

3 Decades of Vegetation Change in the Newberry Mountains

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Lake Mead National Recreation Area

February 3, 2010

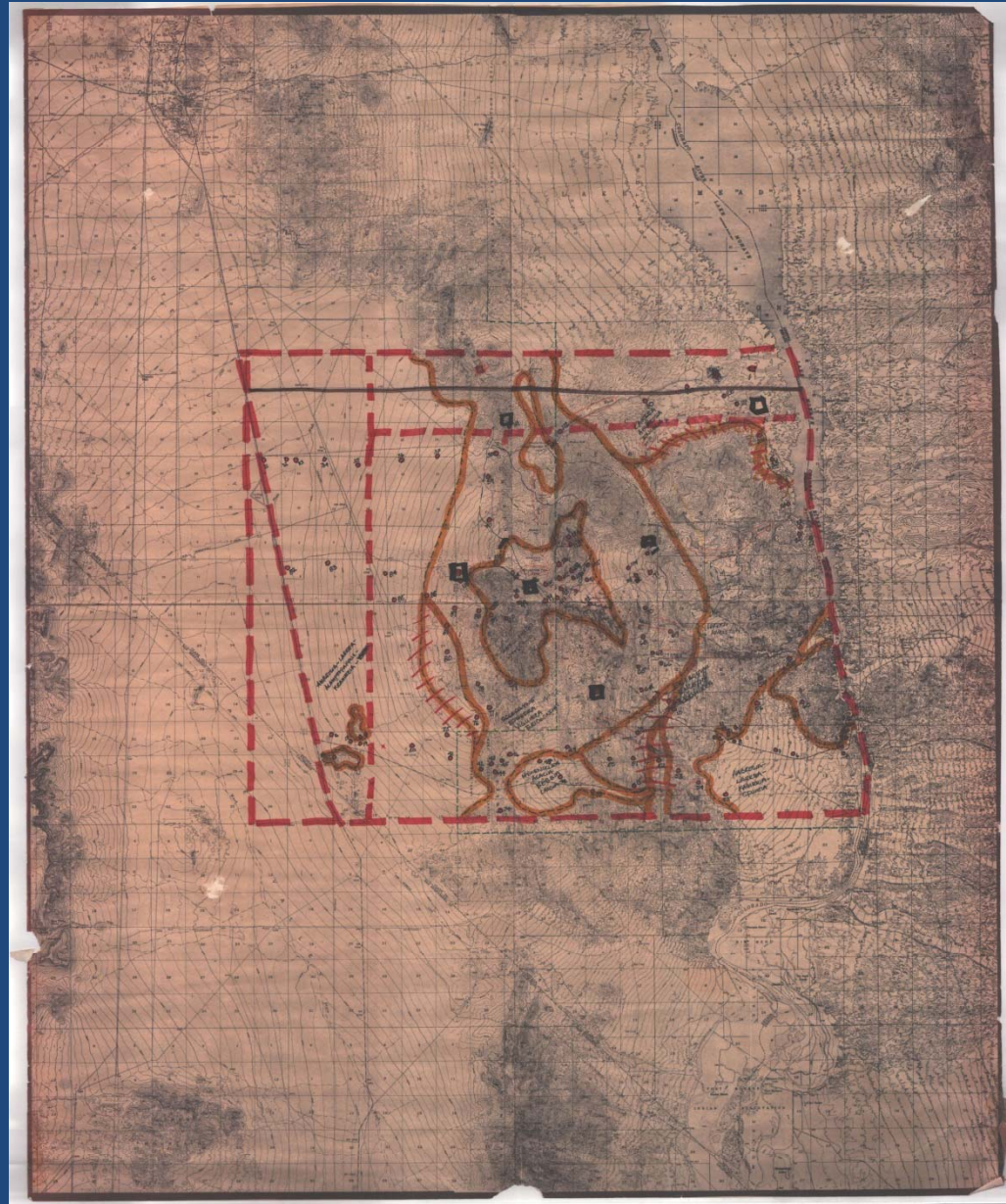
Objectives

- Establish long term vegetation monitoring sites in LMNRA
- Collect present day data on historical sites
- Compare original data to present and look for change in plant communities



HOLLAND's METHODS

- 112 random sites
- Mapped and described each set
- 600 square meter belt transects
- 100 quadrates one meter square at 1 meter intervals
- Frequency and cover



RESAMPLING METHODS

- 107 permanent sites
- Mapped using GIS and described each set
- 600 square meter belt transects
- 100 quadrates one meter square at 1 meter intervals
- Density, Frequency and Cover
- Photo Points
- Data Storage
- Research



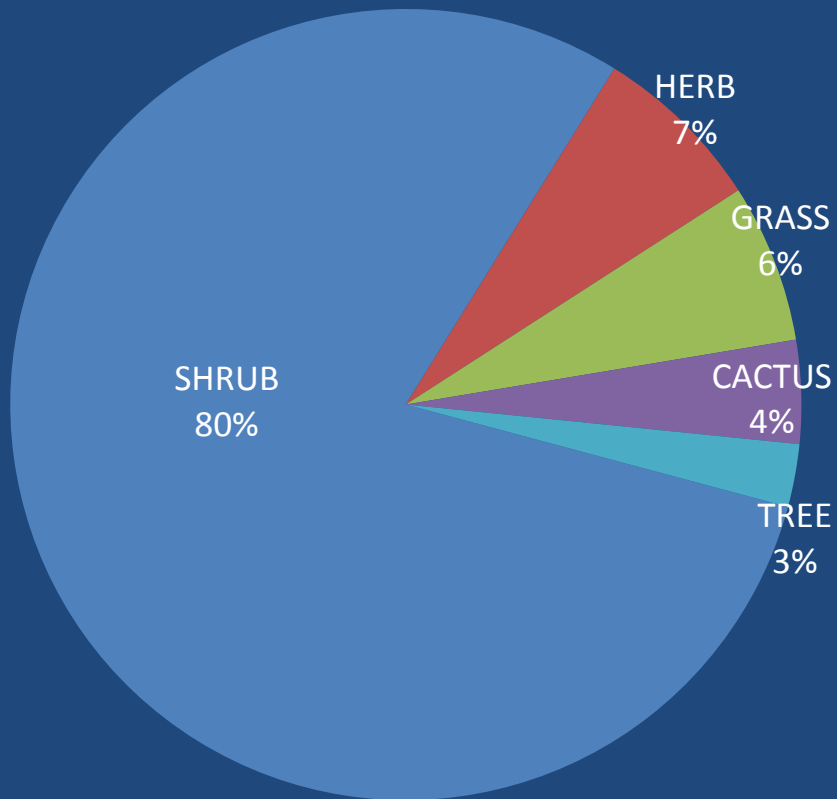
Characteristics of site data



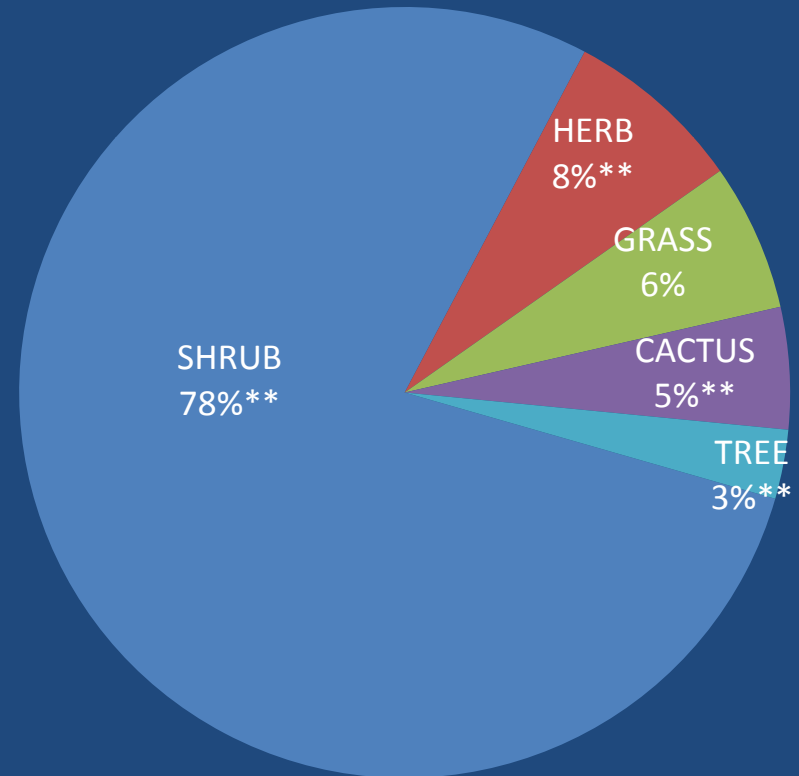
	Year		p value
	1979	2008	
Plots	112	103	
Elevation Range	580 m - 5452 m		
Total Area Surveyed	67.2 sq km	61.8 sq km	
Total Plants	25,480	38,992	
Species	134	140	
Mean species/plot			
Overall	14.58	16.75	0.0336
SE	0.83	0.58	
Elevation			
Low (<=2500)	12.09	13.21	ns
SE	0.79	1.03	
Medium (2501 - 3501 ft)	13.81	14.89	ns
SE	0.91	1.13	
High (3500+ ft)	19.12	24.46	ns
SE	0.98	1.54	
Simpson's			
Overall	1.69	1.82	0.0819
SE	0.04	0.06	
Elevation			
Low (<=2500)	1.54	1.63	ns
SE	0.07	0.08	
Medium (2501 - 3501 ft)	1.63	1.71	ns
SE	0.08	0.09	
High (3500+ ft)	1.97	2.24	ns
SE	0.07	0.09	

Plant Forms

1979 Data

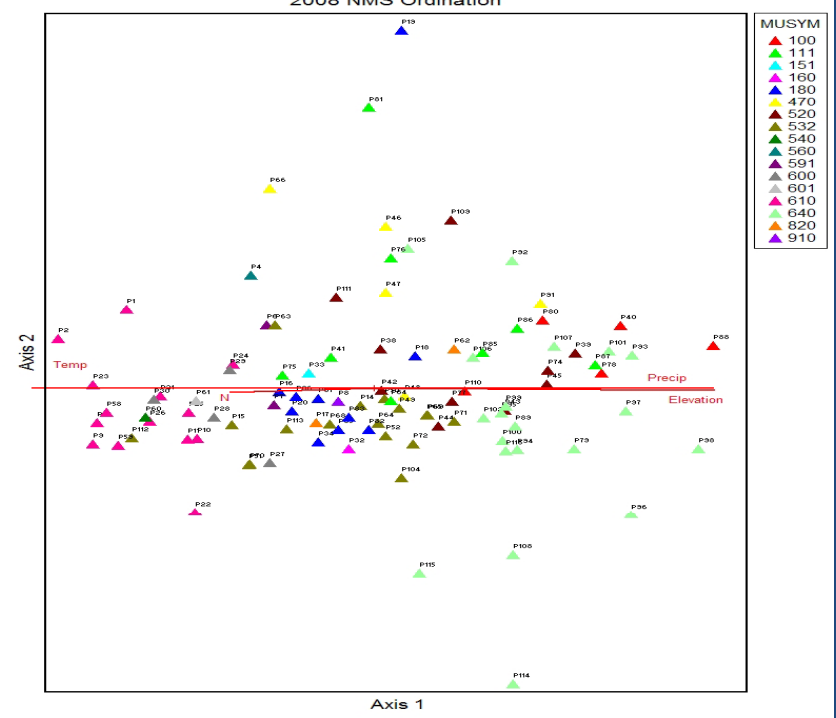
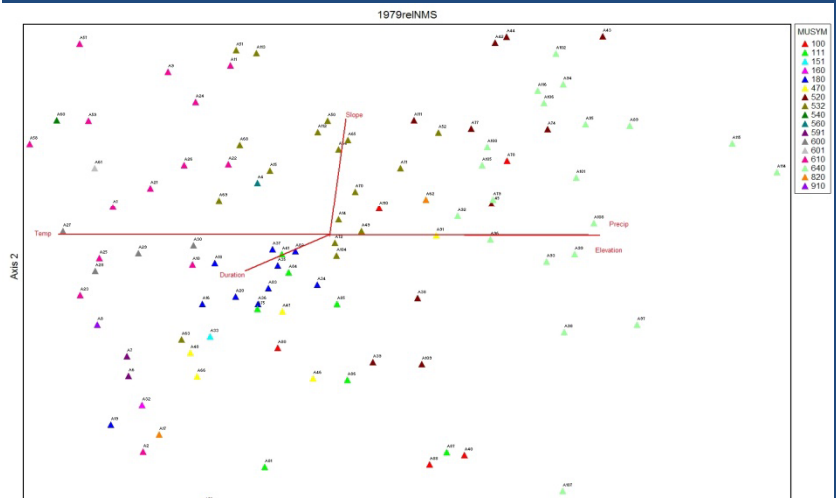


2008 Data

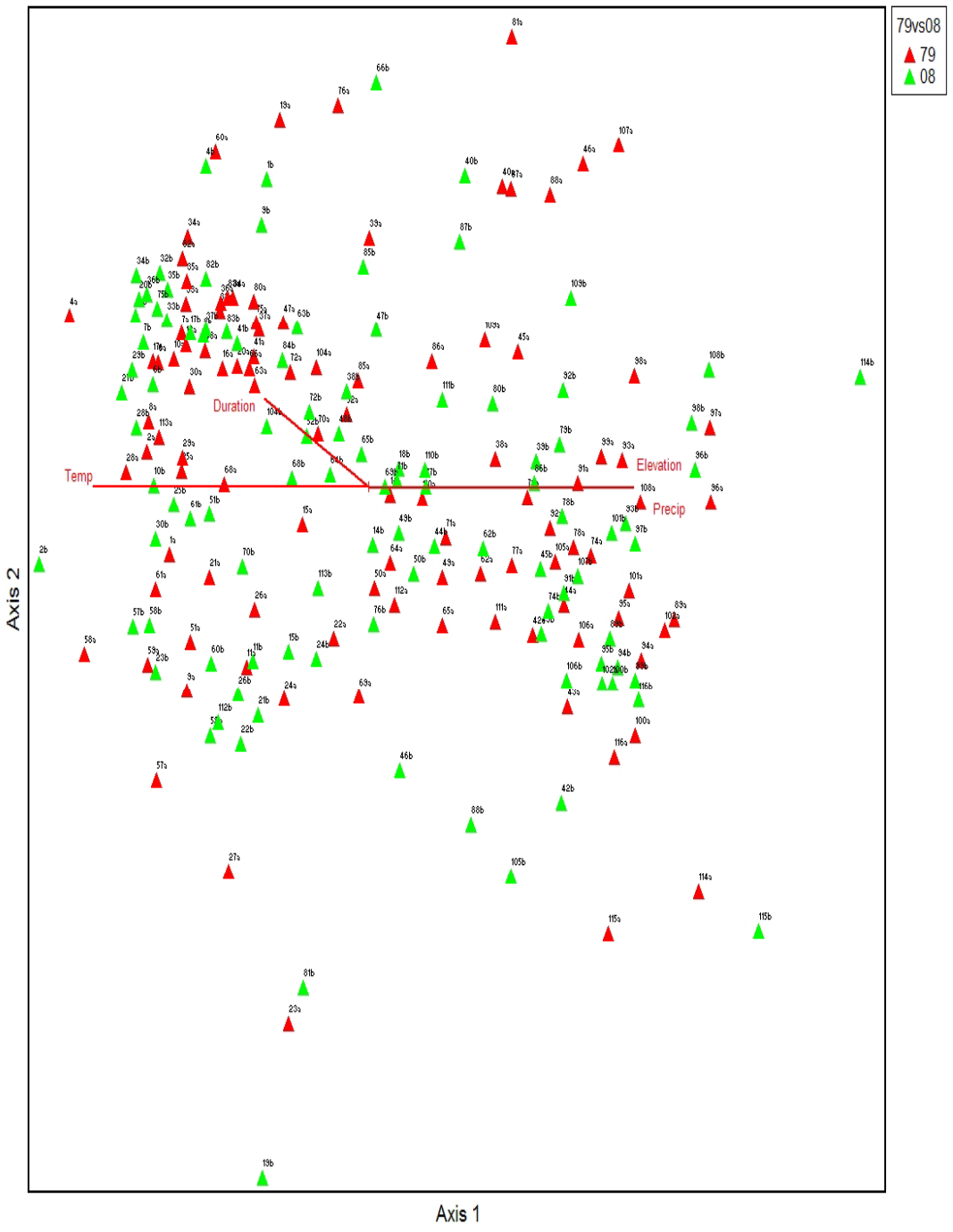


** P<0.01

PC-ORD



NMS 79+08



Top Species

SPECIES	1979 DATA		2008 DATA	
	Count	%	Count	%
FLAT TOP BUCKWHEAT**	8073	19.06%	6226	17.63%
BURSAGE	6764	15.97%	5700	16.14%
BRICKLE BRUSH**	2985	7.05%	3111	8.81%
BLACKBRUSH**	1900	4.49%	1038	2.94%
NEEDLE AND THREAD GRASS**	1885	4.45%	1376	3.90%
CREOSOTE BUSH**	1562	3.69%	1681	4.76%
GOLDENEYE**	1487	3.51%	1505	4.26%
BARREL CACTUS**	229	0.54%	545	1.54%

** P<0.001

Applications of Long Term Monitoring

- Establish baseline data
- Resource management
 - Cultural
 - Ecological
 - Recreational
 - Invasive weed monitoring
 - Wildlife habitat
- Research and evaluation



Summary

- Providing insight to current dynamic
 - Research
- Providing baseline data for insight on trends
 - Establishment of Long Term Vegetation Monitoring



Questions?

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