



A Study to Investigate Responses of Mule Deer to Experimental Manipulation of Artificial Water Sources in Mojave National Preserve

Desert Managers Group

Debra Hughson, Science Advisor

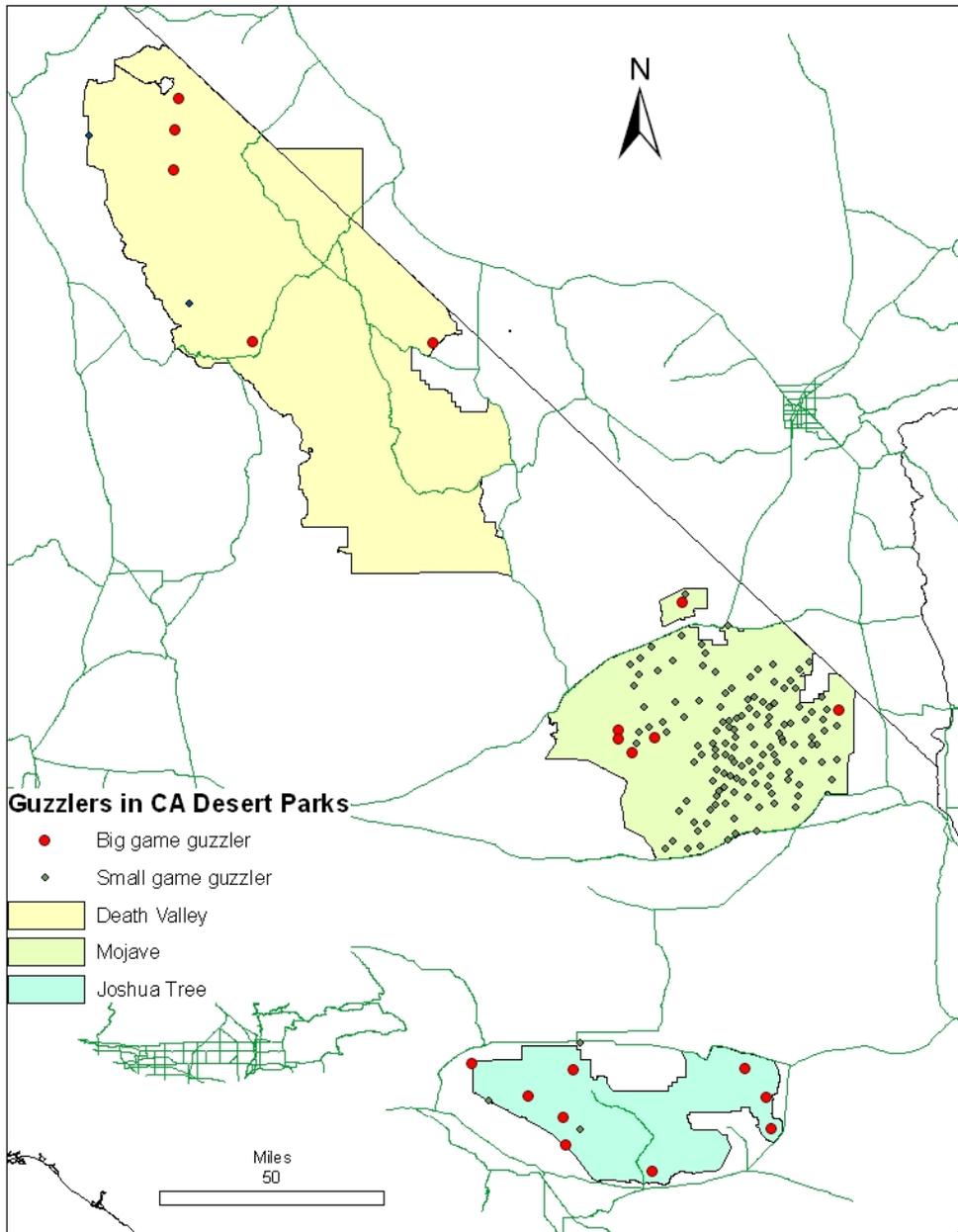
Neal Darby, Wildlife Biologist

National Park Service - Mojave National Preserve

February 28, 2008

Borrego Springs, California





- The California Desert Protection Act, passed Oct. 31, 1994,
 - added 1.2 million acres to Death Valley National Park
 - created Mojave National Preserve
 - and added 234,000 acres to Joshua Tree National Park.
- The area of the new Preserve contained 133 recorded small game guzzlers and 6 big game guzzlers, built by California Department of Fish and Game with help from volunteer groups beginning around mid-century.

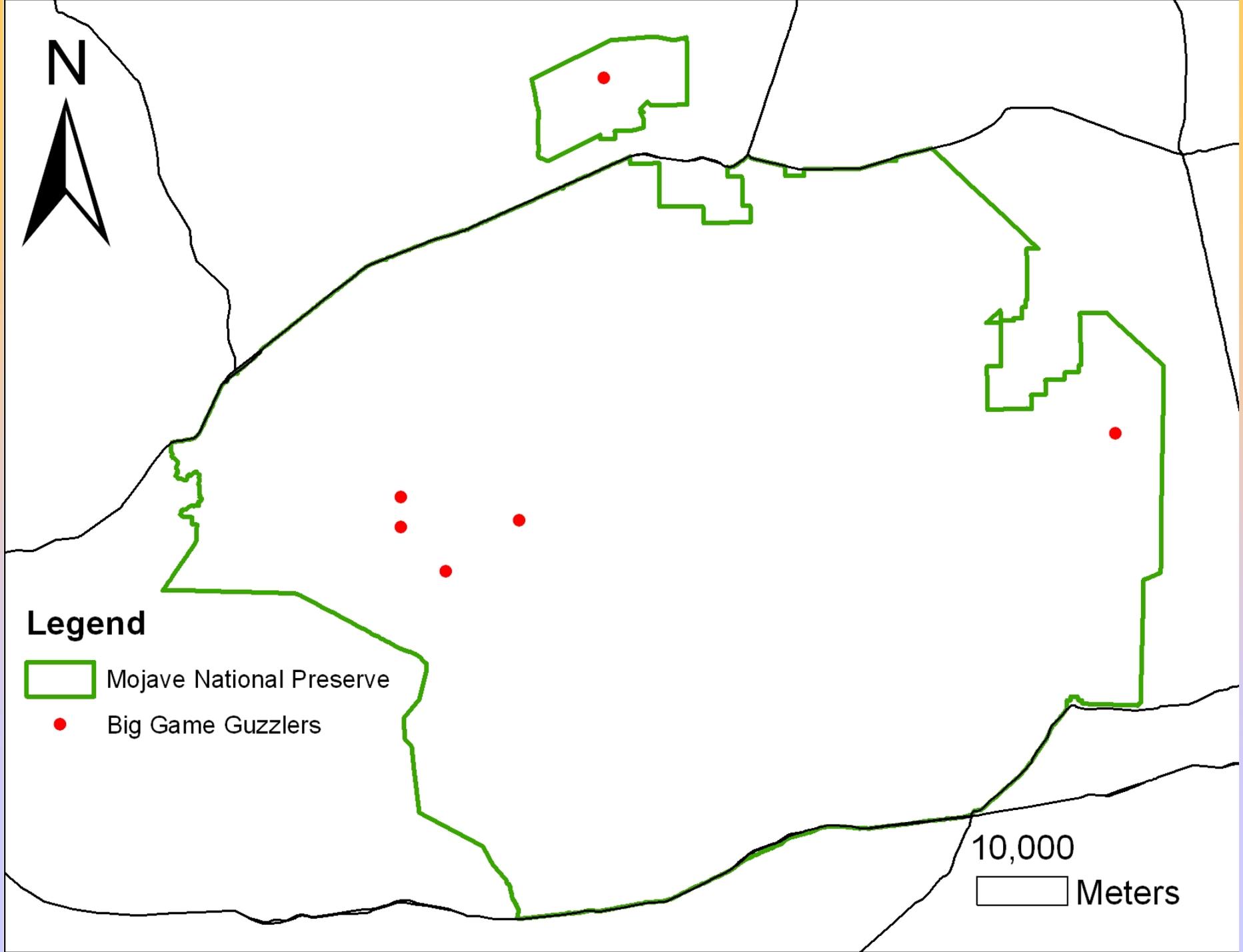


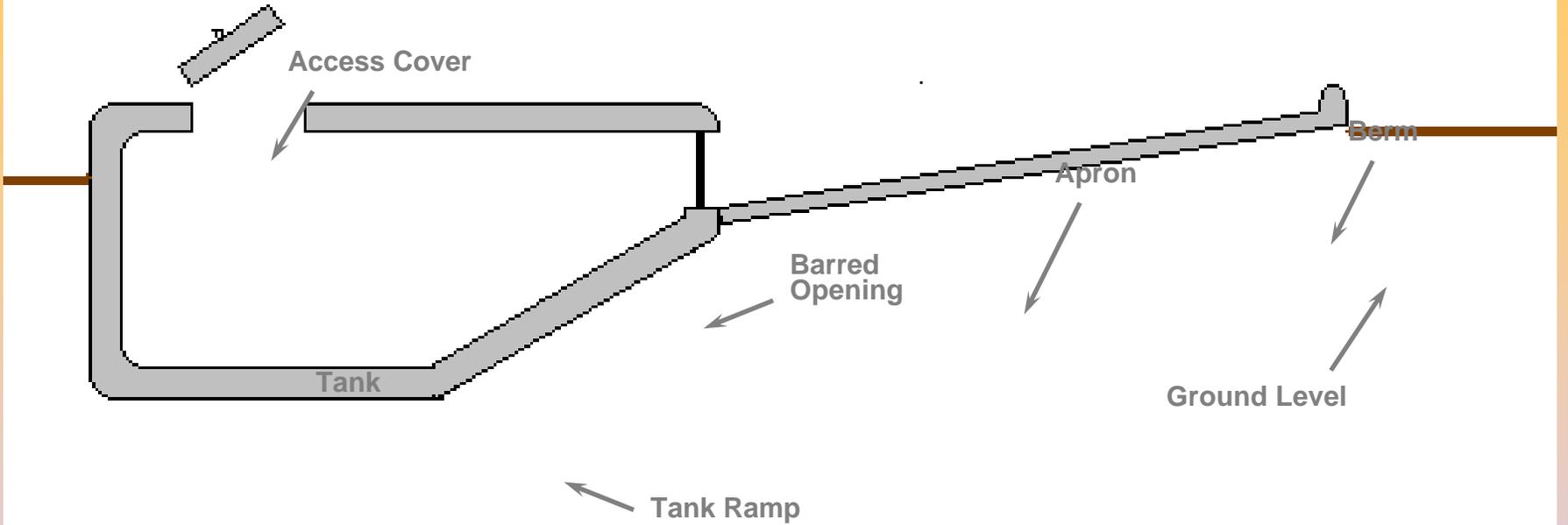


Legend

-  Mojave National Preserve
-  Big Game Guzzlers

10,000
 Meters



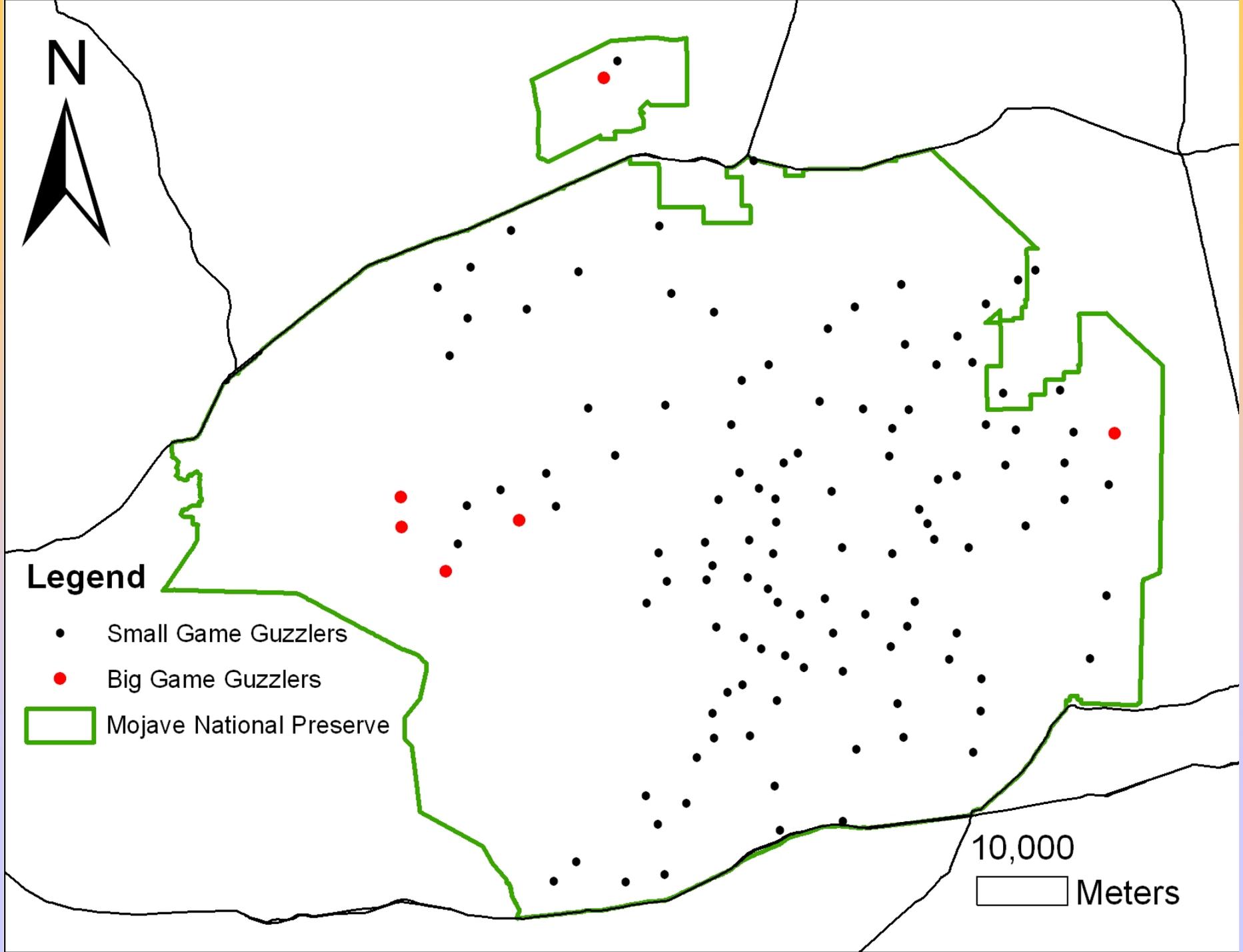




Legend

- Small Game Guzzlers
- Big Game Guzzlers
- Mojave National Preserve

10,000
□ Meters



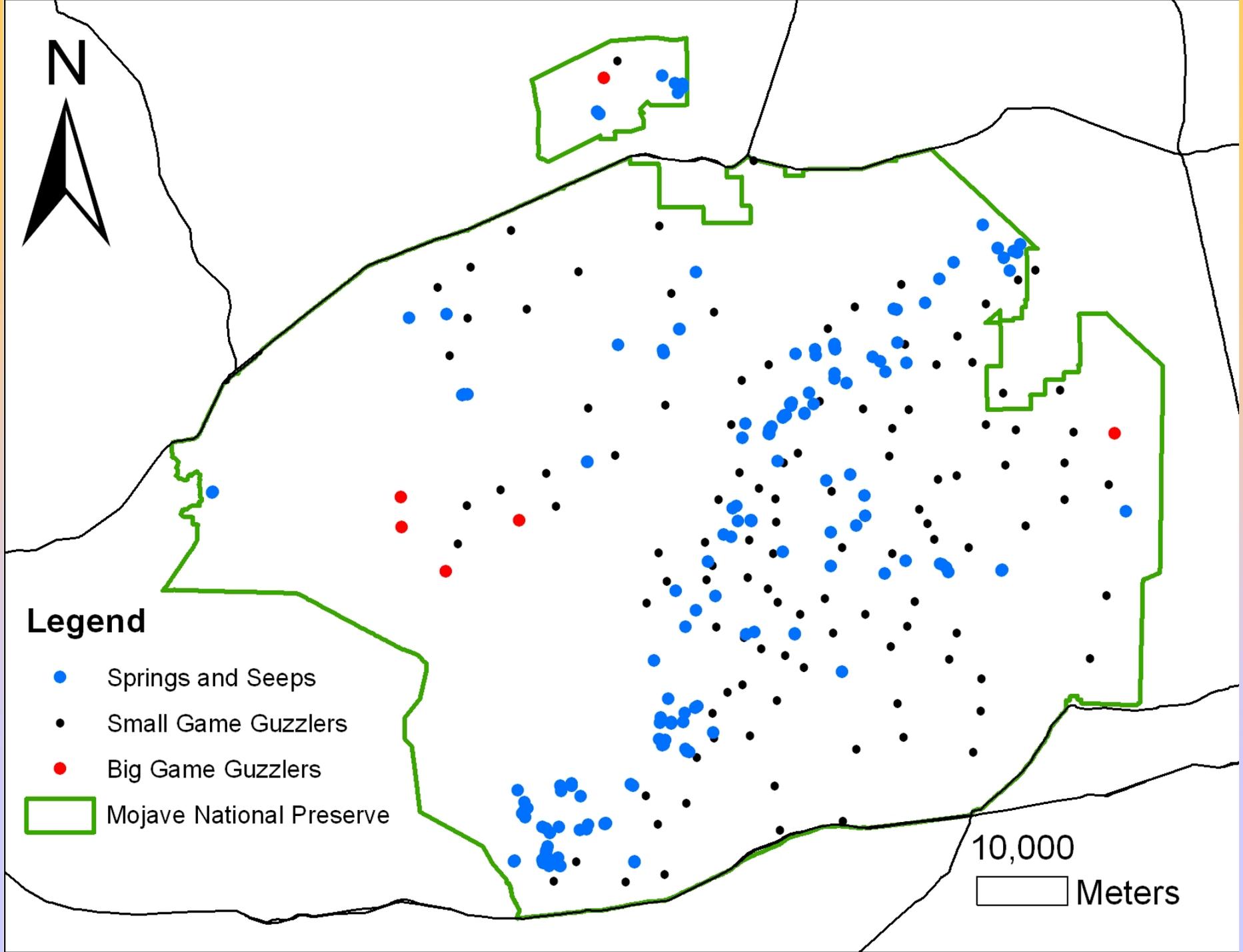




Legend

- Springs and Seeps
- Small Game Guzzlers
- Big Game Guzzlers
- Mojave National Preserve

10,000
□ Meters





Cuddeback Digital Camera 8/05/06 10:13 PM Mojave NP 36512

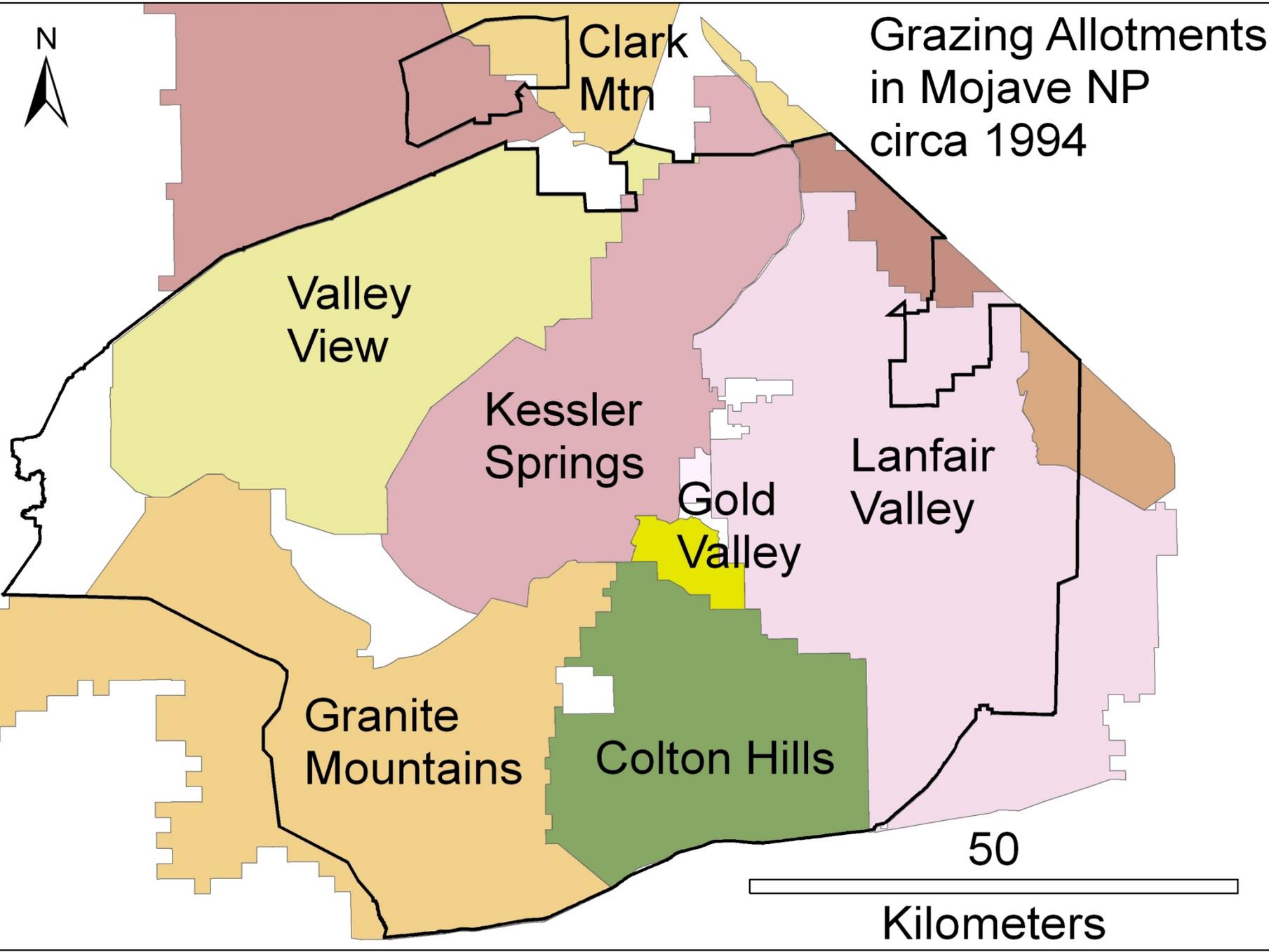


2006/02/12
03:46:25



04 / 09 / 07 17 : 29 : 52

Grazing Allotments in Mojave NP circa 1994



Clark
Mtn

Valley
View

Kessler
Springs

Gold
Valley

Lanfair
Valley

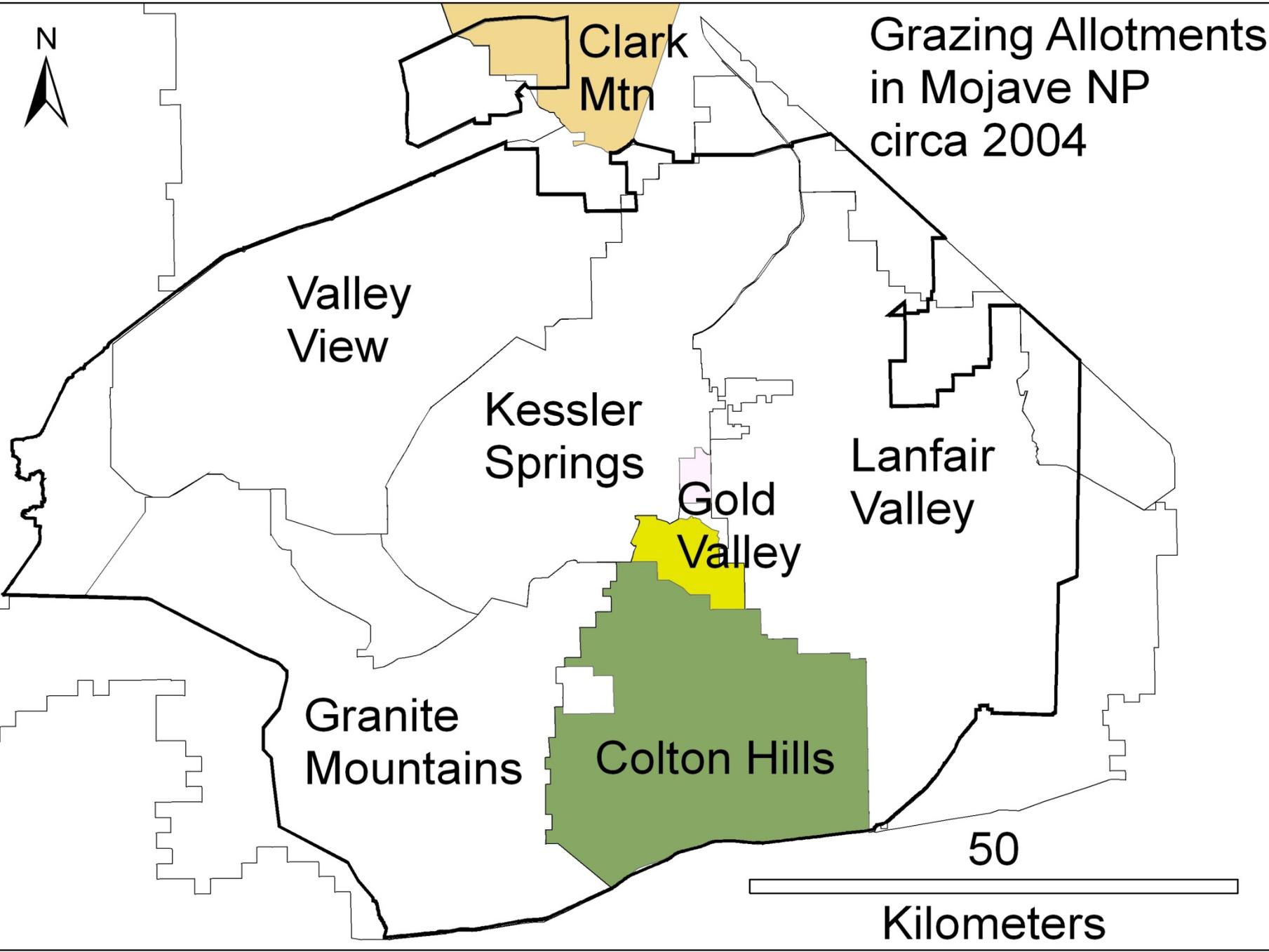
Granite
Mountains

Colton Hills

50

Kilometers

Grazing Allotments in Mojave NP circa 2004











"Our wildlife biologists who work out in the desert believe the water enhancement projects are necessary," said Mike Haynie, a deputy regional manager for the department.

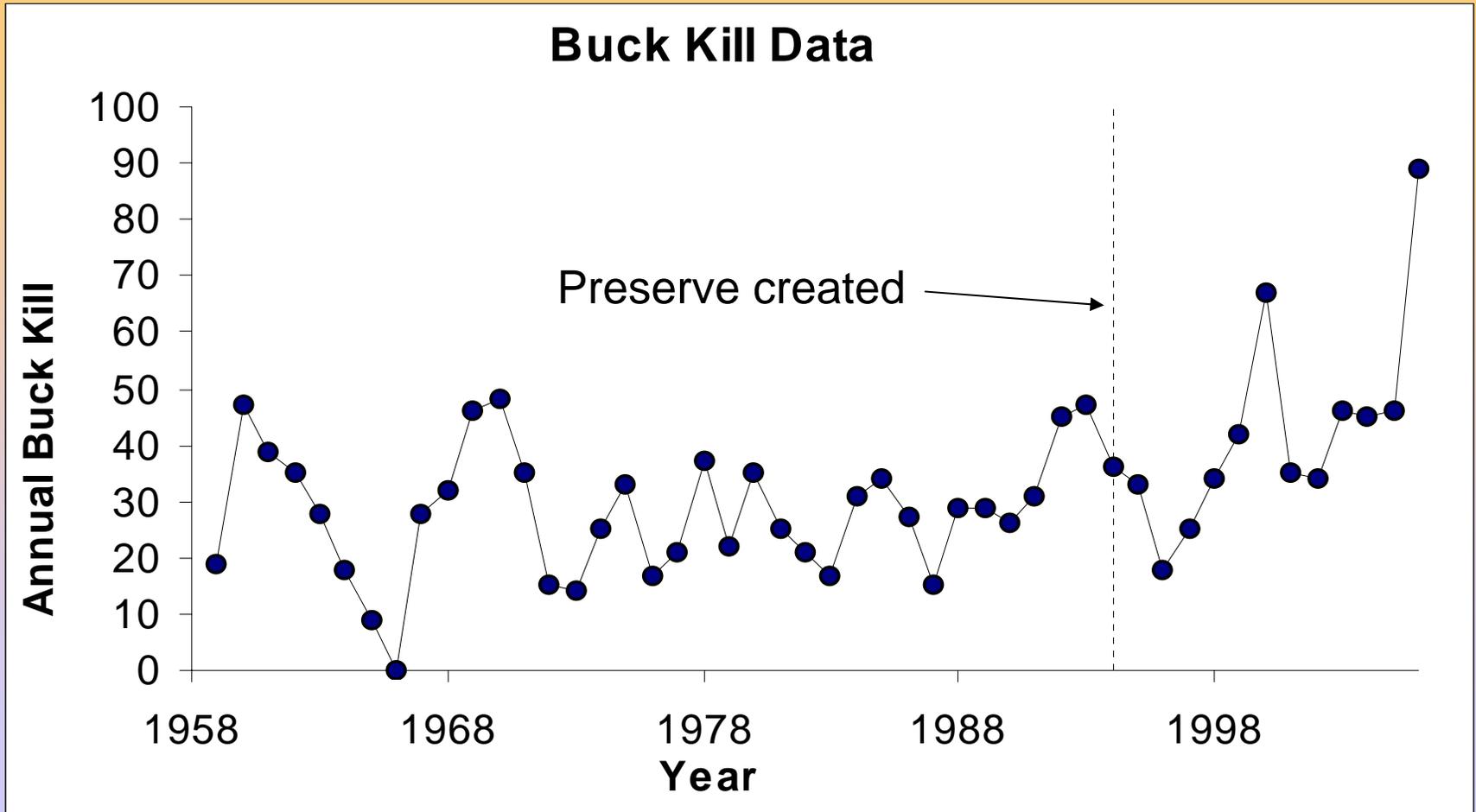
"This issue is about conservation, and protecting wildlife," said Ken Schwartz, spokesman for the 50,000-member Safari Club International. "It's not just an issue of game animals. Some of these water sources are known to provide water for as many as 90 desert animals. Of those, only 10 or 12 were allowed to be hunted."

"Congress allows carefully-managed hunting in the preserve, but this proposal to uncap the ranch wells is a game farm concept ... (and) an attempt to manipulate the web of life," said Daniel Patterson, desert ecologist with the Tucson, Ariz.-based Center for Biological Diversity.

"It's common sense," said Needles City Councilman Pat Murch, a resident of Needles who said he has hunted in the Mojave all his life. "Our concern is that all of a sudden you go turn [wells] off and that's going to affect the wildlife. We are simply asking the Park Service to use common sense."



Buck kill 1958-1993 average 28, 1994-2006 average 42





University of Nevada, Reno Research Proposal

Hypotheses to be Tested

H1: Provision of permanent, year around water will be beneficial to mule deer populations.

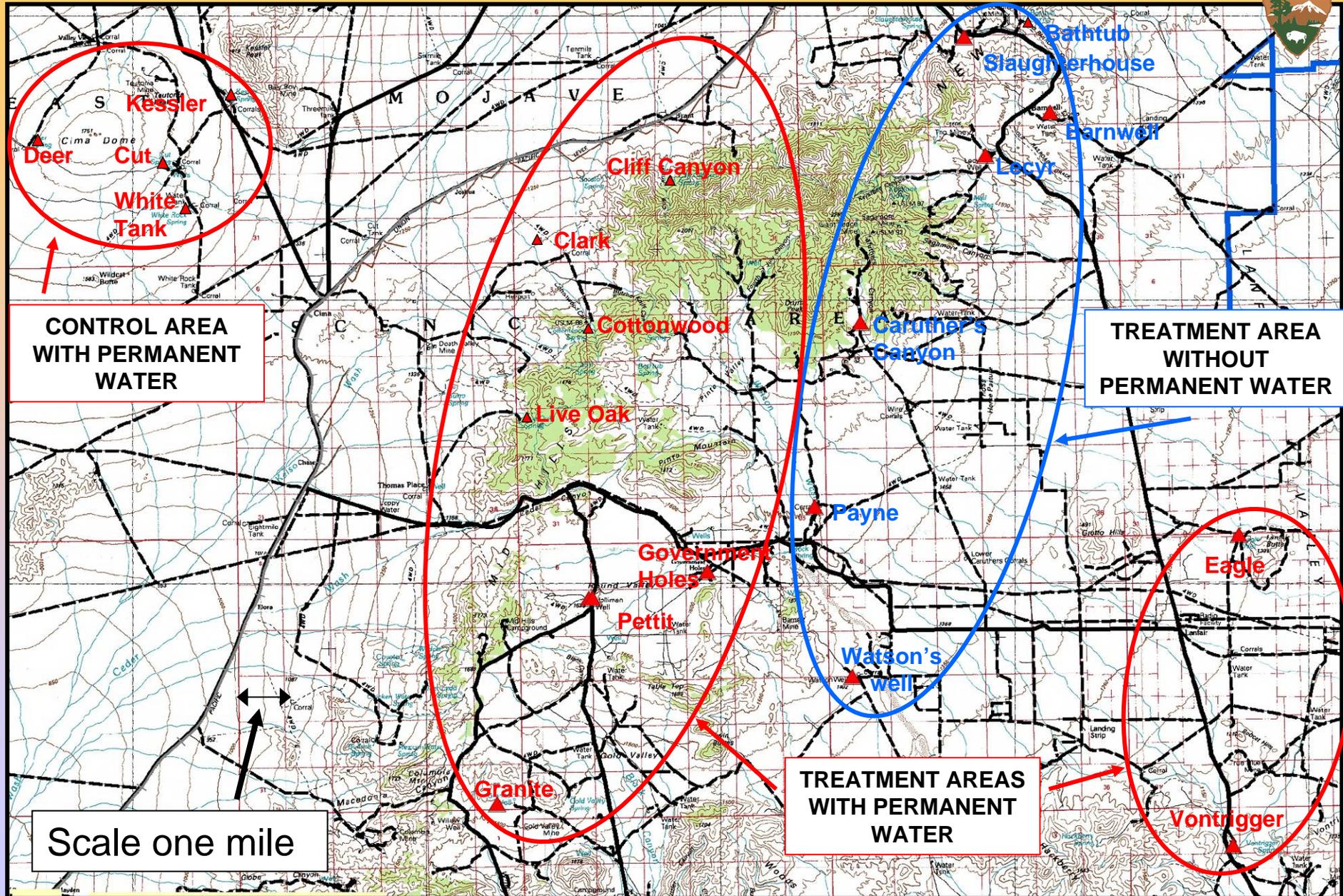
H1a: Fecundity of mule deer will be higher in areas with permanent water available year-round, developed springs and reinstated wells.

H1b: Physical condition of mule deer will be greater in areas with available water.

H1c: Annual survival is greater in areas where surface water is provided.

H1d: Population density of deer will be greatest in areas with permanently available water.



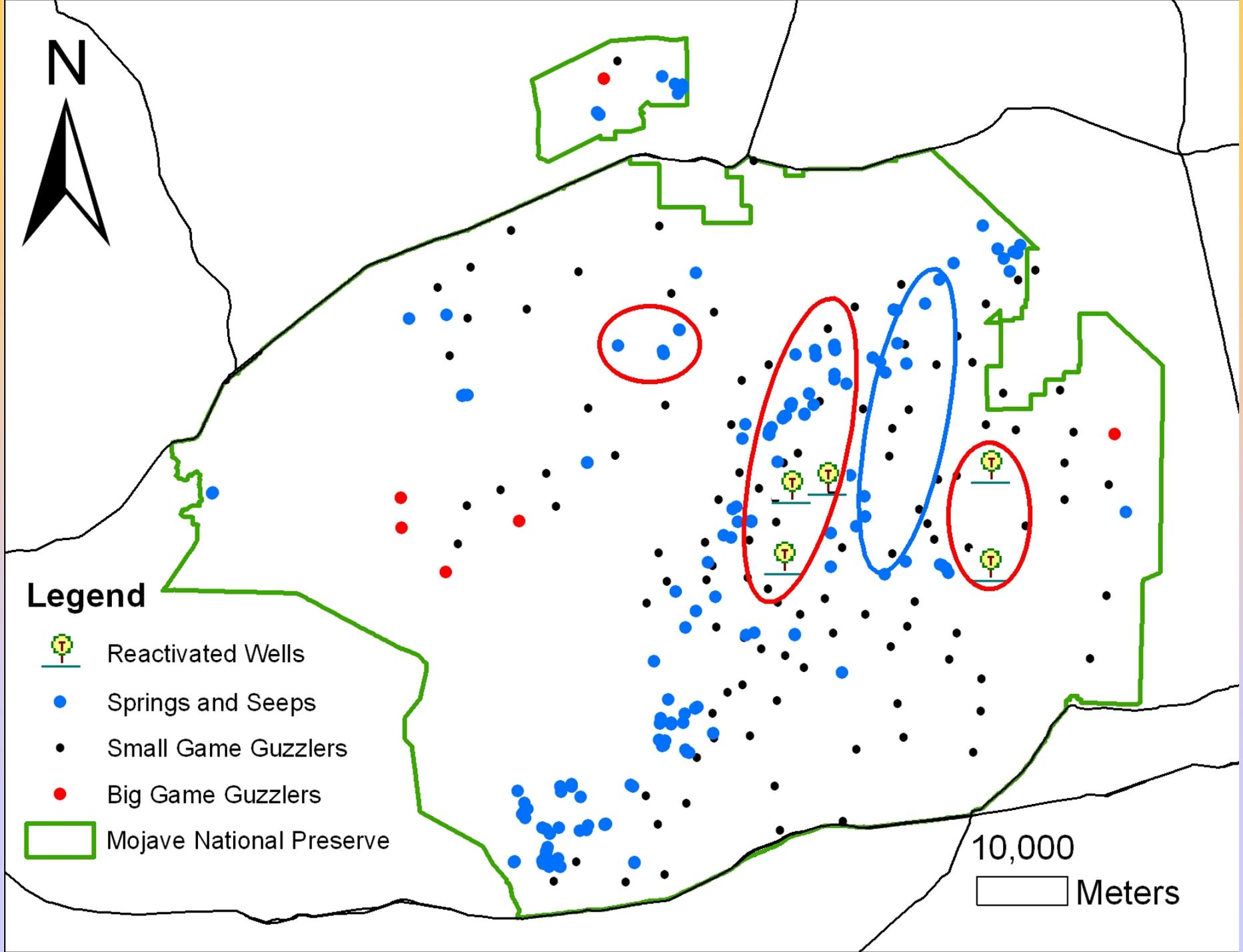




Legend

-  Reactivated Wells
-  Springs and Seeps
-  Small Game Guzzlers
-  Big Game Guzzlers
-  Mojave National Preserve

10,000
Meters















Deer Weights

- Average Females, ages 1 ½ +, (n=15)
57.13 kg (126 lbs.)
Range 50 - 67 kg (110 - 148 lbs.)
- Males (n=2)
75 and 80 kg (165 and 176 lbs.)





Body Size

Body Length

- Avg. 153 cm (5 ft.)
- Range: 141-168 cm

Metatarsus length

- Avg. 34.9 cm (1.2 ft.)
- Range: 31-38 cm





Body Condition Score

Pelvis

- Avg. 1.8
- Range:
1 - 4

Ribs

- Avg. 2.5
- Range:
2 - 4

Withers

- Avg. 3.2
- Range:
2.5 - 4





Ultrasound (Fat Thickness)

B. femoris thickness

- Avg. 1.3 cm
- Range: 1 – 2 cm

L. dorsi thickness

- Avg. 4.2 cm
- Range: 3.8 – 4.7 cm





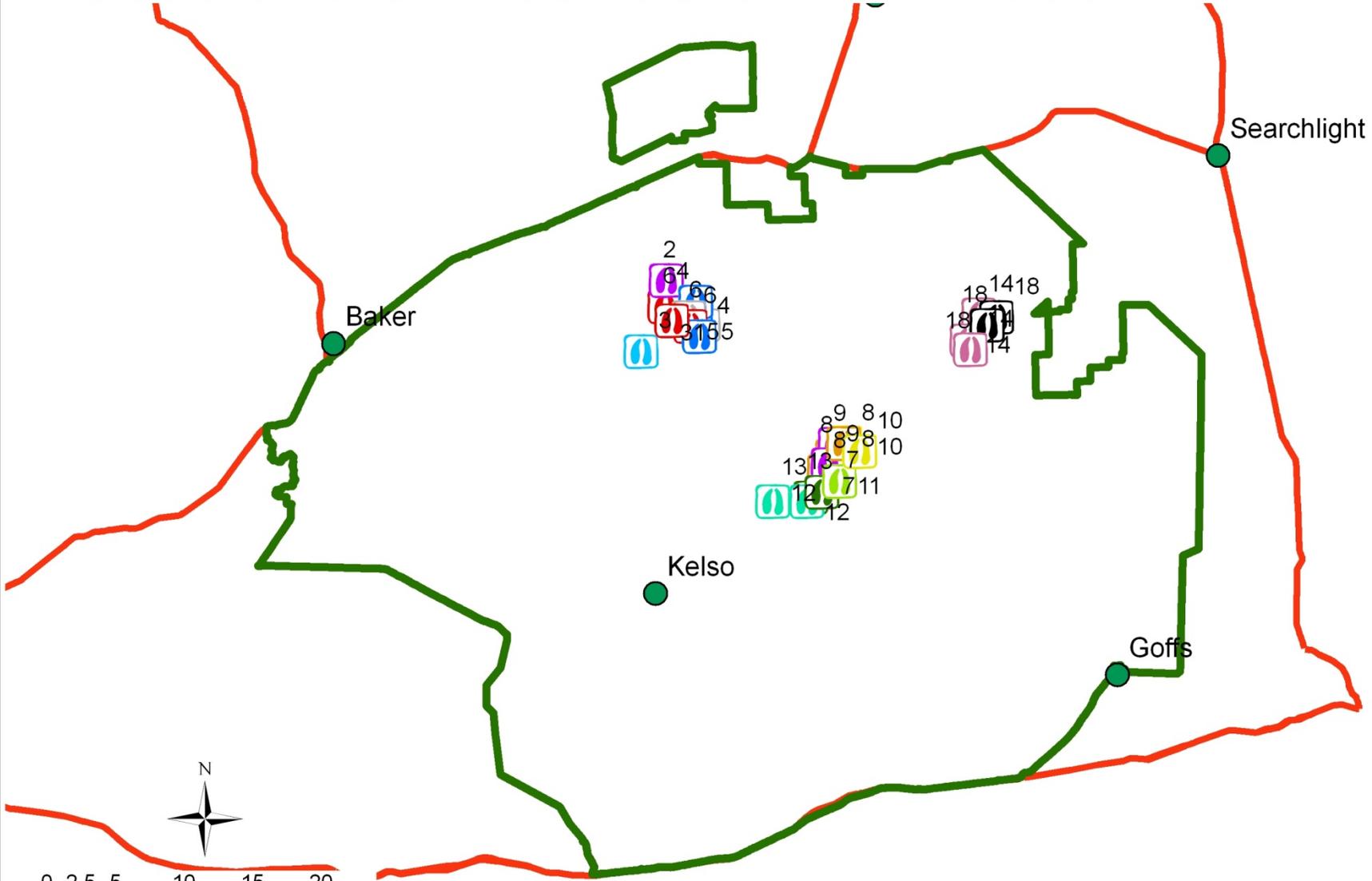
Pregnancy Rates

- 15 of 16 does pregnant
- 11 of 15 (73 %) pregnant with twins
- One deer aged 1 ½ years pregnant with twins



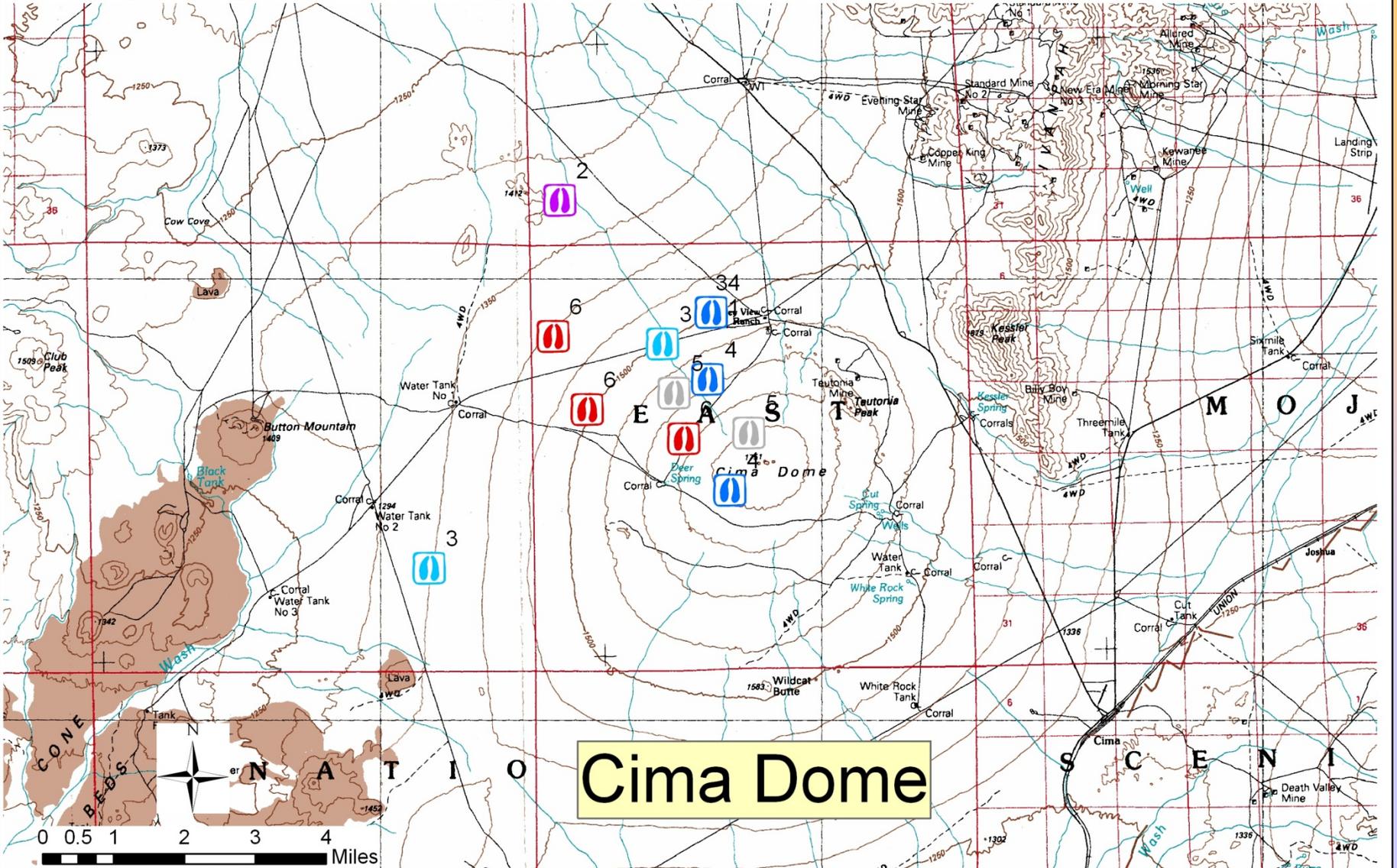


Locations of Deer as of 2/21/2008



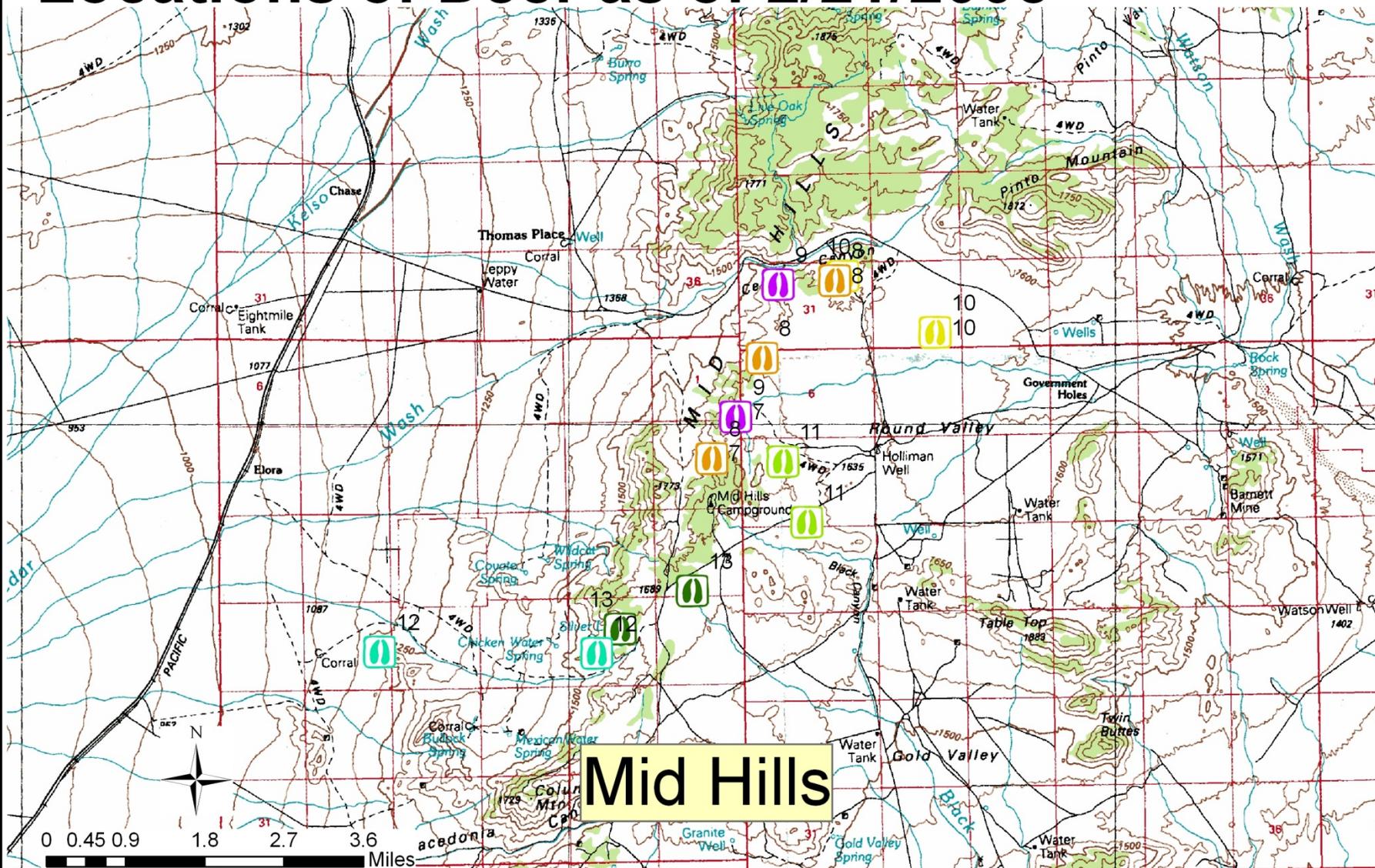


Locations of Deer as of 2/21/2008



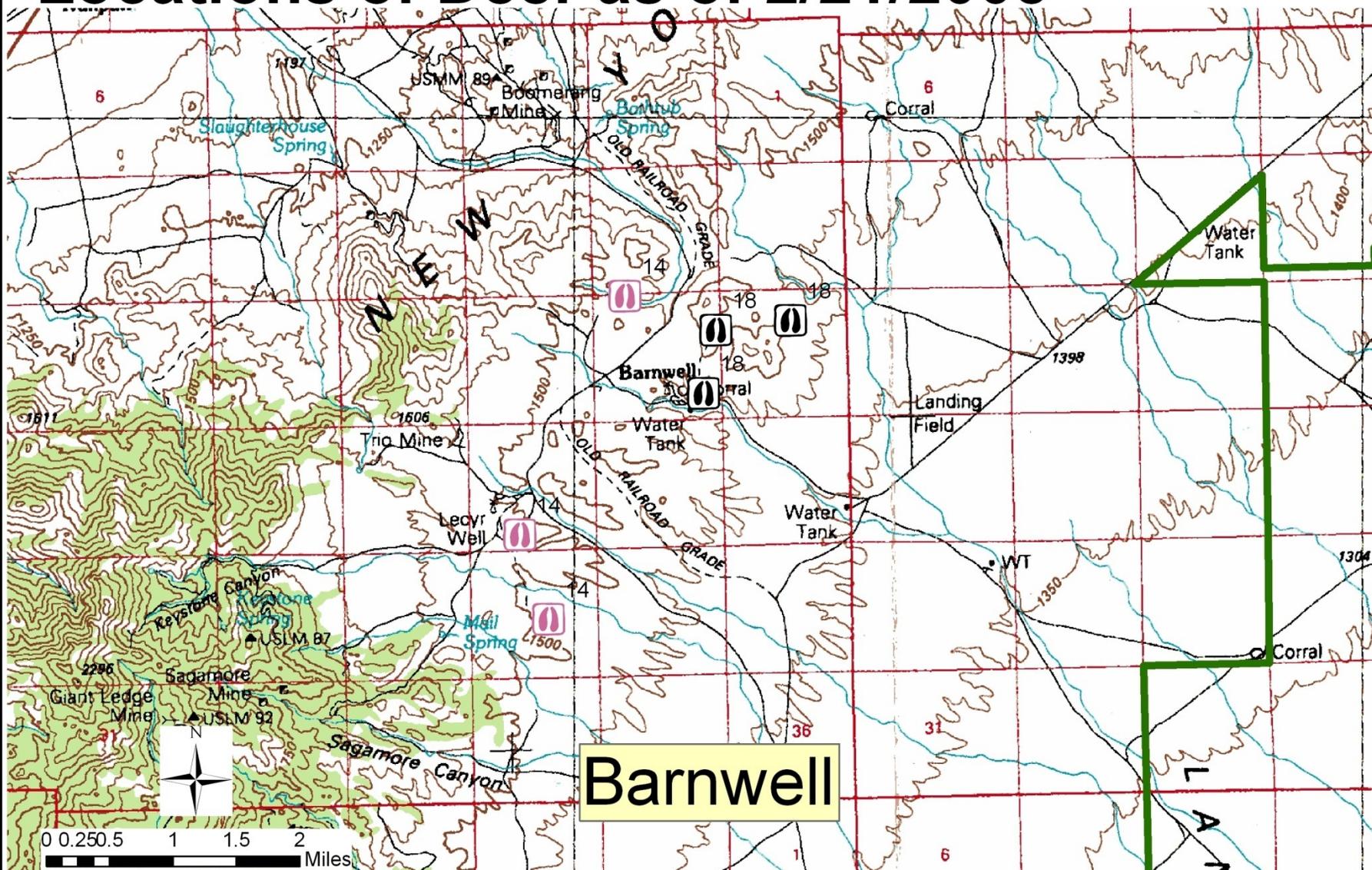


Locations of Deer as of 2/21/2008





Locations of Deer as of 2/21/2008





2/09/08 3:07 AM

Mojave NP





2/10/08 3:57 AM Mojave NP





