamander  
 Habitat Buffer Zones**  
 FORA ESCA RP  
 Monterey County, California

**Figure 5**

Z:\GISProjects\ENV\FortOrd095956\_GIS\Projects\AllMRA\Habitat\_Monitoring\2016 Annual Natural Resource Report\Fig 6a FEG Monitoring Location and Veg Comm.mxd 12/13/2016 @ 9:37:25 AM



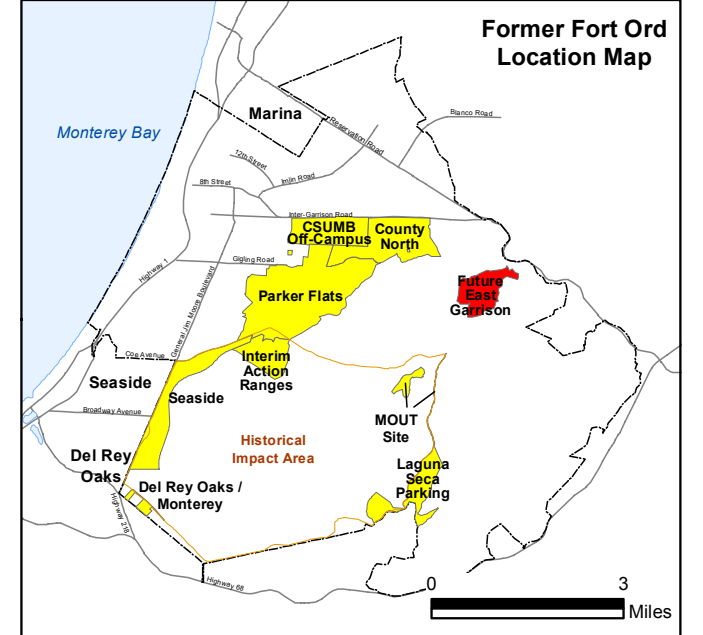
### Legend

- Munitions Response Area
- Major Road
- Natural Gas Pipeline
- Development Parcel
- 2016 Vegetation Transects
- Previously Monitored Transects
- + = baseline transect
- Borderland Interface
- 100-Foot Buffer from Borderland Interface
- 2016 HMP Herbaceous Species Survey Areas (Survey areas shown outside of MRA habitat boundaries serve as reference locations)
- Aquatic Features
- Aquatic Feature with Documented CTS Presence

### Vegetation Types

- Central Maritime Chaparral
- Chamise-dominated Chaparral
- Low Quality Disturbed Chaparral
- Coast Live Oak Woodland
- Grassland
- Ruderal and Cleared Areas
- Low Recruitment Area
- Roadways and Fuel Breaks

Note: Vegetation mapping modified from 2011 Annual Natural Resource Report.



Aerial Source: Google Earth Pro, Accessed 11/21/2014 - Image Date: 8/25/2013

0 500 1,000 Feet



**2016 Annual Natural Resource Report**

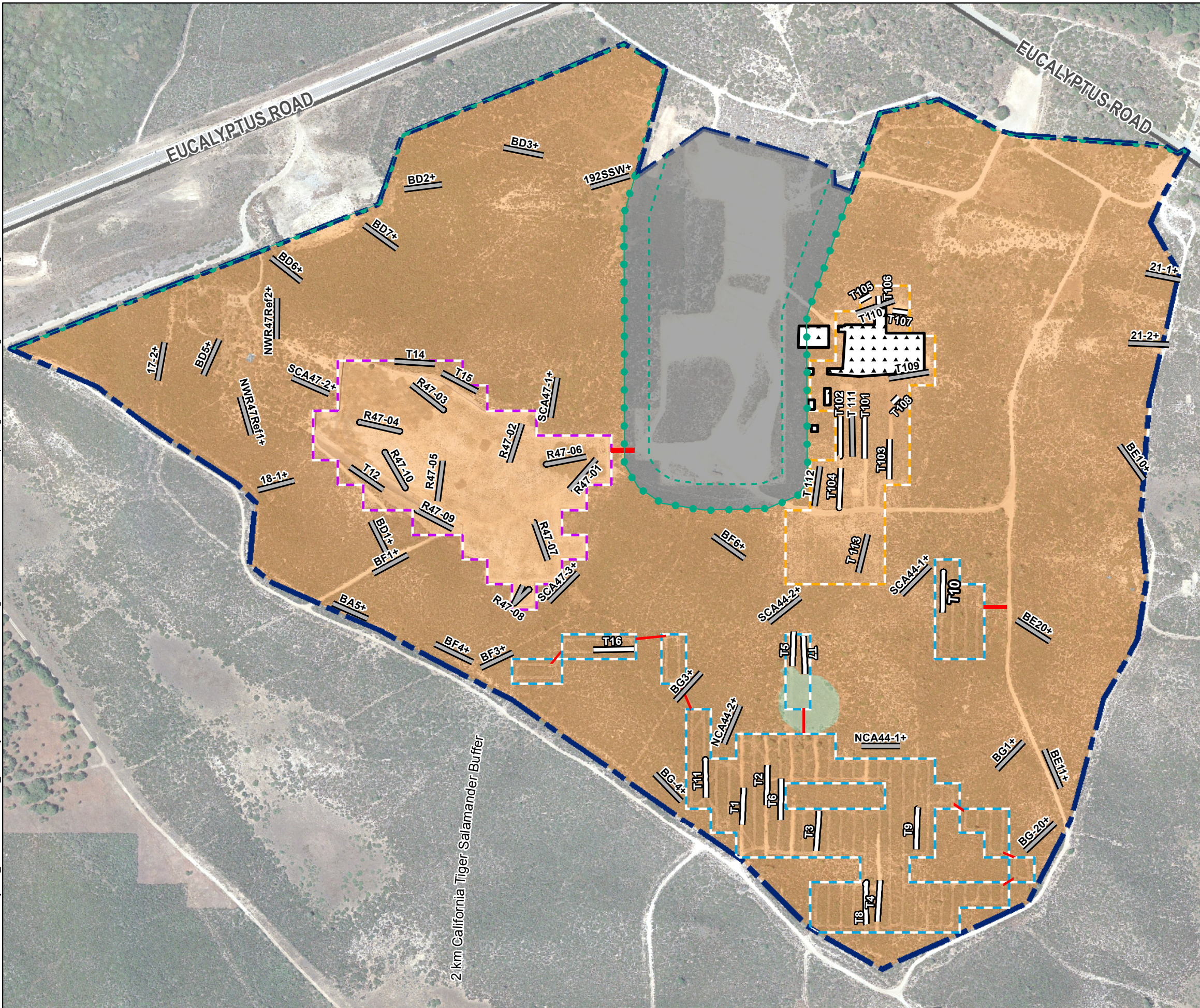
**Vegetation Monitoring and HMP Herbaceous Survey Locations Future East Garrison MRA**

FORA ESCA RP  
Monterey County, California

**Figure 6a**



Document Path: Z:\GIS\Projects\ENV\FortOrd\095956\_GIS\Projects\AllMRA\Habitat Monitoring\2016 Annual Natural Resource Report\Fig 6b IAR Monitoring Locations and Veg Comm.mxd



### Legend

- Munitions Response Area
- Major Road
- Development Parcel
- Improved Ingress/Egress Established by ESCA RP Team
- Site 39 (HA44) US Army Action
- North Range 44 SCA
- South Range 44 SCA/Central Area NCA
- Range 47 SCA
- 23 2016 Vegetation Transects
- 24 Areas Met Performance Target in 2015 or Baseline Transects
- Borderland Interface
- 100-Foot Buffer from Borderland Interface

Note:  
+ = baseline transect

#### Vegetation Types\*

- Grassland
- Central Maritime Chaparral

\*Source: Flora and Fauna Baseline Study of Fort Ord, California, Jones and Stokes Association Inc., December 1992. Vegetation mapping modified from 2011 Annual Natural Resource Report.

#### Former Fort Ord Location Map

Aerial Source: Google Earth Pro, Accessed 4/17/2014 - Image Date: 8/25/2013

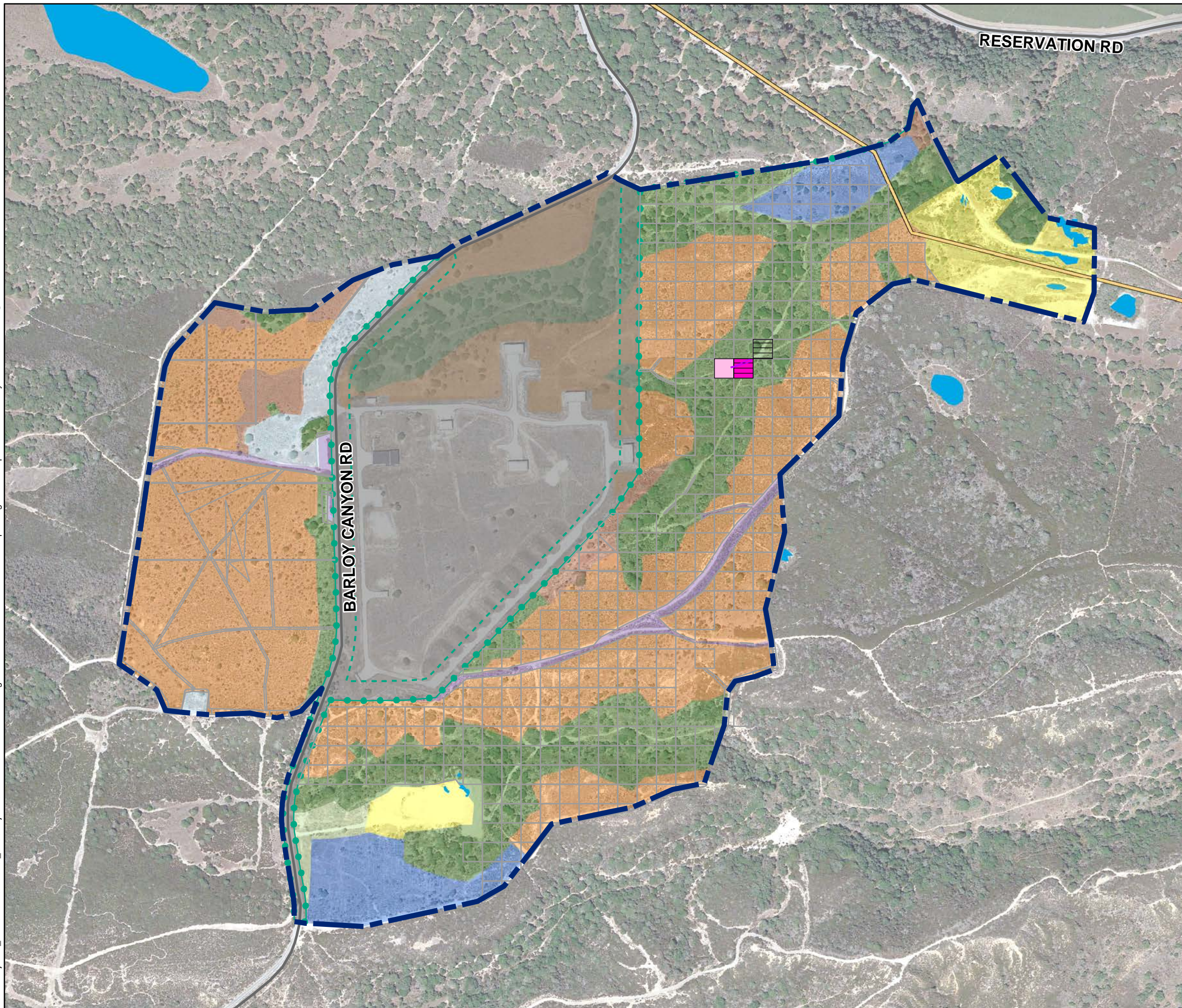
**2016 Annual Natural Resource Report**

**Vegetation Monitoring and HMP Herbaceous Survey Locations Interim Action Ranges MRA**

FORA ESCA RP  
Monterey County, California

Figure 6b

Z:\GISProjects\ENV\FORTORD\095956\_GISIP\Projects\MIRAs\Habitat Monitoring\2016 Annual Natural Resource Report\Fig 7a FEG Spineflower Density.mxd 11/28/2016 @ 4:40:05 PM



### Legend

- Munitions Response Area
- Major Road
- Natural Gas Pipeline
- Development Parcel
- Borderland Interface
- 100-Foot Buffer from Borderland Interface
- Aquatic Features

### Vegetation Types

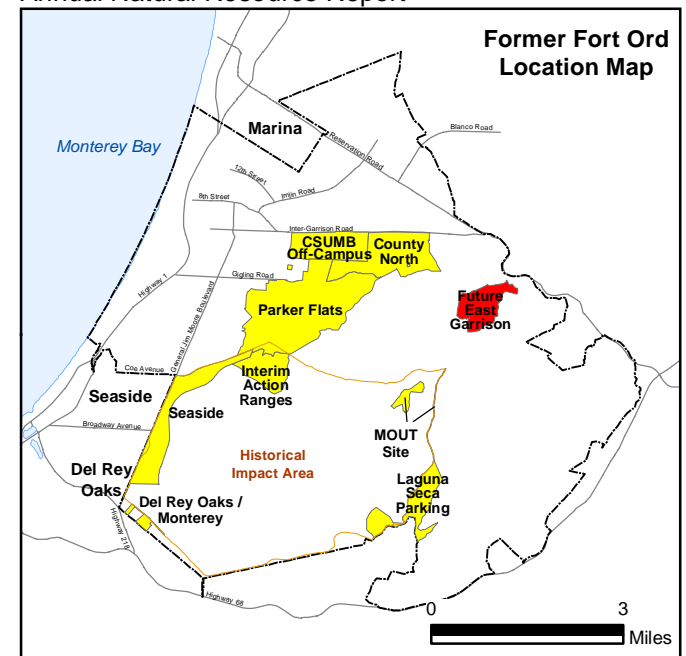
- Central Maritime Chaparral
- Chamise-dominated Chaparral
- Low Quality Disturbed Chaparral
- Coast Live Oak Woodland
- Grassland
- Ruderal and Cleared Areas
- Low Recruitment Area
- Roadways and Fuel Breaks

### 2016 Species Density (# per 10,000 sq. ft.)

(Survey areas shown outside of MRA habitat boundaries serve as reference locations)

<span style="display: inline-block; width: 15px; height: 10px; background-color: white; border: 1px solid black; margin-right: 5px;"></span> 0	<span style="display: inline-block; width: 15px; height: 10px; background-color: magenta; border: 1px solid black; margin-right: 5px;"></span> 101-500
<span style="display: inline-block; width: 15px; height: 10px; background-color: pink; border: 1px solid black; margin-right: 5px;"></span> 1-50	<span style="display: inline-block; width: 15px; height: 10px; background-color: lightpink; border: 1px solid black; margin-right: 5px;"></span> 2016 Occupied Habitat and Sample Plots
<span style="display: inline-block; width: 15px; height: 10px; background-color: magenta; border: 1px solid black; margin-right: 5px;"></span> 51-100	<span style="display: inline-block; width: 15px; height: 10px; border: 1px solid black; margin-right: 5px;"></span> Baseline Grid

Note: Vegetation mapping modified from 2011 Annual Natural Resource Report



Aerial Source: Google Earth Pro,  
 Accessed 11/21/2014 - Image Date: 8/25/2013

0 500 1,000 Feet



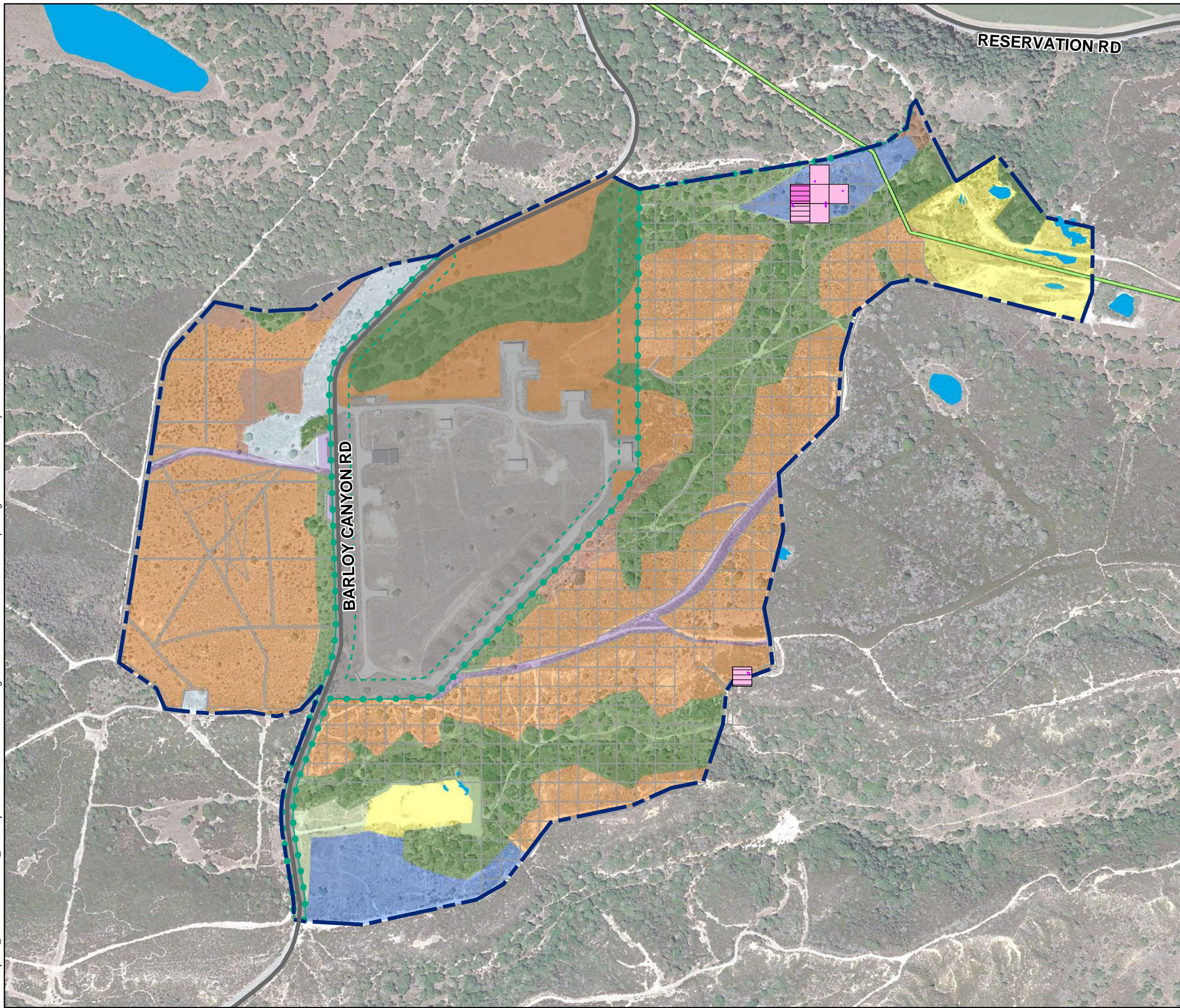
**2016 Annual Natural Resource Report**

**HMP Herbaceous Species in the Future East Garrison MRA - Monterey Spineflower**

FORA ESCA RP  
 Monterey County, California

**Figure 7a**

Z:\GISProjects\ENV\FORd\095956\_GISIP\projects\Habitat\Monitoring\2016 Annual Natural Resource Report\Fig 7b FEG Gilia Density.mxd 11/28/2016 @ 5:11:20 PM



### Legend

- Munitions Response Area
- Major Road
- Natural Gas Pipeline
- Development Parcel
- Borderland Interface
- 100-Foot Buffer from Borderland Interface
- Aquatic Features

### Vegetation Types

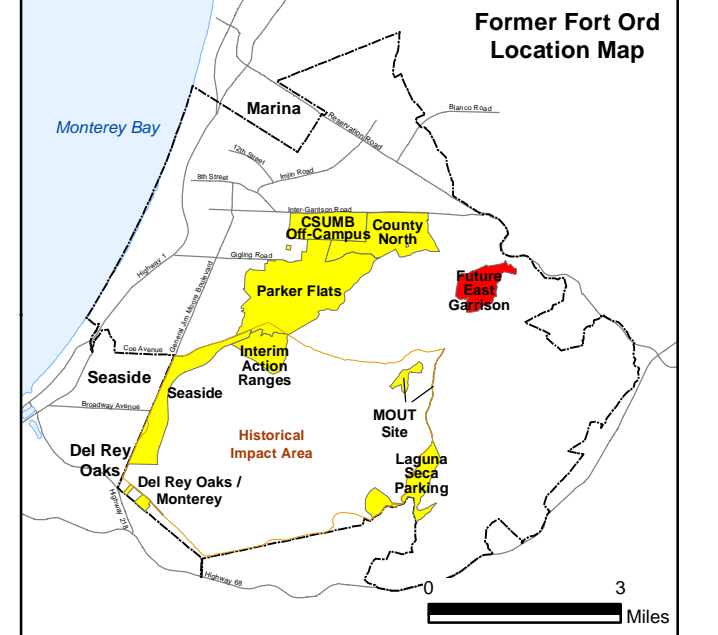
- Central Maritime Chaparral
- Chamise-dominated Chaparral
- Low Quality Disturbed Chaparral
- Coast Live Oak Woodland
- Grassland
- Ruderal and Cleared Areas
- Low Recruitment Area
- Roadways and Fuel Breaks

### 2016 Species Density (# per 10,000 sq. ft.)

(Survey areas shown outside of MRA habitat boundaries serve as reference locations)

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<span style="display: inline-block; width: 15px; height: 10px; background-color: pink; border: 1px solid black; margin-right: 5px;"></span> 1-50	<span style="display: inline-block; width: 15px; height: 10px; border: 1px solid black; margin-right: 5px;"></span> 2016 Occupied Habitat and Sample Plots
	<span style="display: inline-block; width: 15px; height: 10px; border: 1px solid black; margin-right: 5px;"></span> Baseline Grid

Note: Vegetation mapping modified from 2011 Annual Natural Resource Report



Aerial Source: Google Earth Pro,  
 Accessed 11/21/2014 - Image Date: 8/25/2013

0 500 1,000 Feet



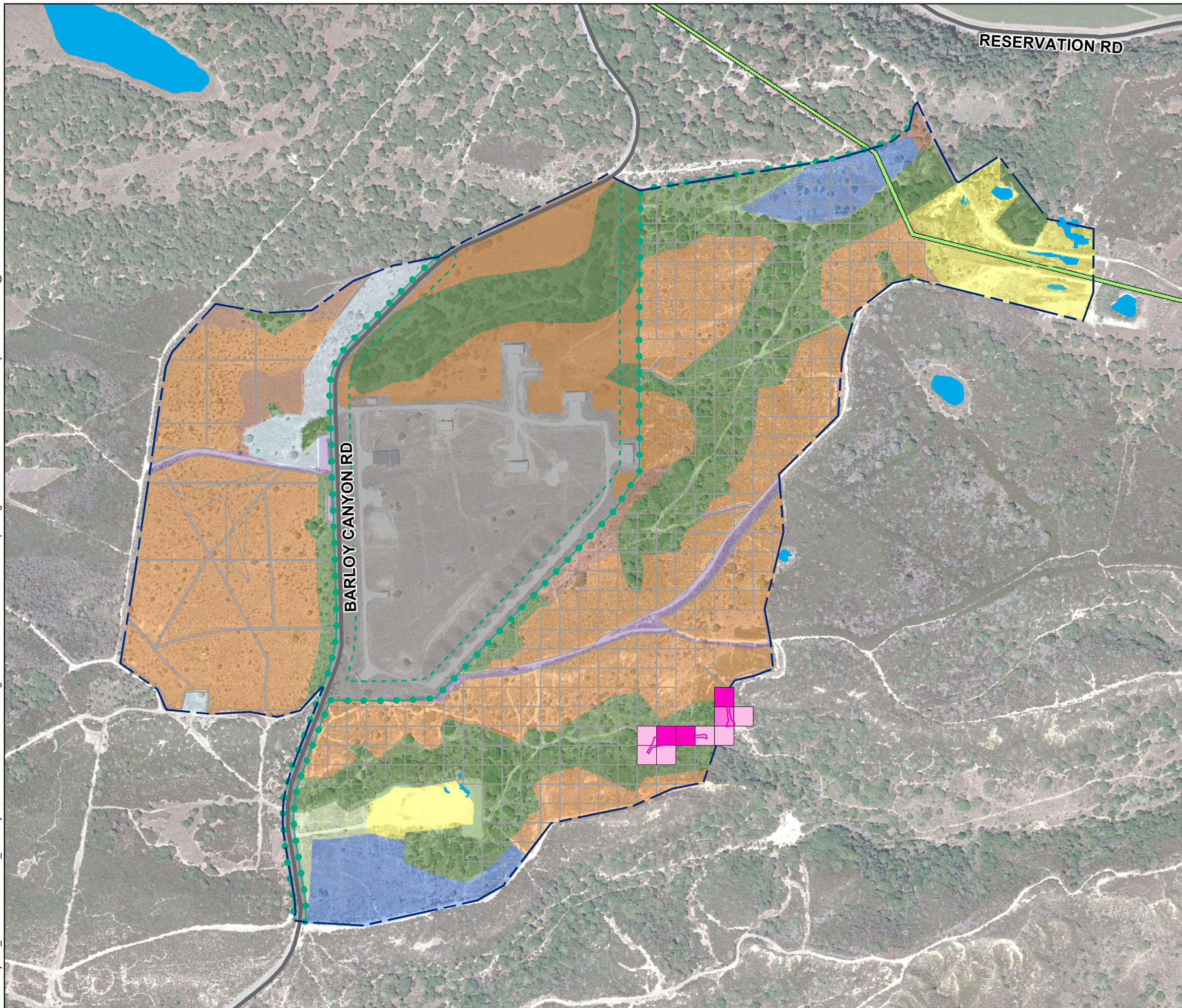
**2016 Annual Natural Resource Report**

**HMP Herbaceous Species in the Future East Garrison MRA - Monterey Gilia**

FORA ESCA RP  
 Monterey County, California

**Figure 7b**

Z:\GISProjects\_ENV\FORTD095956\_GIS\Projects\AllMRAs\Habitat\_Monitoring\2016 Annual Natural Resource Report\Fig 7c FEG Seaside Birdspeak Density.mxd 11/30/2016 @ 2:04:35 PM



### Legend

- Munitions Response Area
- Major Road
- Natural Gas Pipeline
- Development Parcel
- Borderland Interface
- 100-Foot Buffer from Borderland Interface
- Aquatic Features

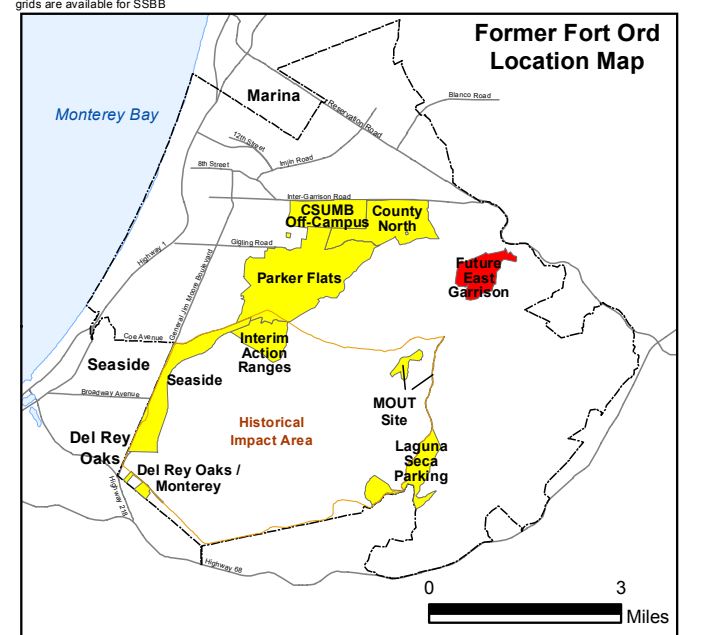
### Vegetation Types

- Central Maritime Chaparral
- Chamise-dominated Chaparral
- Low Quality Disturbed Chaparral
- Coast Live Oak Woodland
- Grassland
- Ruderal and Cleared Areas
- Low Recruitment Area
- Roadways and Fuel Breaks

### 2016 Species Density (# per 10,000 sq. ft.)

(Survey areas shown outside of MRA habitat boundaries serve as reference locations)

<span style="display: inline-block; width: 15px; height: 10px; background-color: white;"></span> 0	<span style="display: inline-block; width: 15px; height: 10px; background-color: magenta;"></span> 101-500
<span style="display: inline-block; width: 15px; height: 10px; background-color: pink;"></span> 1-50	<span style="display: inline-block; width: 15px; height: 10px; border: 1px solid magenta;"></span> 2016 Occupied Habitat and Sample Plots
<span style="display: inline-block; width: 15px; height: 10px; background-color: magenta;"></span> 51-100	



Aerial Source: Google Earth Pro,  
 Accessed 11/21/2014 - Image Date: 8/25/2013

0 500 1,000 Feet



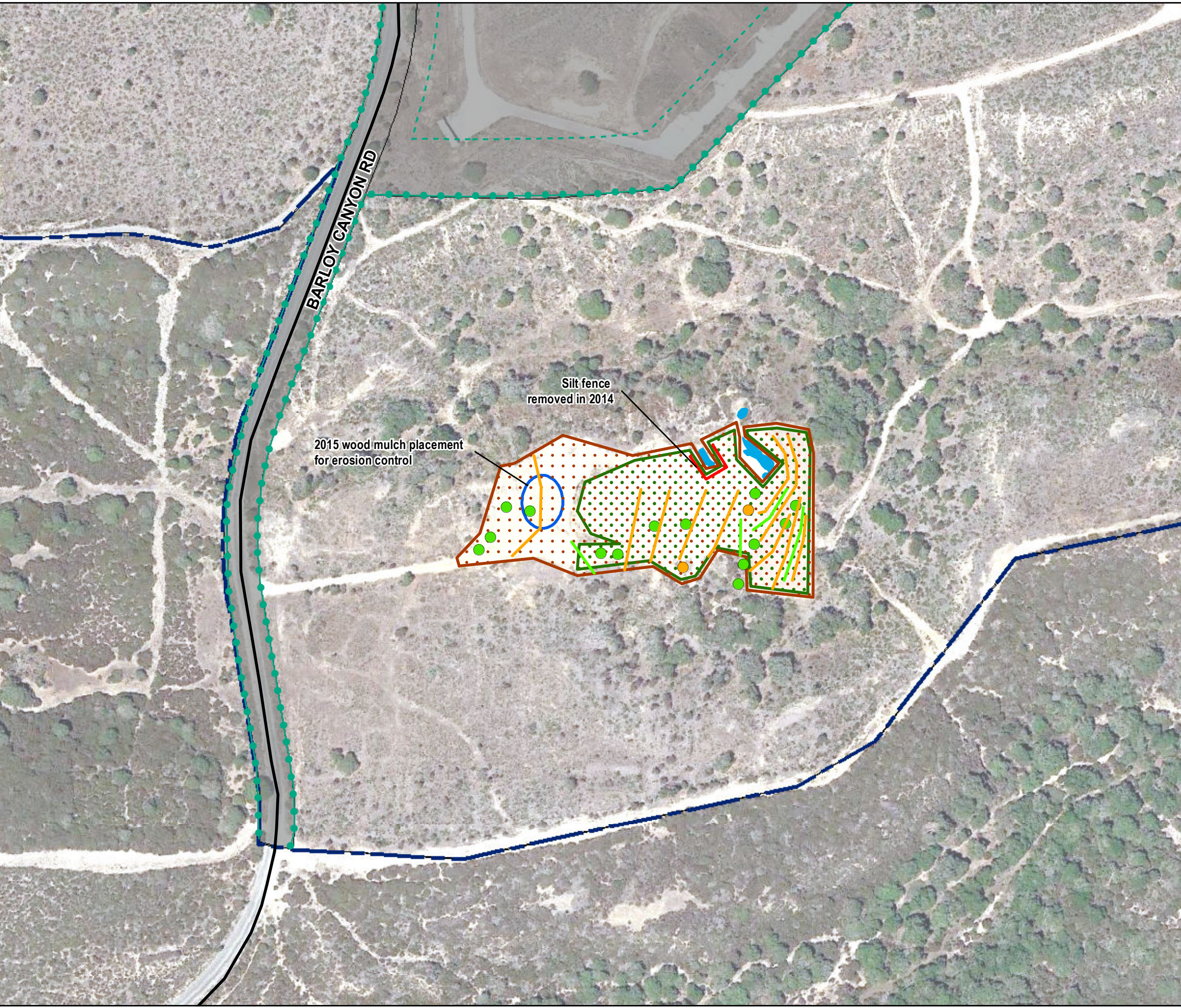
**2016 Annual Natural Resource Report**

**HMP Herbaceous Species in the Future East Garrison MRA - Seaside Bird's Beak**

FORA ESCA RP  
 Monterey County, California

**Figure 7c**

Z:\GIS\PROJECTS\_ENV\FortOrd\095956\_GIS\Projects\A\IMRAs\Habitat\_Monitoring\2015 Annual Natural Resource Report\Fig 10a Erosion Monitoring - FEG.mxd 12/10/2015 @ 11:35:30 AM

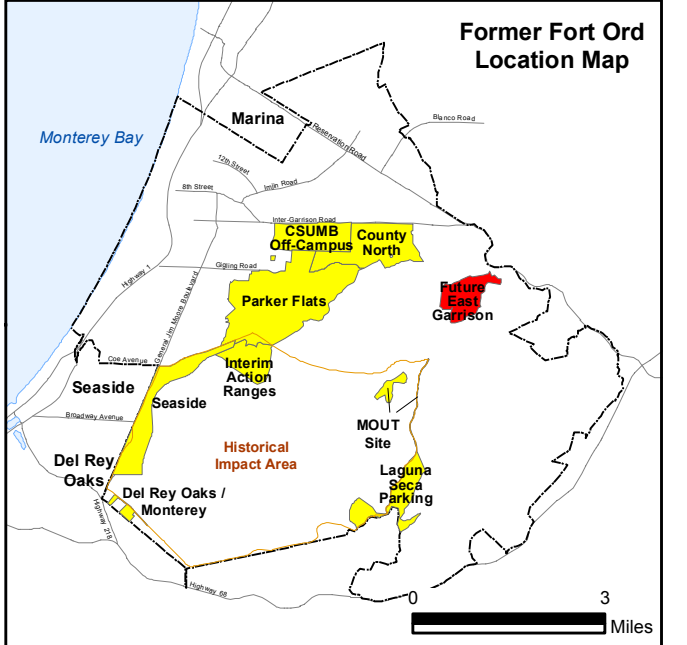


### Legend

- Major Road
- Munitions Response Area
- Development Parcel
- Aquatic Features
- Borderland Interface
- 100-Foot Buffer from Borderland Interface

### Erosion Control Measures

- 2013 Sand Bags/Straw Bales/Erosion Control Blanket
- 2014 Sand Bags/Straw Bales/Erosion Control Blanket
- 2013 Silt Fencing
- 2013 Straw Wattles/Water Bars
- 2014 Straw Wattles/Water Bars
- 2013 Hydroseed Areas
- 2014 Hydroseed Areas
- 2015 Wood Mulch



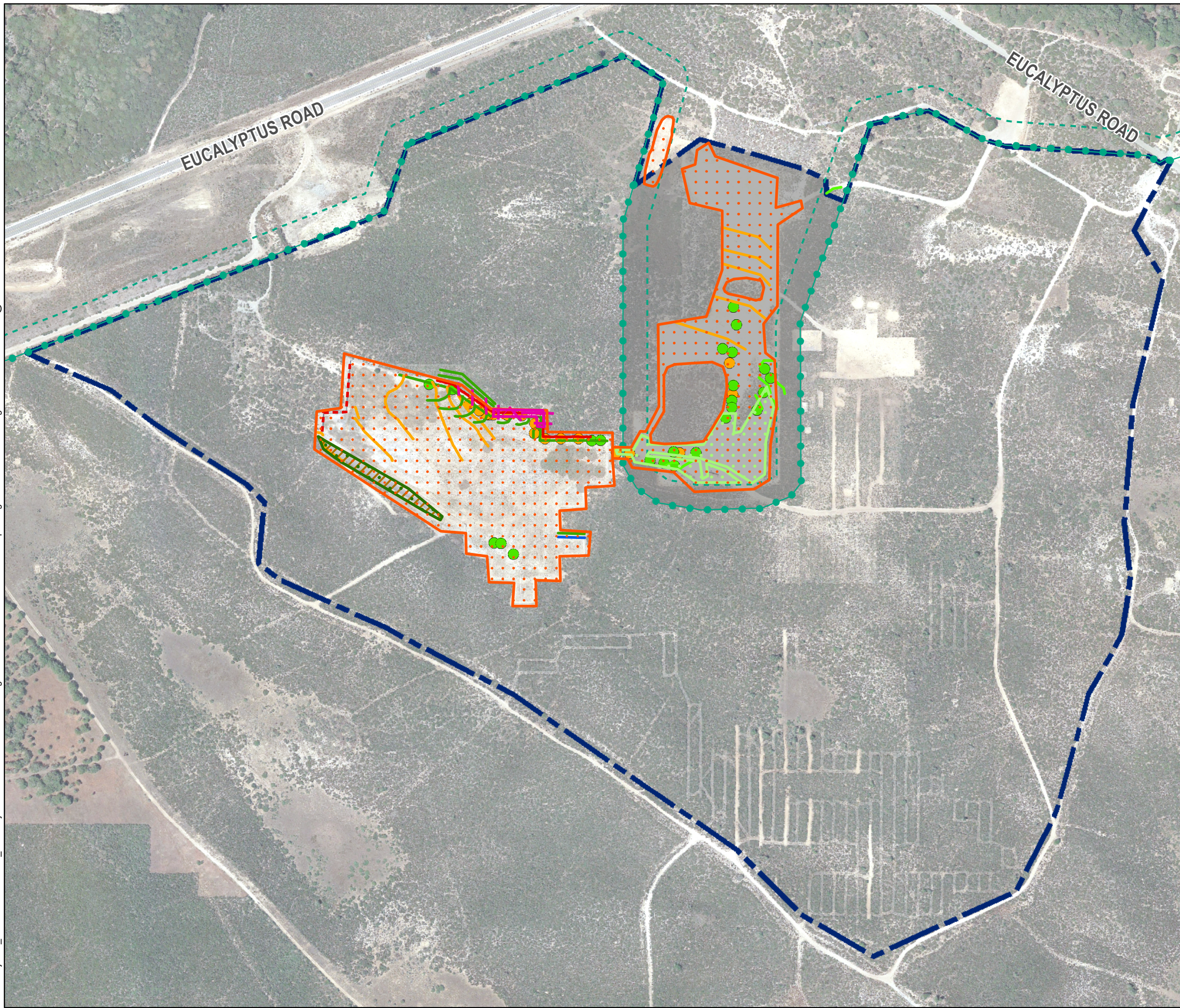
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Accessed 11/21/2014 - Image Date: 8/25/2013



2016 Annual Natural Resource Report  
**Erosion Control BMPs in Future East Garrison MRA 2013-2016**  
FORA ESCA RP  
Monterey County, California

Figure 8a

Z:\GIS\Projects\ENV\FORTORD\095956\_GIS\Projects\AllMRA\Habitat Monitoring\2016 Annual Natural Resource Report\Fig 8b Erosion Monitoring - IAR.mxd 11/30/2016 @ 2:01:06 PM

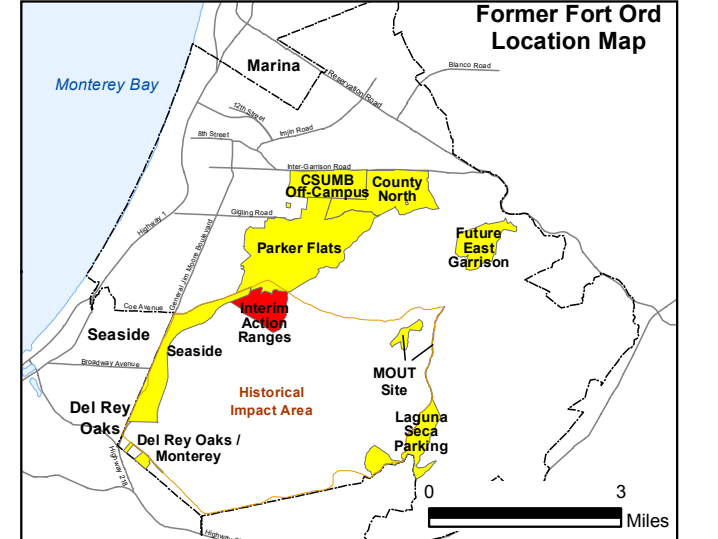


### Legend

- Major Road
- - - Munitions Response Area
- ▭ Development Parcel
- Borderland Interface
- - - 100-Foot Buffer from Borderland Interface

#### Erosion Control Measures

- 2013 Silt Fencing
- - - 2013 Wind Screen
- 2013 Straw Wattles/Water Bars
- 2014 Silt Fencing
- 2014 Straw Wattles/Water Bars
- 2016 Silt Fencing
- 2016 Straw Wattles
- 2013 Sand Bags/Straw Bales/Erosion Control Blanket
- 2014 Sand Bags/Straw Bales/Erosion Control Blanket
- ▭ 2013 Hydromulch Areas
- ▨ 2013 Erosion Control Blanket
- ▭ 2014 Hydromulch Areas
- ▭ 2014 Hydroseed Areas
- ▨ 2016 Erosion Blanket



Aerial Source: Google Earth Pro,  
 Accessed 11/21/2014 - Image Date: 8/25/2013

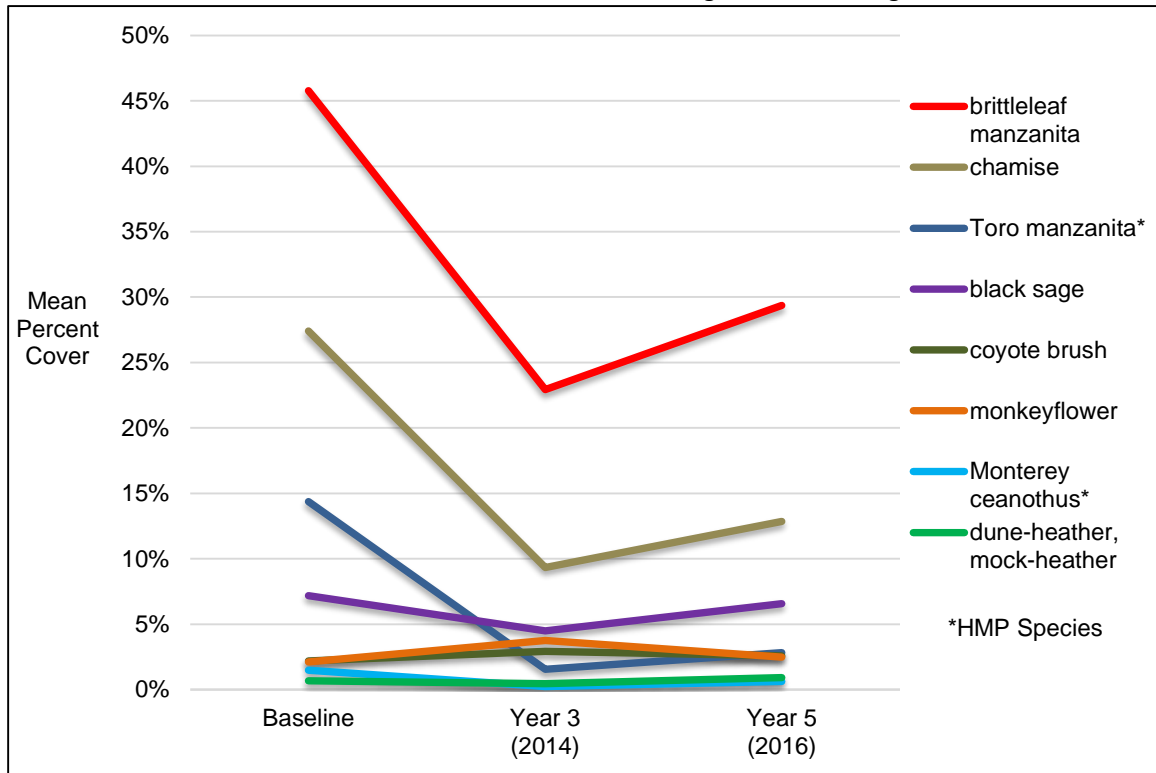
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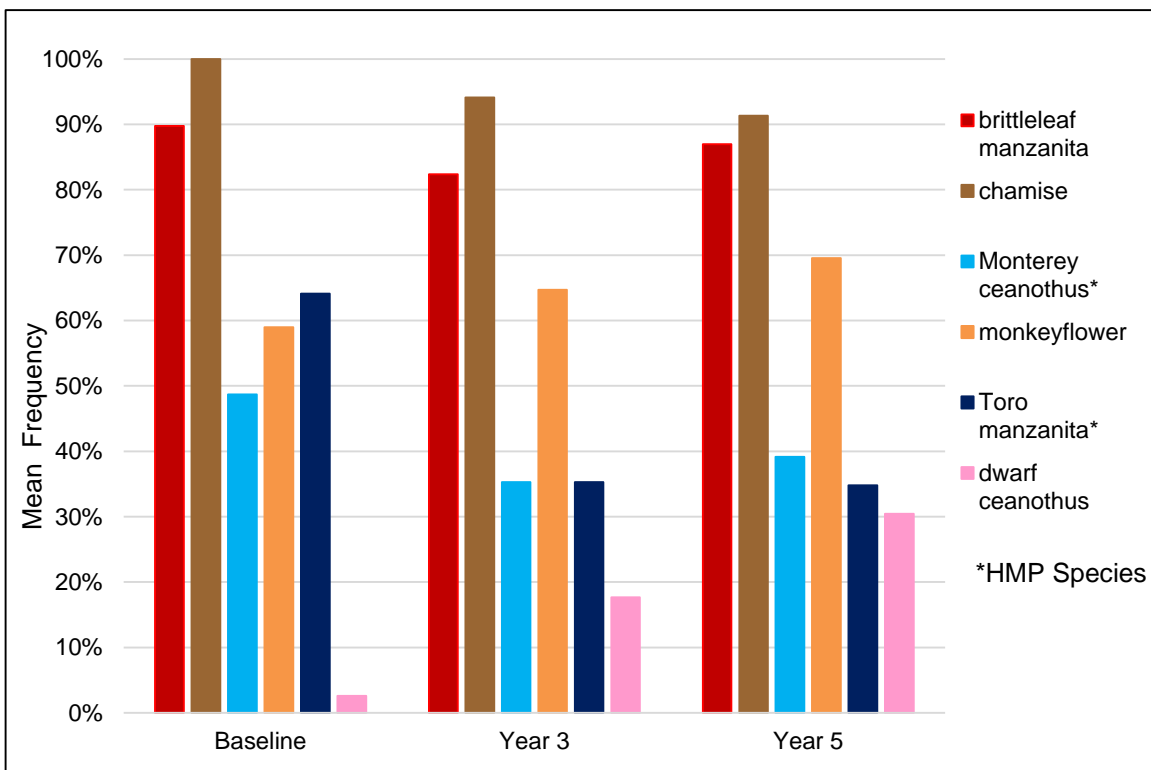
2016 Annual Natural Resource Report  
**Erosion Control BMPs in Interim Action Ranges MRA 2013-2016**  
 FORA ESCA RP  
 Monterey County, California

**Figure 8b**

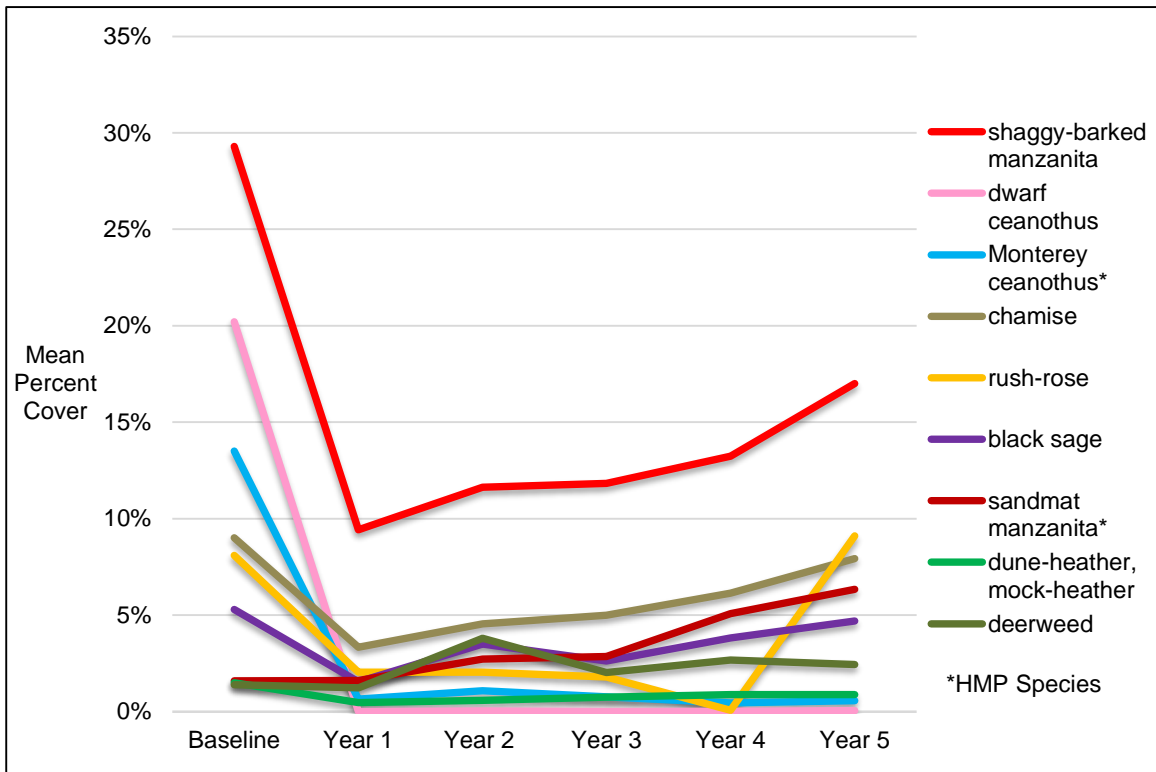
**Figure 9**  
**Future East Garrison MRA – Mean Shrub Cover after Vegetation Cutting**



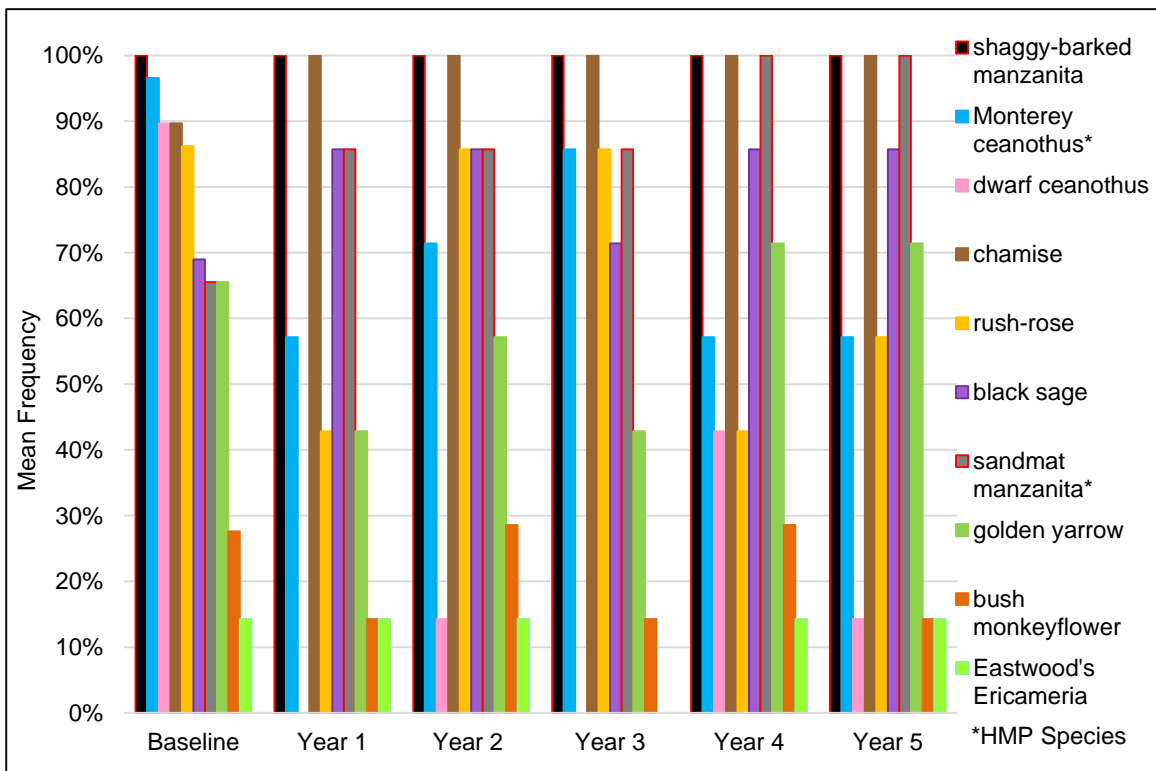
**Figure 10**  
**Future East Garrison MRA – Mean Frequency of Shrub Species after Vegetation Cutting**



**Figure 11**  
Interim Action Ranges MRA South Range 44 SCA and Central Area NCAs – Mean Shrub Cover after Vegetation Cutting

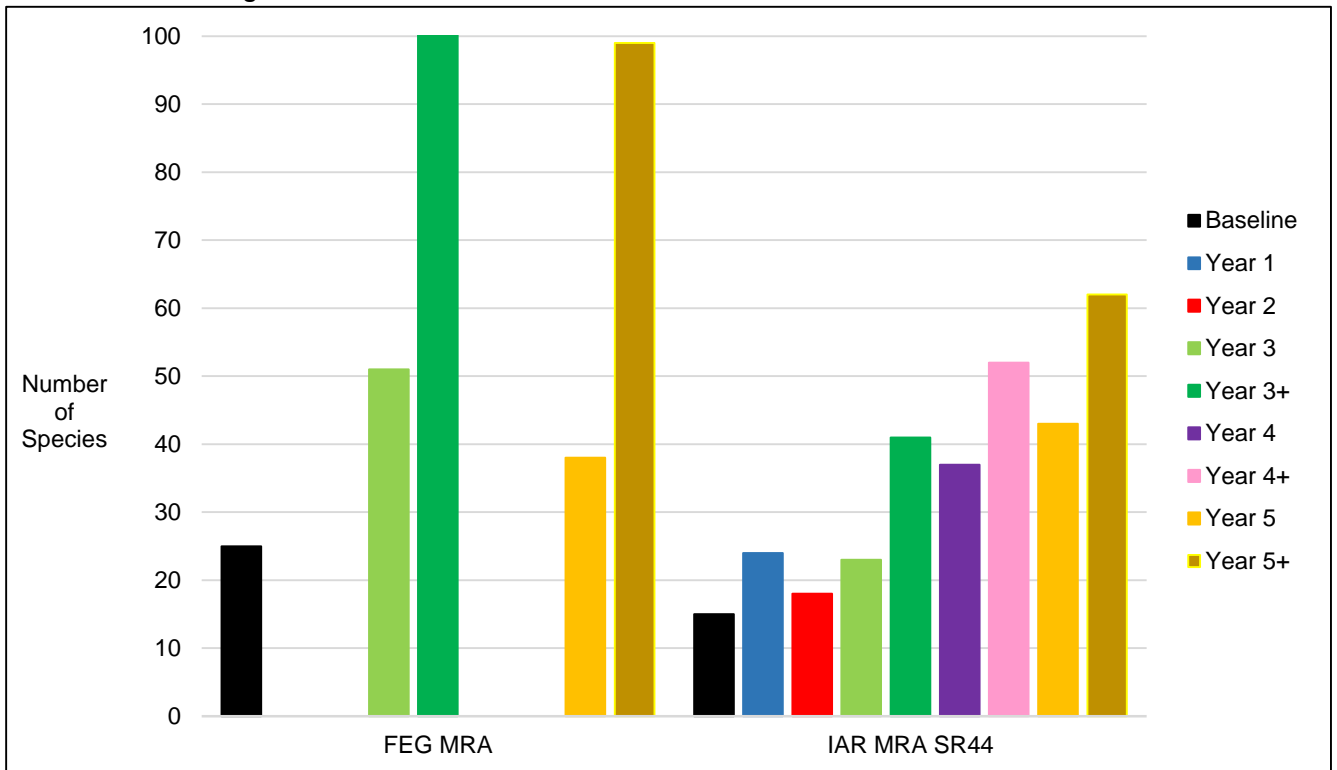


**Figure 12**  
Interim Action Ranges MRA South Range 44 SCA and Central NCAs – Mean Frequency of Shrub Species after Vegetation Cutting



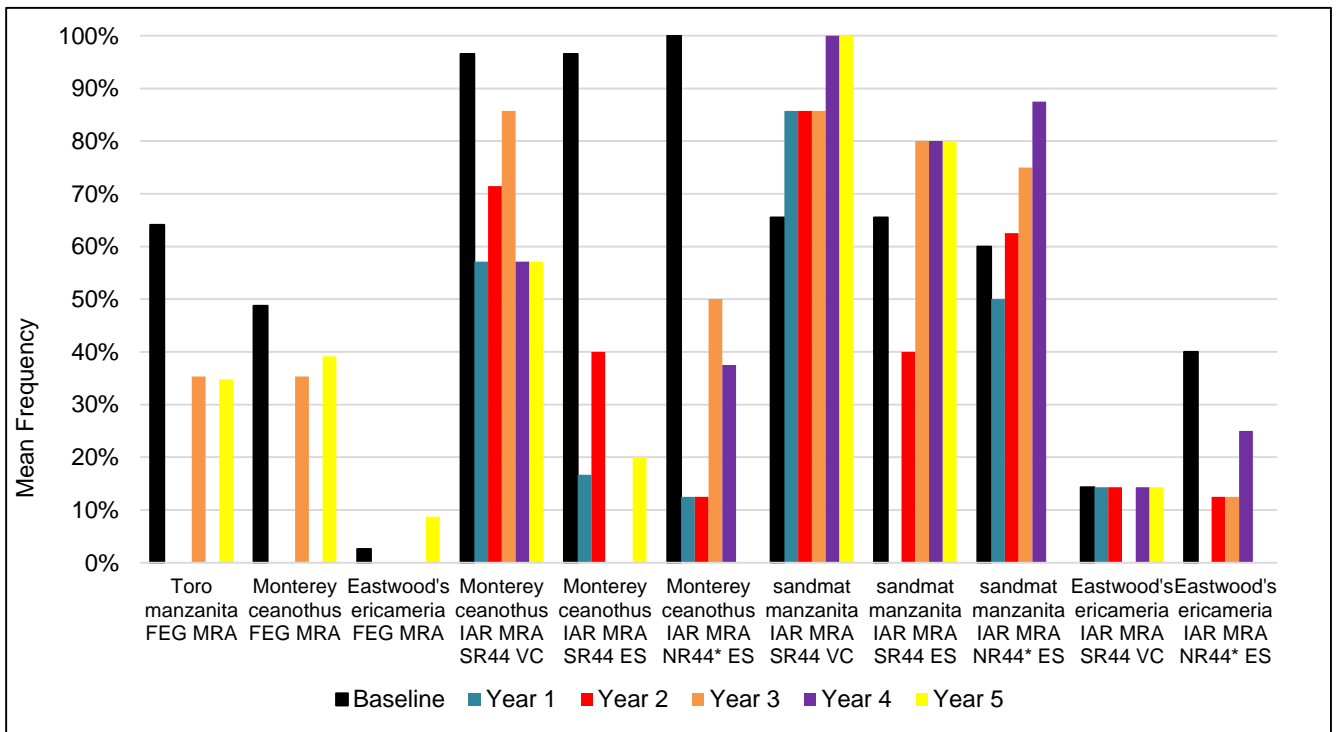


**Figure 13**  
**Native Species Diversity before and after Vegetation Cutting in Future East Garrison MRA and Interim Action Ranges MRA 2010 – 2016**



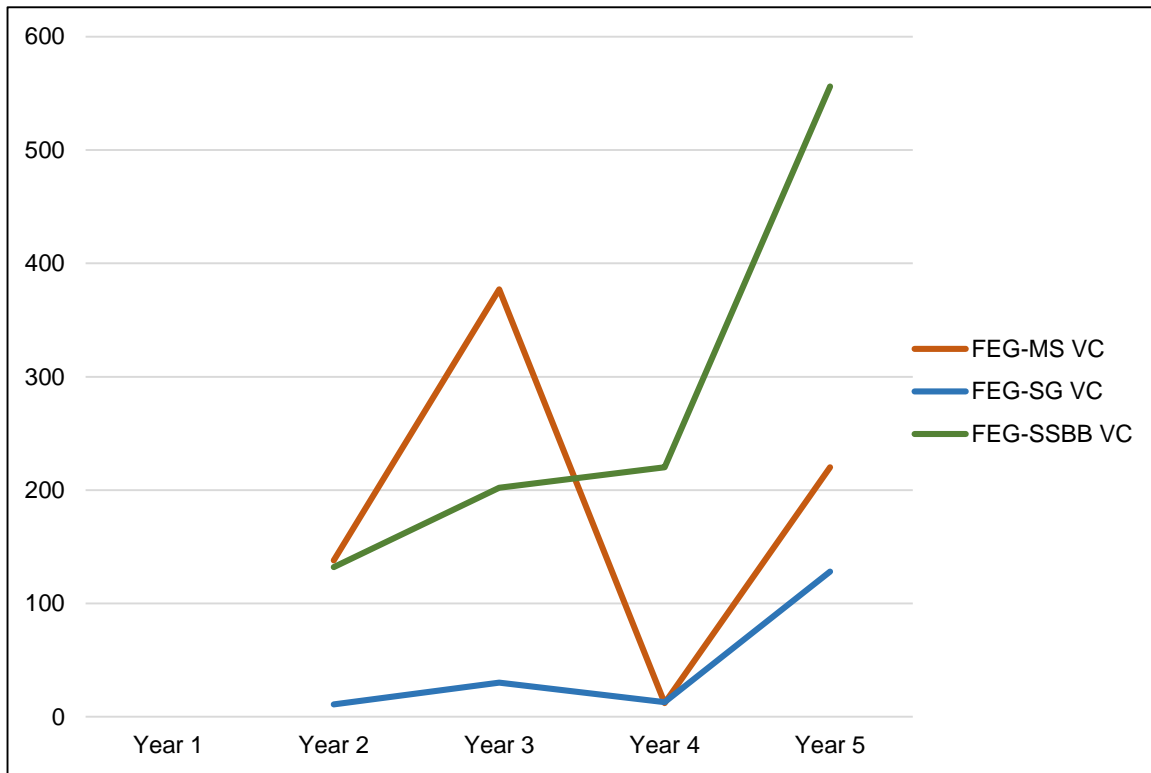
\*NR44 Monitoring began in 2012, a year after SR44. Only ES areas were monitored in NR44 in 2016. SR44 = South Range 44, NR44 = North Range 44, VC = Vegetation Cutting, ES = small-scale excavation. FEG Monitoring occurs during Years 3, 5, 8, and 13, therefore there are no data for Years 1, 2, and 4.

**Figure 14**  
**HMP Shrub Species Frequency in Future East Garrison MRA and Interim Action Ranges MRA 2010 – 2016**



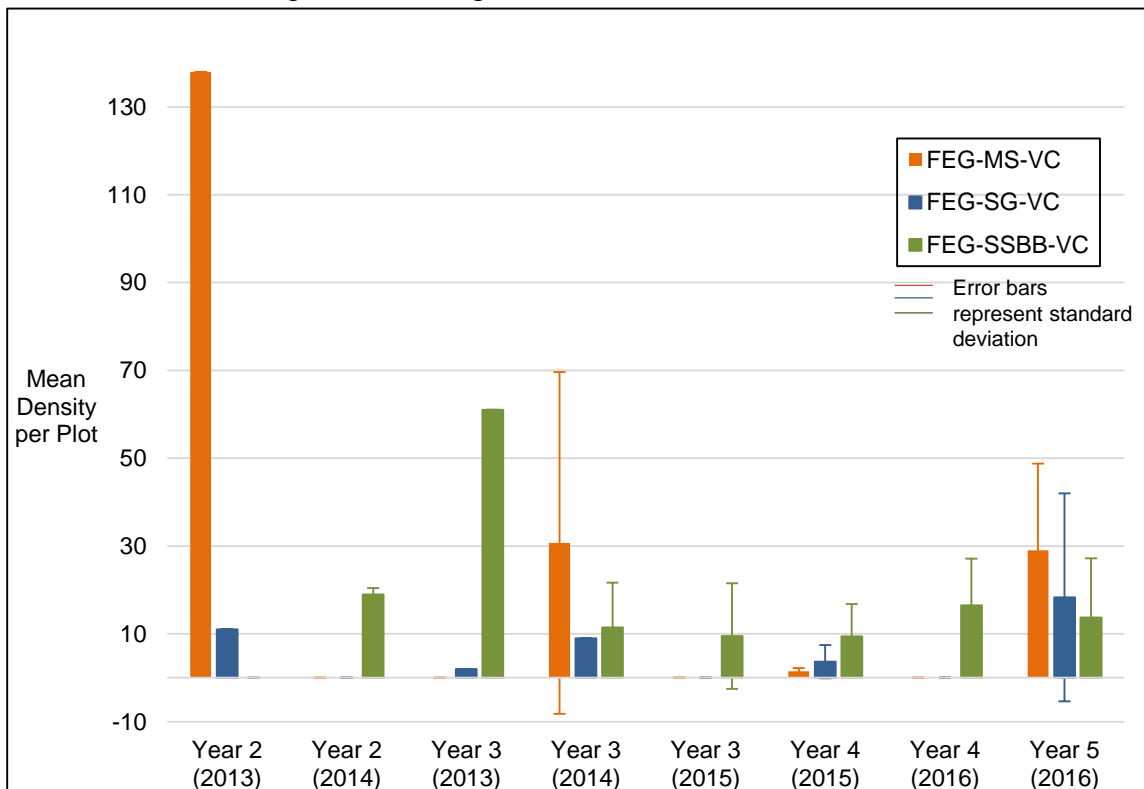
\*NR44 Monitoring began in 2012, a year after SR44. Only ES areas were monitored in NR44 in 2016. FEG Monitoring occurs during Years 3, 5, 8, and 13, therefore there are no data for Years 1, 2, and 4. SR44 = South Range 44, NR44 = North Range 44, VC = Vegetation Cutting, ES = small-scale excavation

**Figure 15. Future East Garrison MRA – Total Number of HMP Herbaceous Species Year 2 – Year 5 after Vegetation Cutting**



MS = Monterey spineflower, SG = sand (Monterey) gilia, SSBB = seaside bird's-beak  
VC = vegetation cutting,

**Figure 16. Future East Garrison MRA – Mean Density per Plot of HMP Herbaceous Species In 2013 - 2016 after Vegetation Cutting in Years 2- 5.**



MS = Monterey spineflower, SG = sand (Monterey) gilia, SSBB = seaside bird's-beak VC = vegetation cutting  
'Year' represents number of years since VC. The Year in parenthesis (e.g., 2013) is monitoring year.  
For example: Year 2 (2013) represents grids VC in 2011, Year 2 (2014) represent grids VC in 2012.