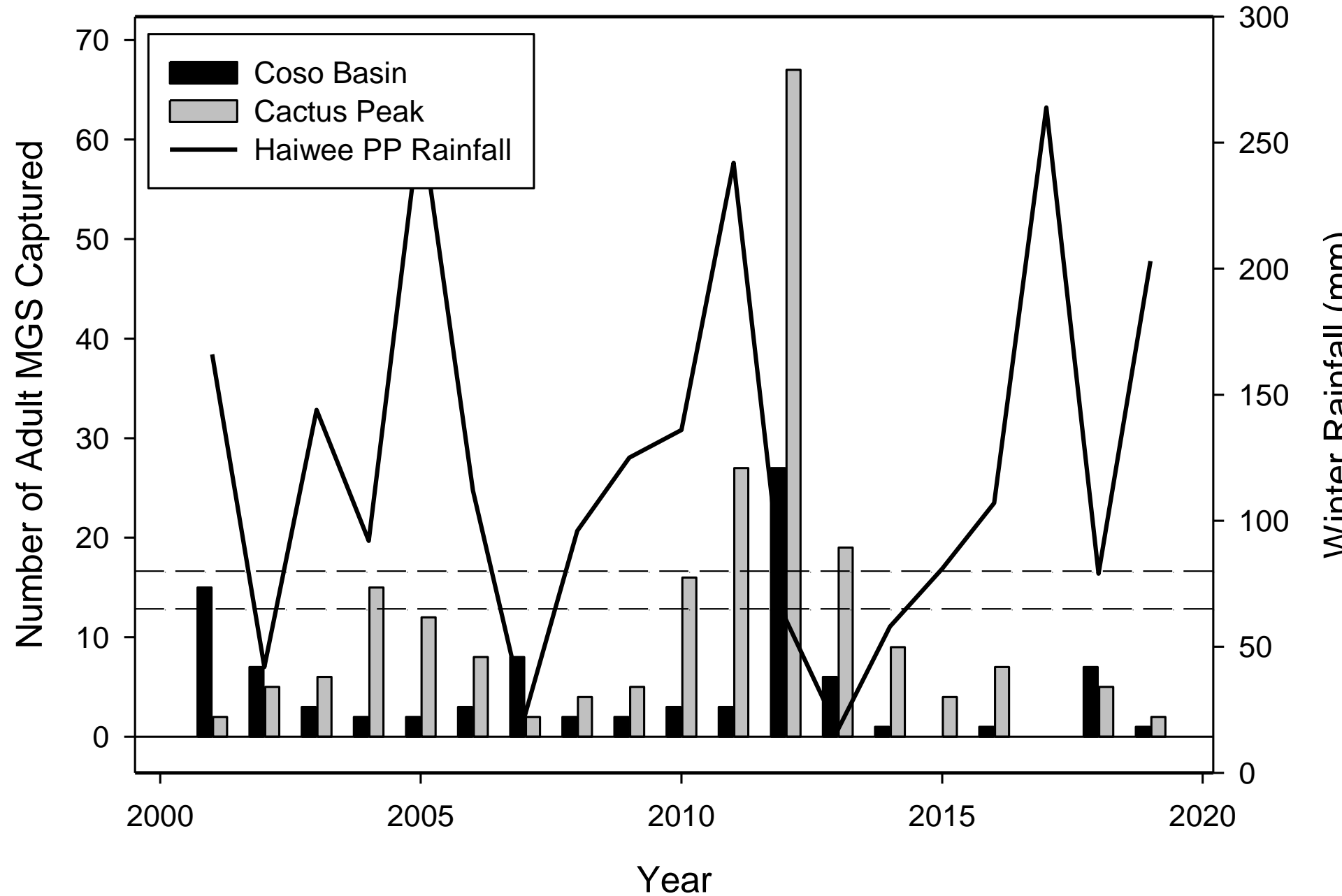


2019 MGS FIELD WORK

Phil Leitner
and
Many Others

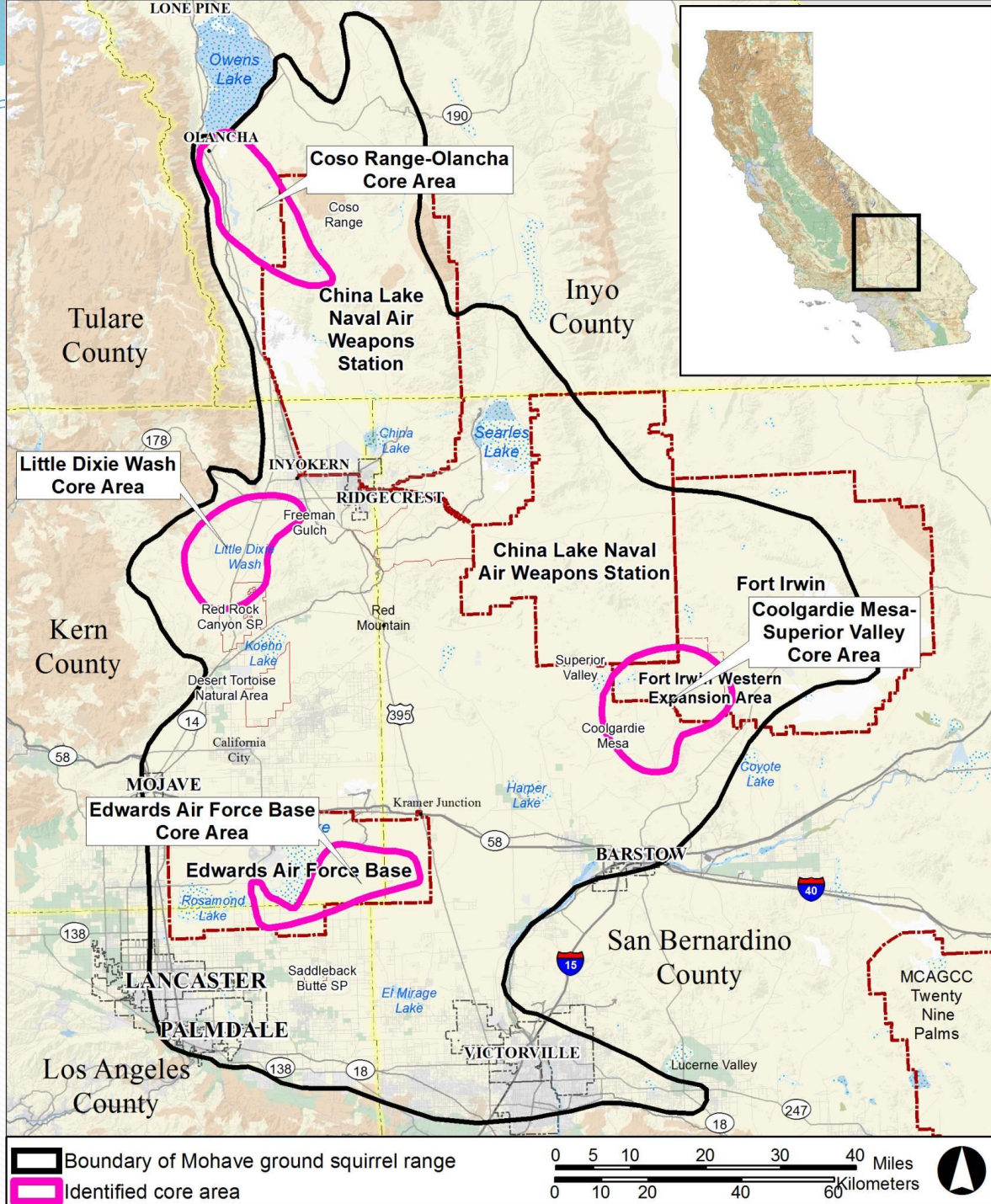
2019 Coso Monitoring

- Trapping 2 Coso grids in late March
- Results were meager – just 3 MGS captured
- Two of the 3 females were reproductive
- In 2018, there were 12 MGS captured
 - 7 of 8 females were pregnant
- What happened to all their offspring?
- Why the very low survival?



Monitoring on BLM Lands

- 4 grids trapped in Little Dixie Wash core area
- 3 grids trapped in Coolgardie Mesa core area
- MGS-RTGS contact zone W of Hinkley
 - Camera trapping at 16 sites – same as 2017-2018
 - Live trapping at 4 sites
- BLM Development Focus Areas
 - 3 DFAs – North of Kramer, Searles, Haiwee
 - Live trapping and camera trapping



Tulare
County

Inyo
County

**Little Dixie Wash
Core Area**

**Coso Range-Olancho
Core Area**

China Lake
Naval Air
Weapons
Station

China Lake Naval
Air Weapons Station

**Fort Irwin
Coolgardie Mesa-
Superior Valley
Core Area**

Fort Irwin Western
Expansion Area

**Edwards Air Force Base
Core Area**

Edwards Air Force
Base

San Bernardino
County

MCAGCC
Twenty
Nine
Palms

Los Angeles
County

LANCASTER

PALMDALE

VICTORVILLE

BARSTOW

Lucerne Valley

OLANCHA

Owens
Lake

Coso
Range

China
Lake

Searles
Lake

Little Dixie
Wash

RIDGECREST

Koshka
Lake

Desert Tortoise
Natural Area

California
City

MOJAVE

Kramer Junction

Harper
Lake

Coyote
Lake

Saddleback
Butte SP

El Mirage
Lake

Lucerne Valley

190

178

14

58

138

138

18

58

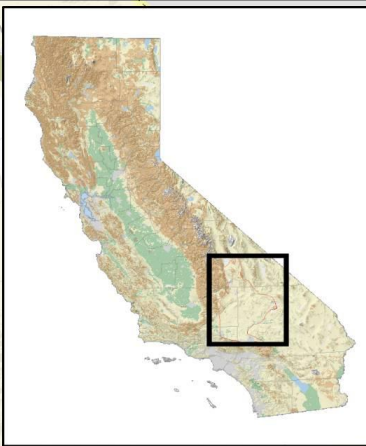
395

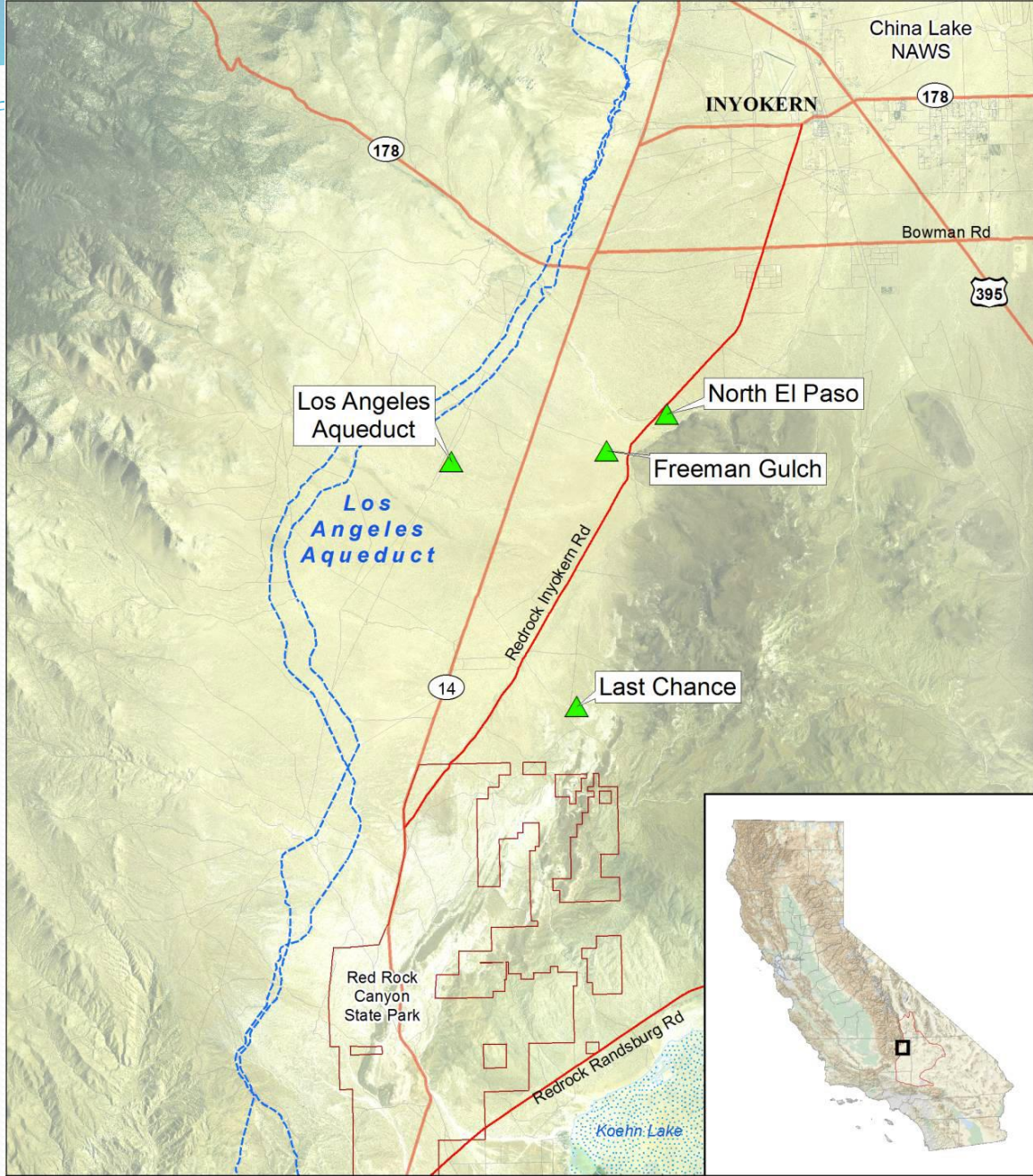
40

15

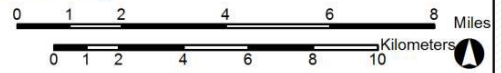
18

247





▲ Trapping grid location



Little Dixie Wash

- Same 4 locations as 2017-2018
 - In 2019 no MGS captures / very few AGS captures
 - In 2018 MGS caught at North El Paso (4) and Last Chance grids (1)
 - In 2017 no MGS captures / camera detections near Freeman Gulch and Last Chance
- Conclusions
 - MGS numbers not recovering in LDW core area
 - Not clear what the problem is

Naval Air Weapons
Station China Lake

Goldstone

Superior
Valley

Fort Irwin

Lane
Mountain
1994

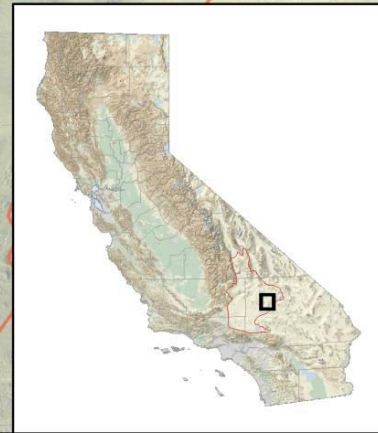
Coolgardie
Mesa

Coolgardie
Mesa

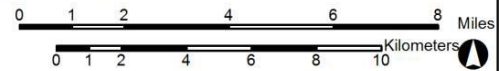
Lane
Mountain
2002

Copper City Rd

Fort Irwin Rd



▲ Trapping grid location



Coolgardie Mesa

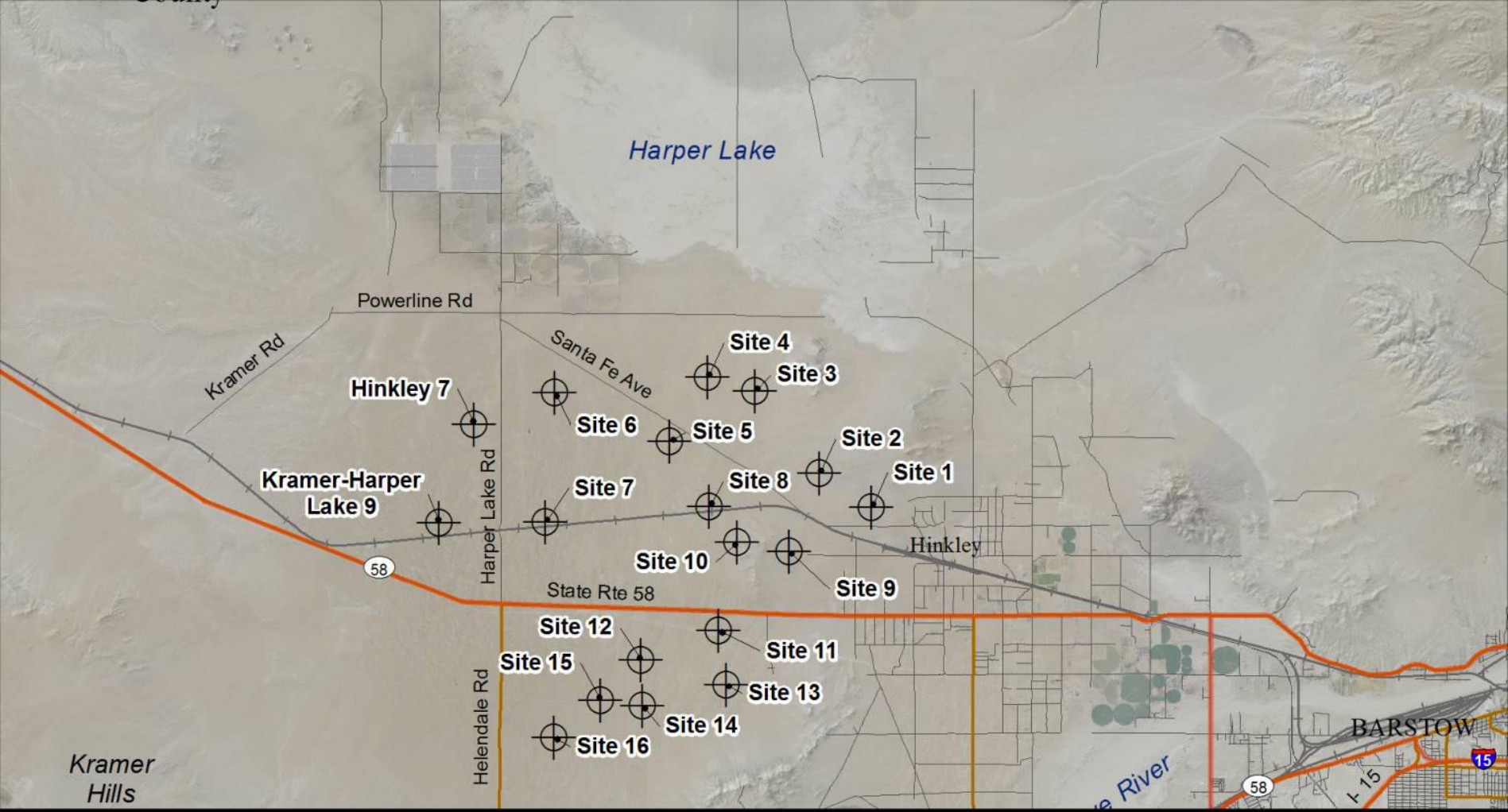
- Same 3 locations as 2017-2018
 - In 2019 no MGS captures and zero AGS captures
 - In 2018 MGS caught at Coolgardie Mesa grid (5) but no sign of reproduction
 - In 2017 no MGS captures, but 1 apparent juvenile visual detection
- Conclusions
 - Lack of MGS reproduction in CM core area in 2018
 - Apparently AGS are very scarce as well


Core Area Conclusions

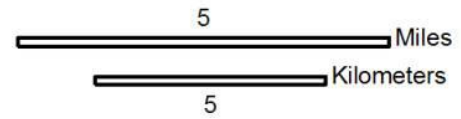
- All 7 grids were trapped in previous years
- MGS numbers have been low at all these sites since current monitoring began in 2016
- Unique situation in 2019 with no evidence of MGS presence in either of these core areas
- Presumably there are still a few MGS around but not clear why no recovery several years after 2012-2014 drought
- Only theory so far seems to be loss of key shrubs due to drought

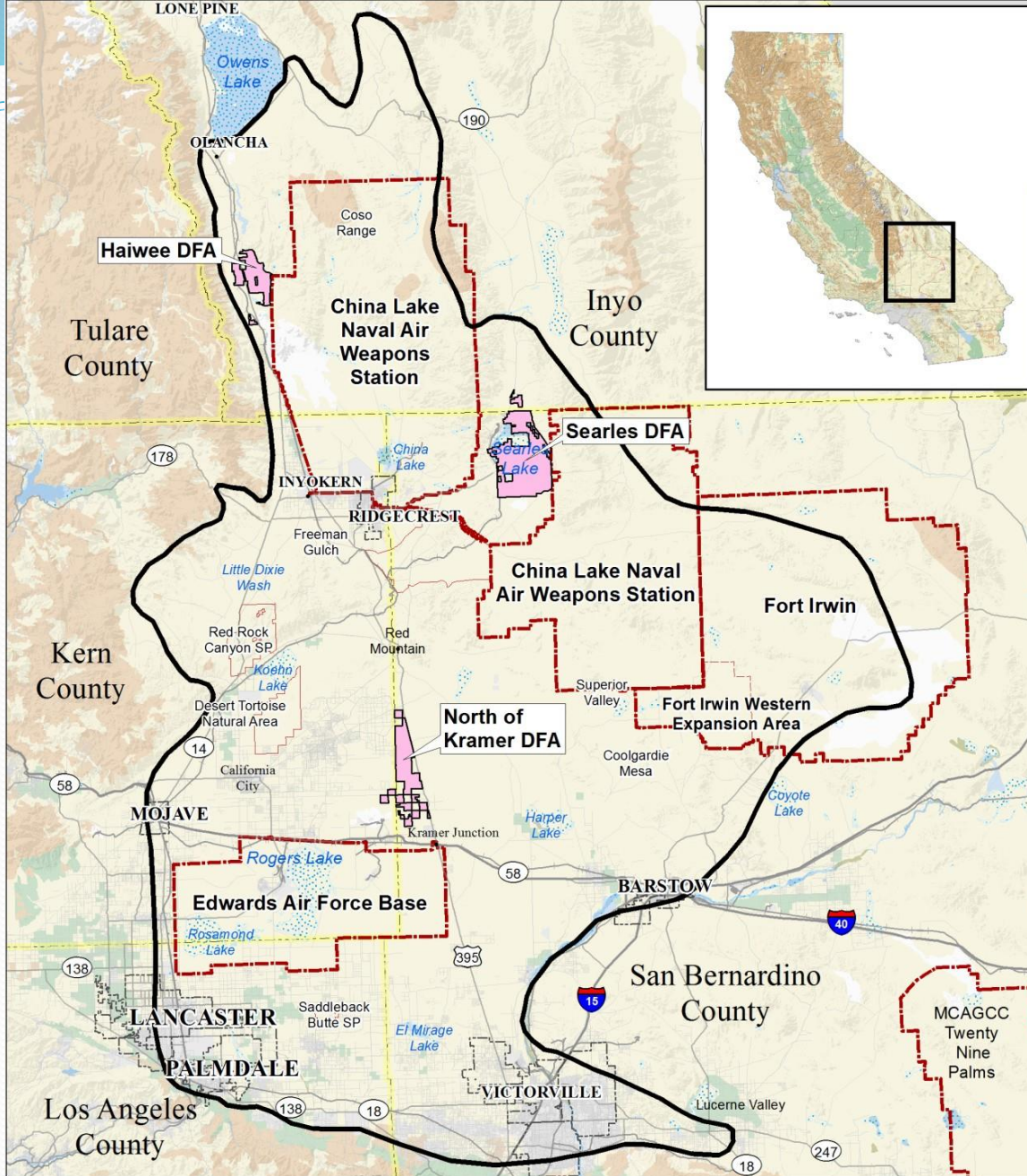
West of Hinkley

- As in 2017 and 2018 – camera surveys at same 16 sites E of Harper Lake Rd/Helendale Rd
 - In 2017 MGS were not detected at any of the camera sites
 - In 2018 MGS were present at 4 sites
 - In 2019 MGS were detected at 3 sites (11, 12, 16)
- Live-trapping was carried out in a number of locations in March and May/June 2019
 - No success in March
 - In May and June both adult and juvenile MGS were observed and trapped at several different locations

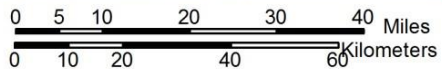


 Camera trapping site





BLM Development Focus Areas
 Boundary of Mohave ground squirrel range



DFA Results in 2019

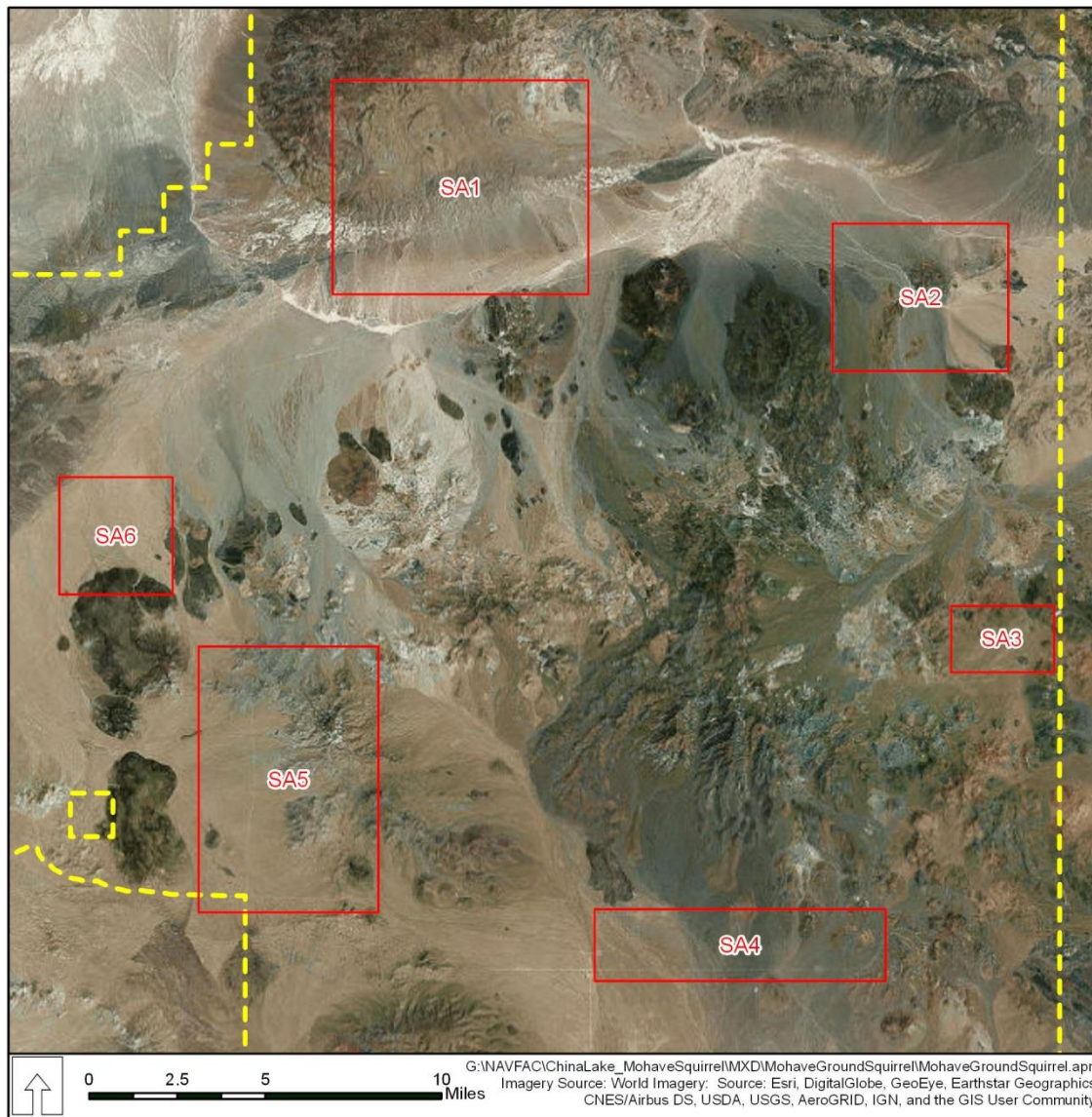
- Haiwee DFA – MGS at both camera and live-trapping sites (adults and young detected)
- North of Kramer
 - MGS at 2 of 4 live-trapping grids (adults only)
 - MGS at 4 of 4 camera sites (adults and young)
- Searles Lake
 - No MGS at any of 3 live-trapping grids
 - MGS only at Camera Site 2 / north end of lake

Edwards Air Force Base



- Live-trapping surveys at 6 sites on eastern side of base / PM Center for Environmental Management of Military Lands, Colorado State
- Attempt to collect tissue samples / check for potential RTGS incursion
- Trapping in late May yielded 4 adult female MGS captures
- Field work by Biosearch / Marjorie Matocq's lab will conduct genetic study

China Lake NAWIS South Range

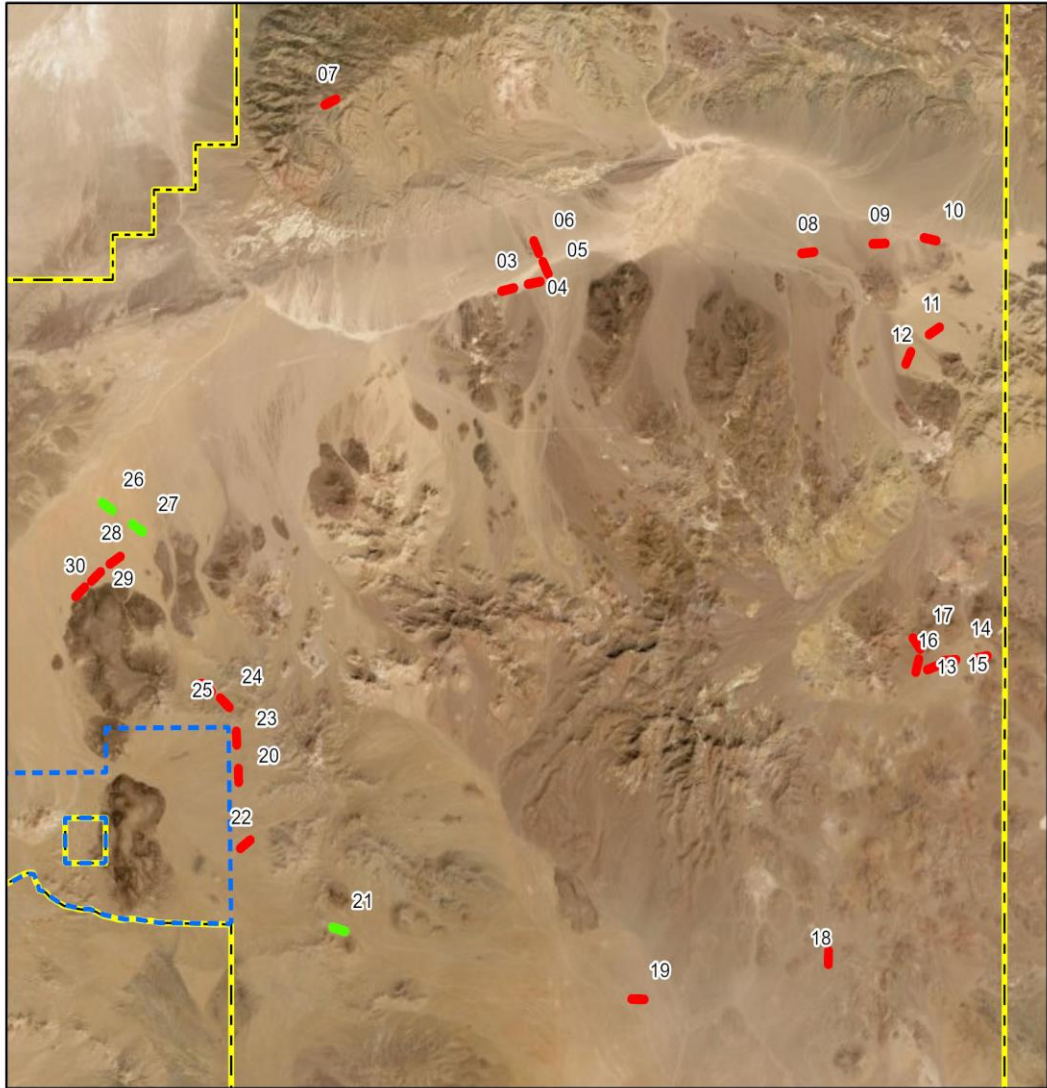
- Camera surveys for MGS on China Lake South Range / PM Vernadero Group
- Camera trapping at 25 different sites between Mar 30 and June 8
- Cameras operated for 2 weeks at each site, then moved
- Field work carried out by EREMICO



Legend

-  Survey Area Map Extent
-  NAWSCL Boundary






 0 2.5 5 10 Miles
 G:\NAVFAC\ChinaLake_MohaveSquirrel\MXD\MohaveGroundSquirrel\MohaveGroundSquirrel.aprx
 Imagery Source: World Imagery; Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

-  Cuddeback Range
-  NAWSCL Boundary
- Camera Array, MGS Observed
-  Yes
-  No

