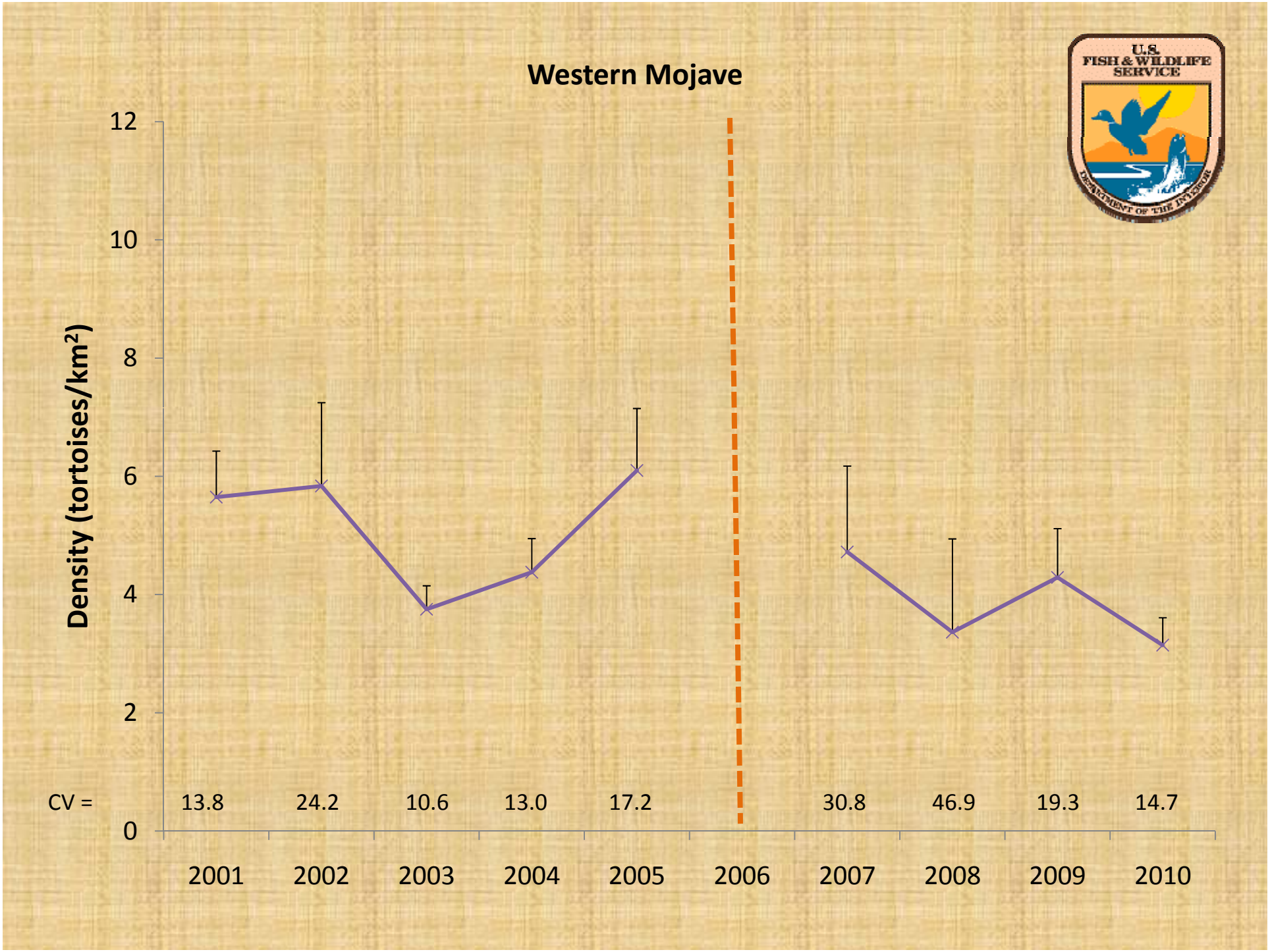
Desert tortoise monitoring as a cooperative venture


Western Mojave
Density (tortoises/km²)
12
10
8
6
4
2
0
CV =
13.8
24.2
10.6
13.0
17.2
30.8
46.9
19.3
14.7
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
U.S. FISH & WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR

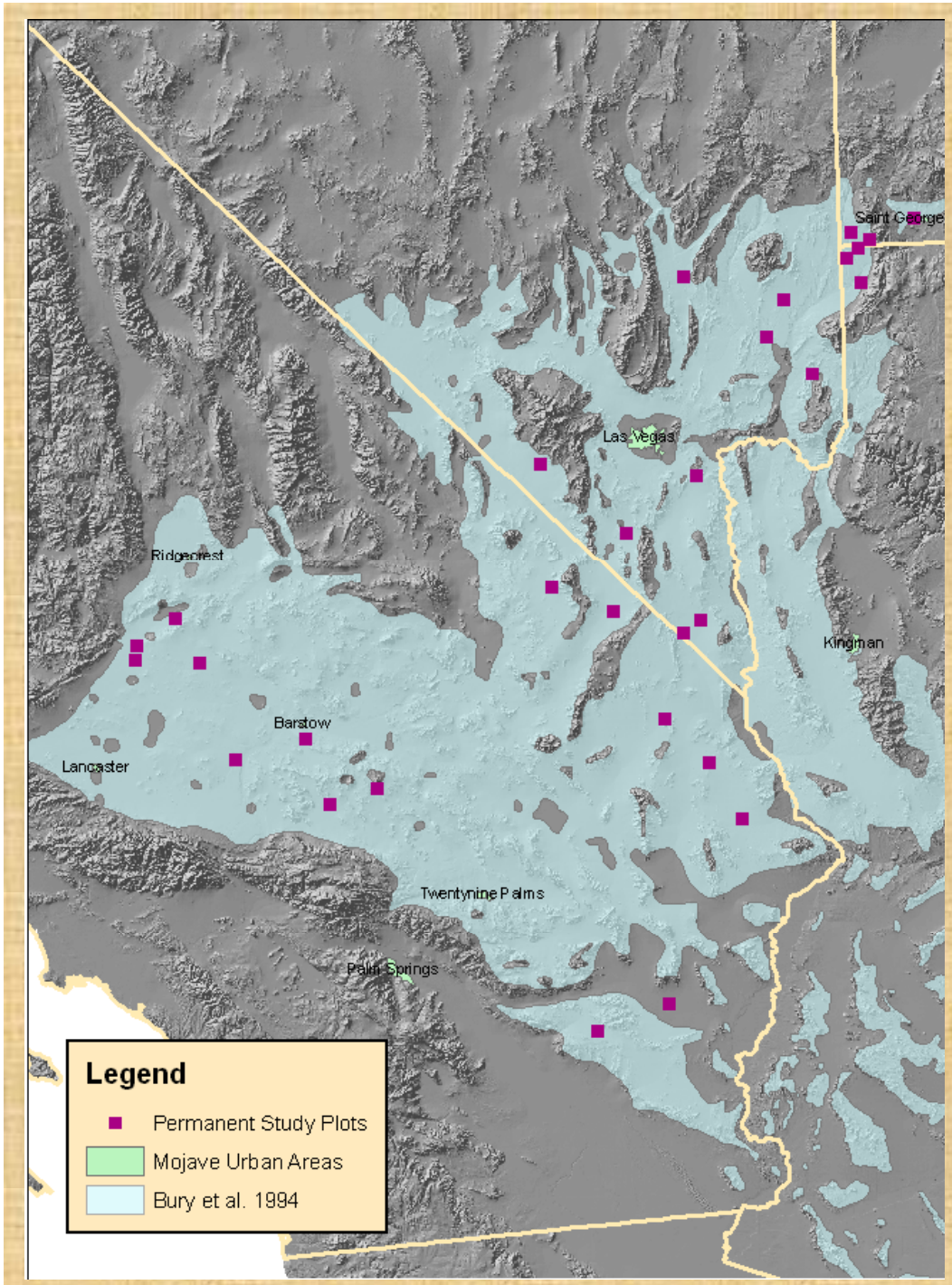
Recovery Unit	Area (km^2)	Transects	Tortoises	Density
NE Mojave	**4889**	**425**	**164**	**3.2**
Beaver Dam Slope	828	66	23	3.3
Coyote Springs	1117	99	43	3.6
Gold Butte – Pakoon	1977	128	22	1.8
Mormon Mesa	968	132	76	5.5
E. Mojave	**6763**	**95**	**45**	**3.6**
Fenner	1862	20	22	7.5
Ivanpah	2567	31	5	1.1
Piute-Eldorado	2334	44	18	3.1
N. Colorado	**4038**	**40**	**24**	**4.4**
Chemehuevi	4038	40	24	4.4
W. Mojave	**9351**	**234**	**105**	**3.2**
Fremont-Kramer	2462	50	19	2.5
Joshua Tree NP	1567	25	6	2.8
Ord-Rodman	1124	25	27	7.5
Pinto Mountains	751	21	7	3.4
Superior-Cronese	3447	113	46	2.6
E. Colorado	**4263**	**94**	**72**	**5.8**
Chuckwalla – DoD	755	33	50	13.8
Chuckwalla - BLM	3509	61	22	3.7

2010

Desert Tortoise Population Estimates on 29,000 km^2

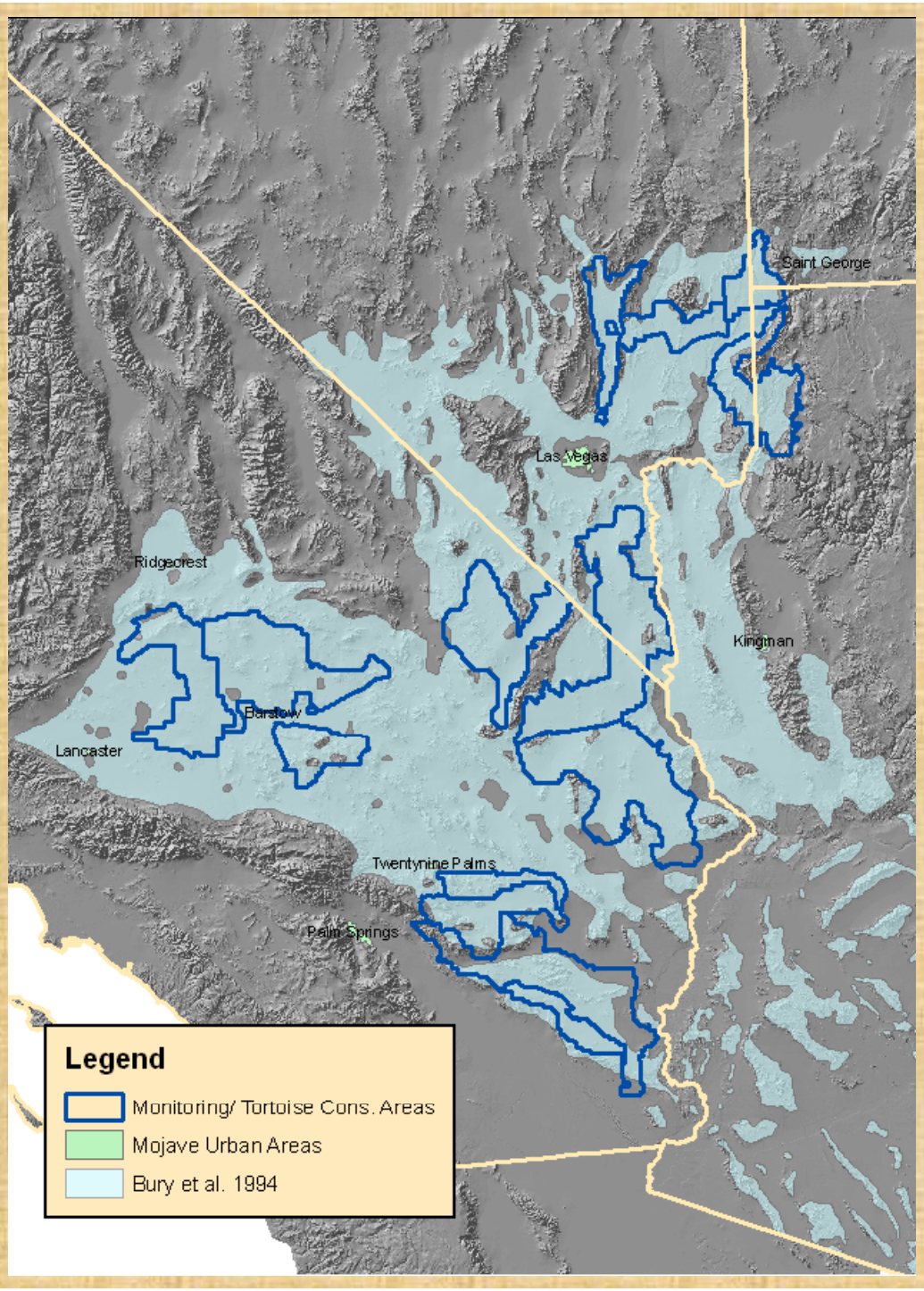
Annual Reports at
http://www.fws.gov/nevada/desert_tortoise/dt_reports.html

Data request form at
http://www.deserttortoise.gov/lds/ldsindex.php



Permanent Study Plots

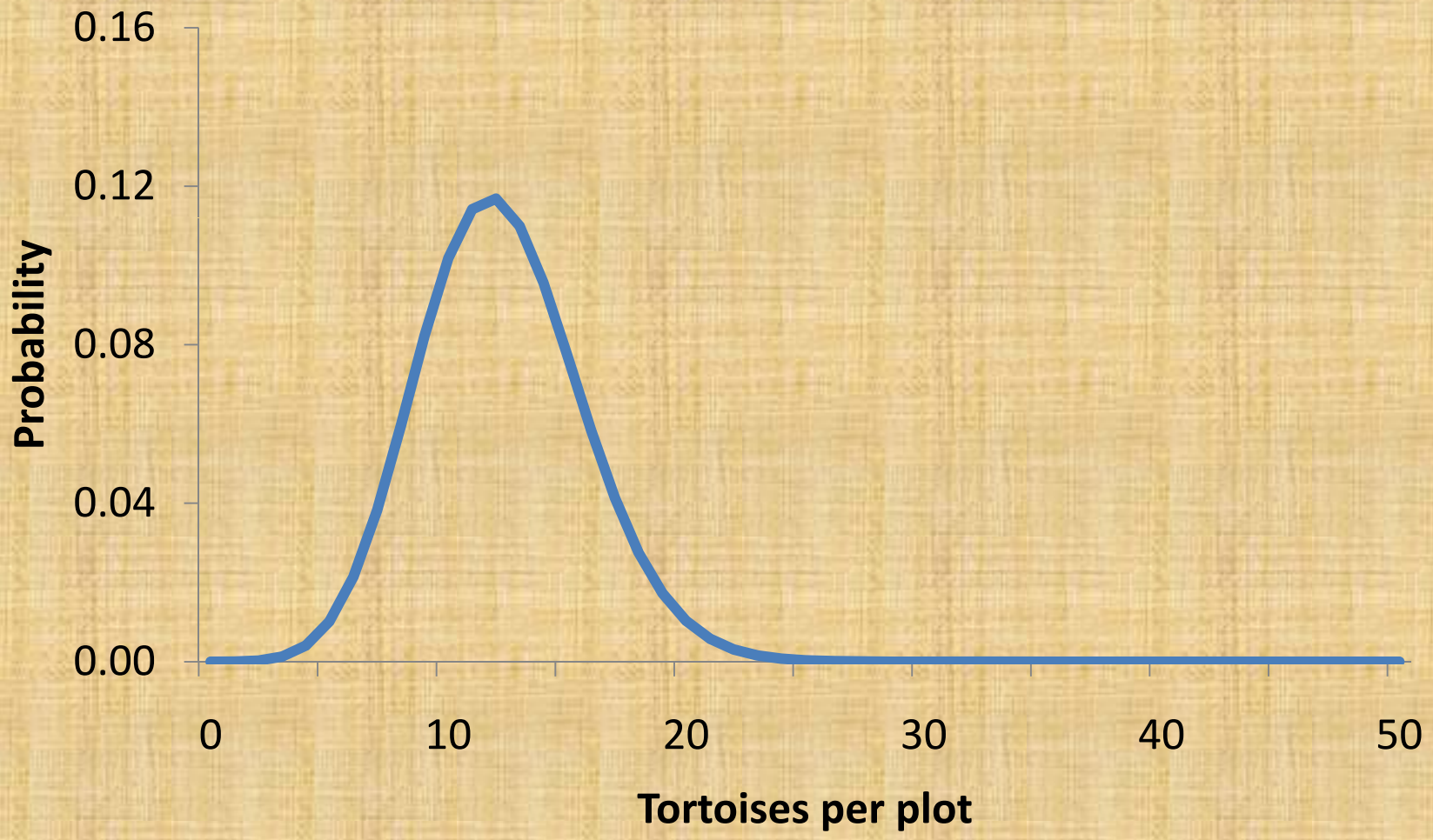
Tortoise status pre-1994



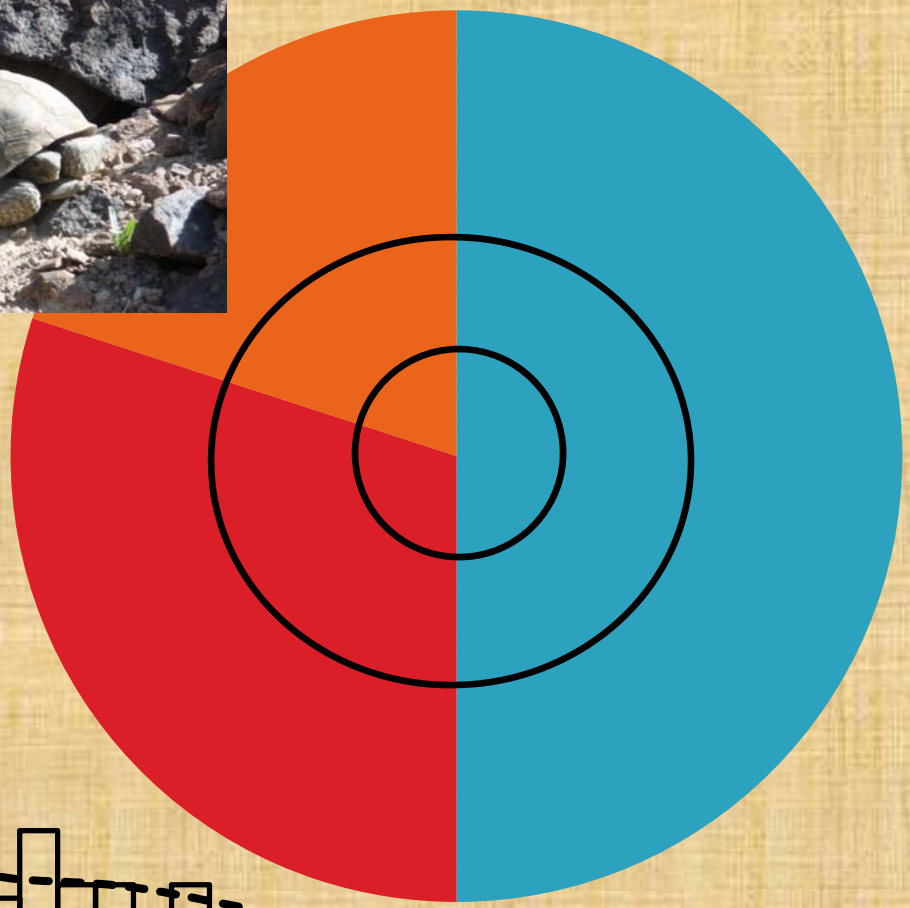
Tortoise Conservation Areas

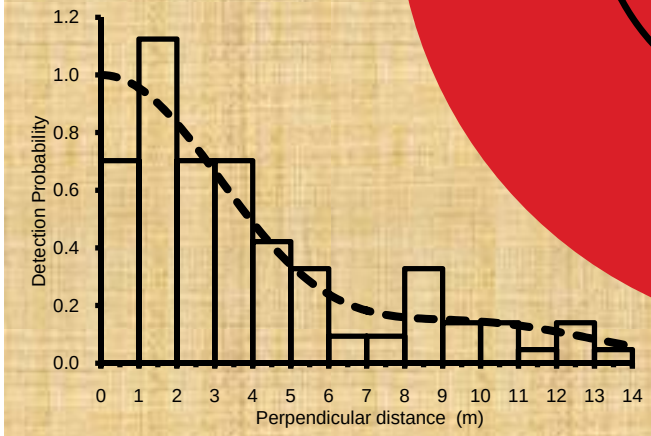
Tortoise status post-2001

Possible counts on 1mi^2 plots at current tortoise densities



Surveys to determine the number of tortoises that might be directly impacted





Other applications for monitoring results

- Comparing densities in rugged and flatter areas
- Develop a survey protocol that accounts for cryptic and elusive tortoises
- Provide agencies with location information
- Large-scale data can be used to describe how unusual small scale survey results are

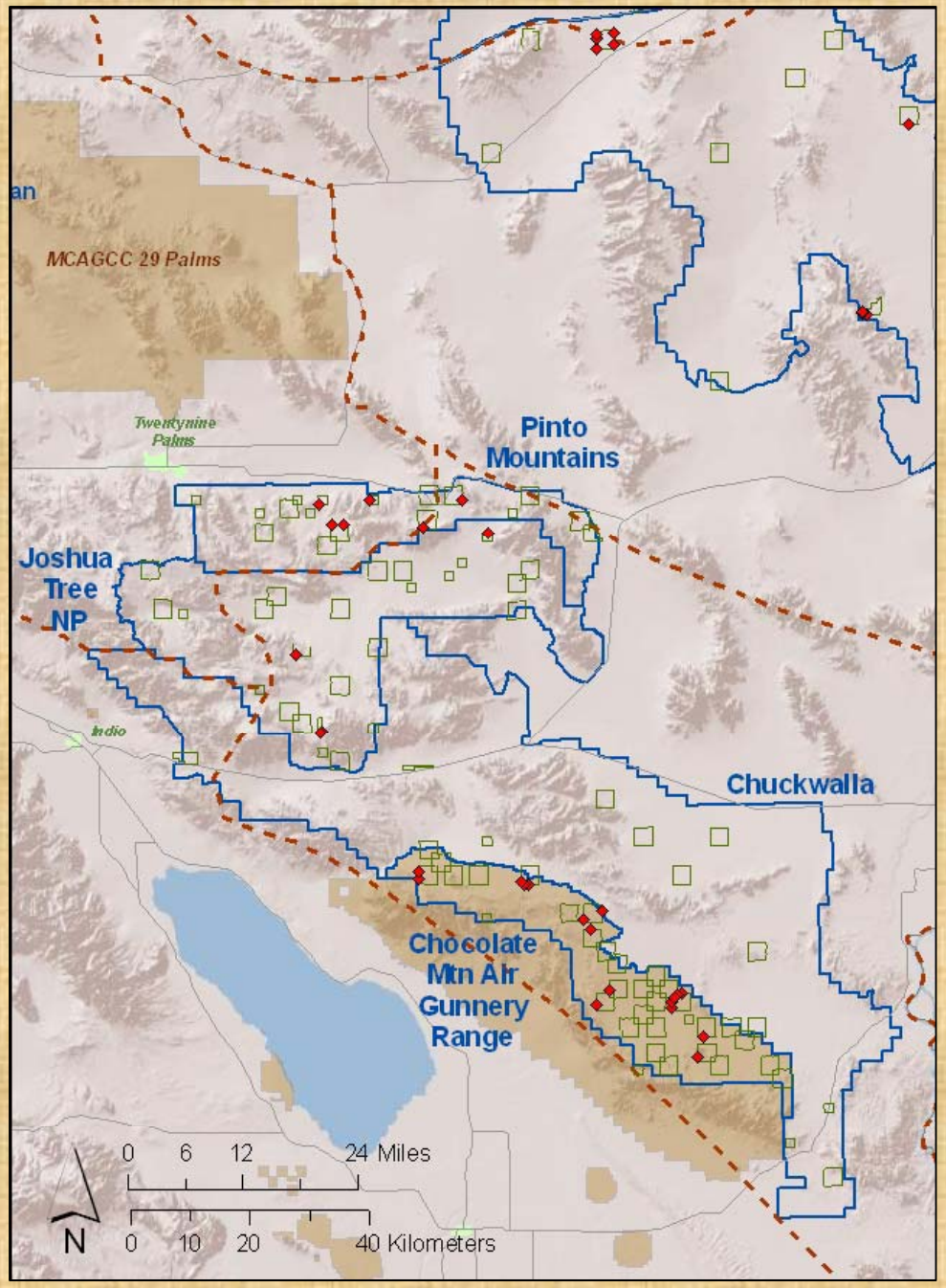
Funding

$Thousands

	2007	2008	2009	2010	2011
DOD					
Ft. Irwin	208	208	208	250	300
Edwards AFB			45		
Choc Mtn AGR	42.3	?	?	39	50
BLM					
Arizona Strip	2.5		16	40	20
CA Desert District	54.8			150	75
NPS					
Joshua Tree	10		32.4	20	
Mojave Natl Preserve					
Grand Cyn Parashant				15	15
Nevada Section 7/SNPLMA	645	618.4	611.4	687.4	614.3
Total	**$ 962.6**	**$ 826.4**	**$ 912.8**	**$ 1,201.4**	**$ 1,074.3**

GAO (2002) Recommendation

"We … recommend that the Secretary of the Interior identify and assess options for funding long-term rangewide population monitoring. The department concurred with our recommendations."



What we seek to provide for any amount of funding

Eastern Colorado+ 2009

Permitting amongst cooperators

DOD

Ft. Irwin

Edwards AFB

China Lake

Choc Mtn AGR

BLM

Arizona Strip FO

CA Desert District

Las Vegas FO

Caliente FO

St. George FO

FWS

Desert NWR

NPS

Joshua Tree NP

Mojave Natl Preserve

Grand Cyn Parashant Natl Mnmt

Lake Mead NRA

States

Arizona

Utah

Nevada

California

Other

Desert Tortoise Natural Area

Boulder City Cons Easement