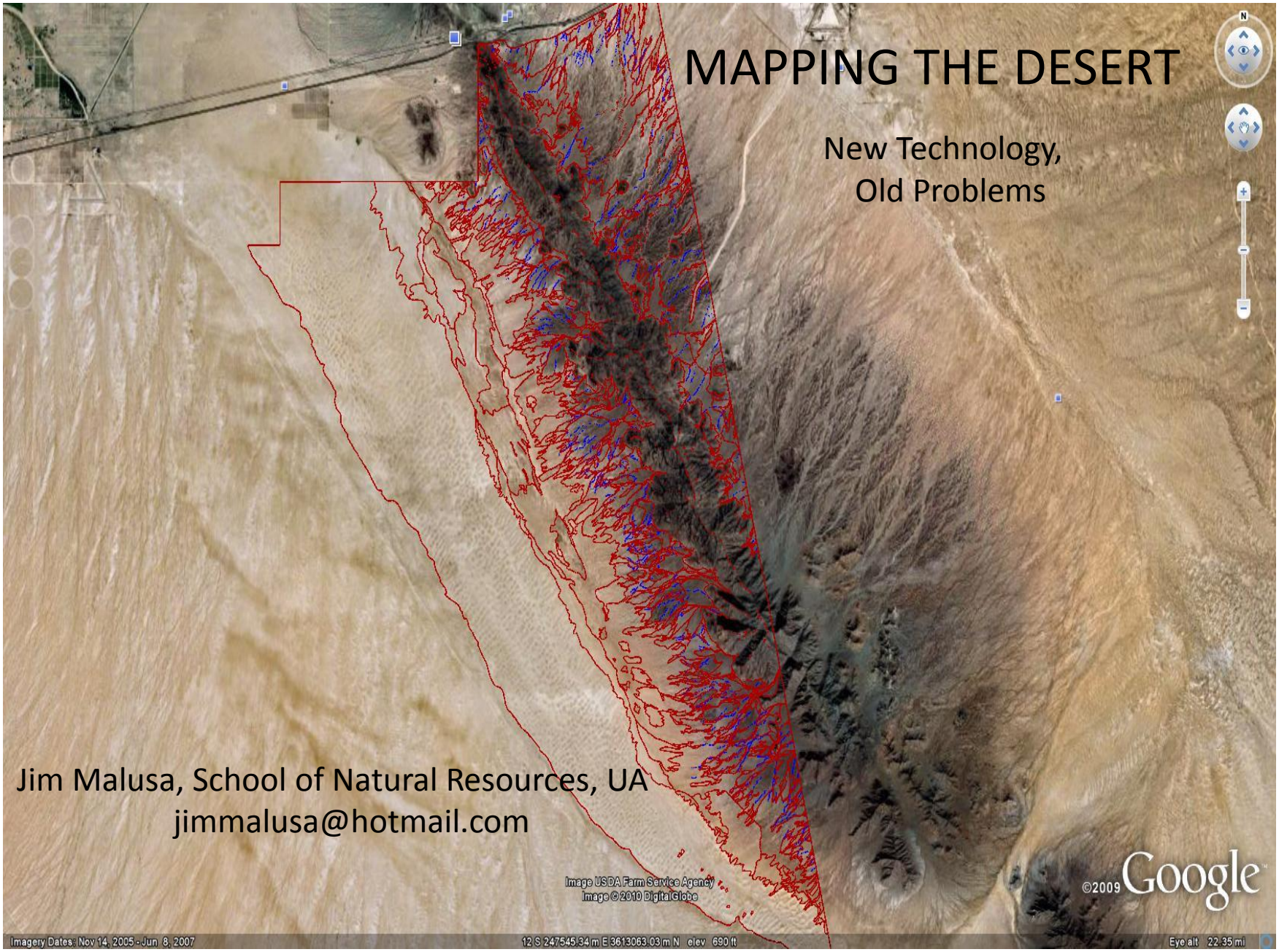
MAPPING THE DESERT

New Technology, Old Problems

Jim Malusa, School of Natural Resources, UA
jimmalusa@hotmail.com



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RIO MUY GRANDE
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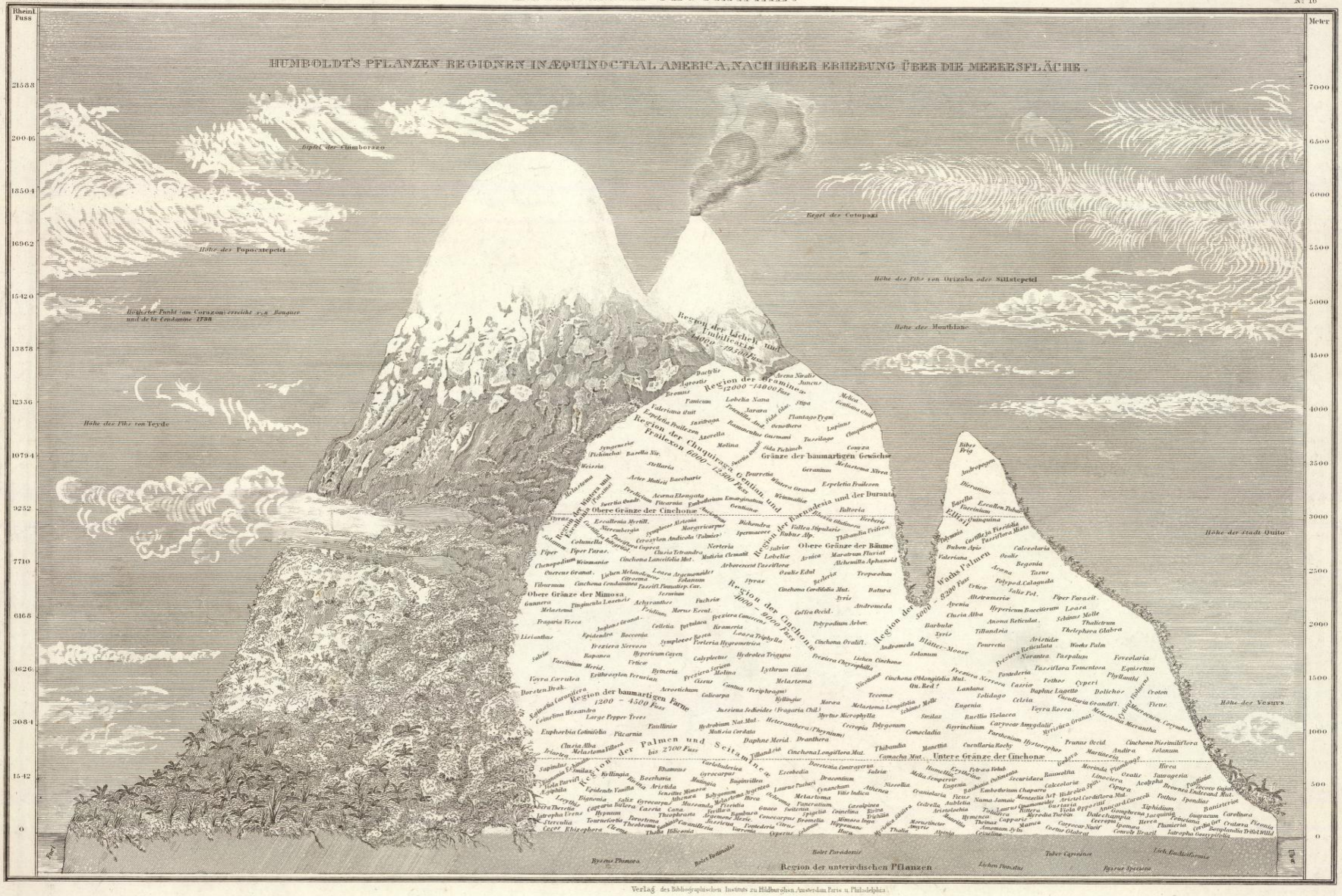
Pima
Arispe
Bavispe
RIO DE TI
Cajuales
RIO DEL TIZON
Yumas
Alarcón
Seri
Cora
Chumash
Cocopa
Díaz
VLTRA

Alexander von Humbolt

"…the discovery of an unknown genus seemed to me far less interesting than an observation on the geographical relations of the vegetable world, or the migration of social plants, and the limit of the height which their different tribes attain on the flanks of the Cordilleras."

BOTANISCHE GEOGRAPHIE.



Verlag des Bibliographischen Instituts zu Hildburghsn. Amsterdam Paris u. Philadelphia.

Humbolt’s accomplishments include:

Invented isoclines

First to call distinctive communities of plants “Associations”

Published 29 volumes with 1426 maps

Darwin, 1832: "I formerly admired Humboldt, I now almost adore him . . ."

NATIONAL
Simpler Times
BRAND
PILSNER
BEER
5.5 PERCENT
ALCOHOL BY VOLUME
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Growler Peak
Charlie Bell Pass
Charlie Bell Well
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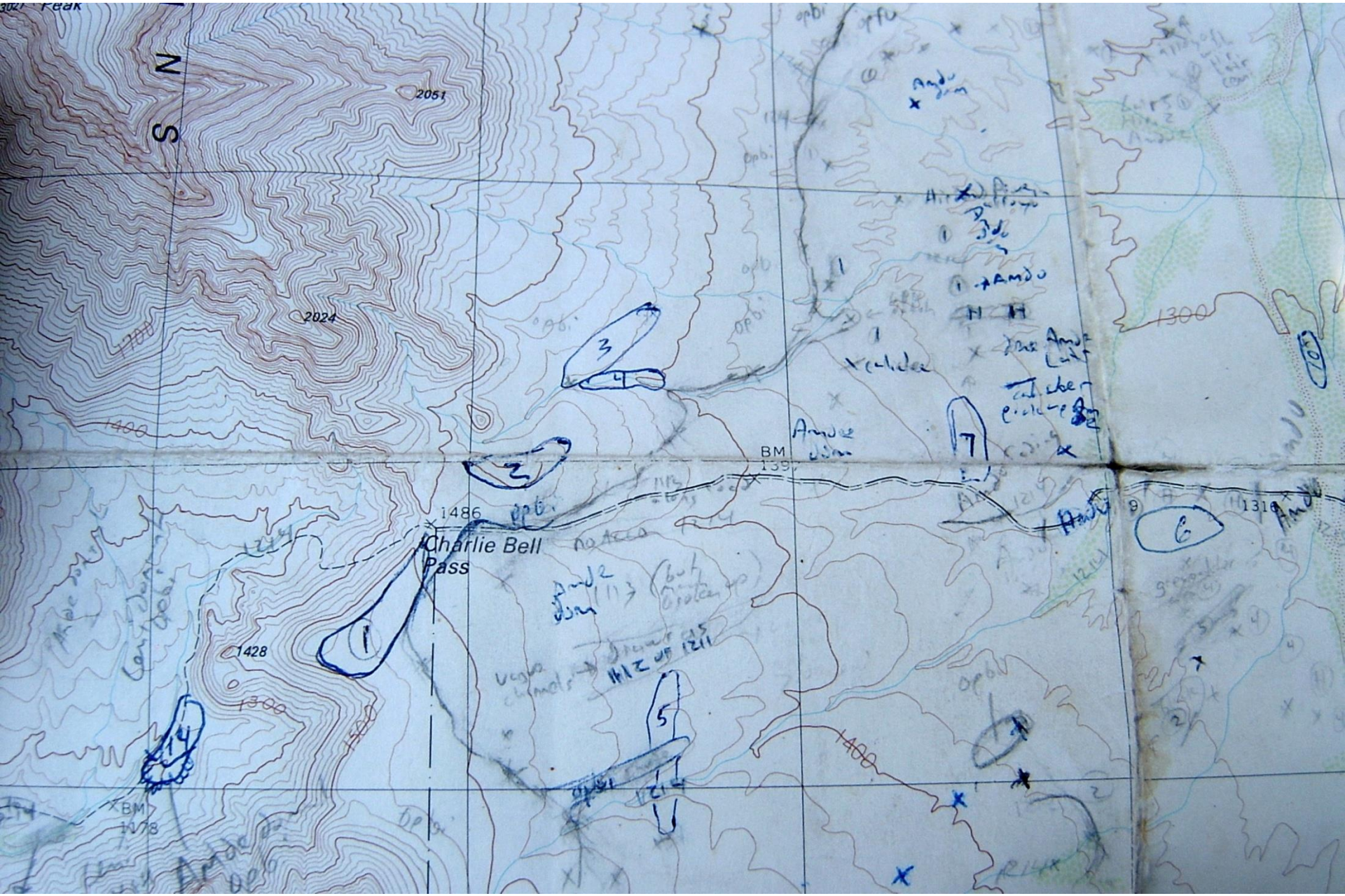

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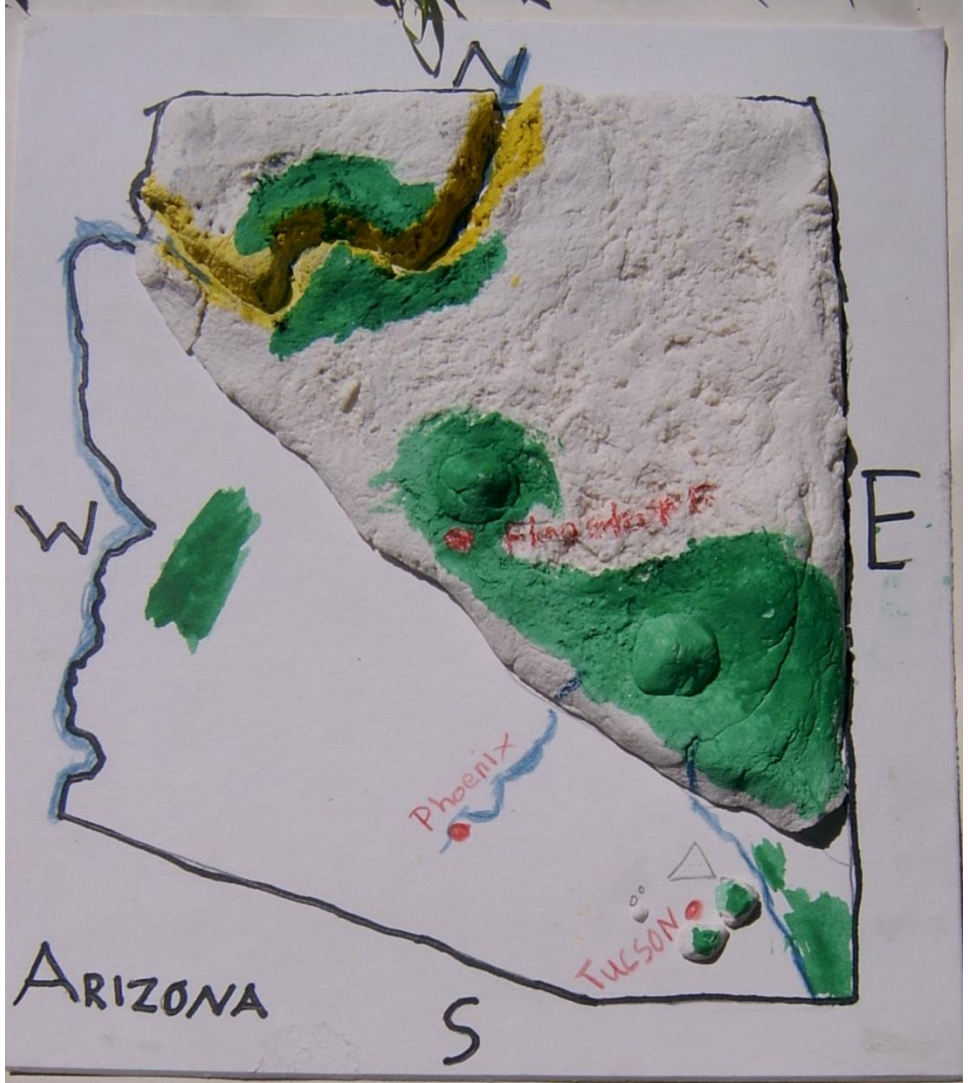
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ARIZONA

LEGEND
High Desert
Grand canyon
Low Deserts
Rivers
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Simpler Times
BRAND
PILSNER
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5.5 PERCENT ALCOHOL BY VOLUME
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GPS 12 CX
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READ BEARING HERE
SILVA

GROWLER
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BOUNDARY
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REFUGE
WILDLIFE
Growler Peak
923
Charlie Bell
Pass
Pack Rat
Hill
489
462
Cardigan
Peak
North
Ajo Pea
Ajo
Well
Chico Shlunie
Shlunie
Mine
Temporal
Pass
Adobe
Windmill
Donnelly
Wash
Wash
Well
Well
Well

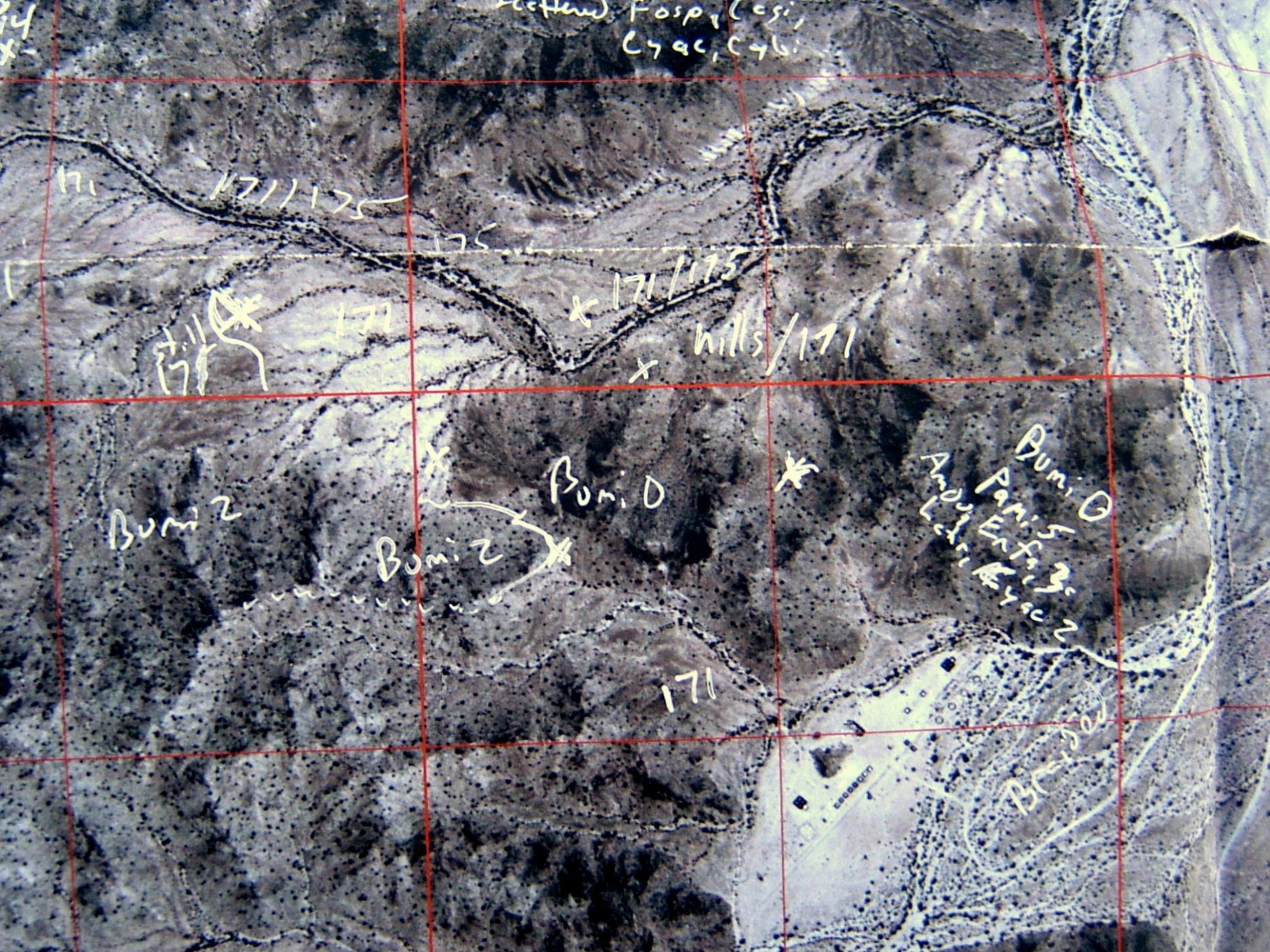
Association: Floodplain
Classification: 154.115
Number of Sample Sites: 12

Cover Codes: 0 = Not present 1 = <1 % 2 = 1-4 % 3 = 5-9 % 4 = 10-14 %
5 = 15–25 % 6 = 26-40 % 7 = 41-60 % 8 = 61-80 % 9 = > 80 %

Taxon	Sites	Median Prominence (Range)	Median Cover (Range)	Avg Height (m)
Larrea tridentata	12	4.5(2-5)	3(1-4)	1.2
Prosopis glandulosa	8	2.5(0-5)	1(0-6)	2.9
Ambrosia deltoidea	7	2(0-5)	1(0-5	0.5
Sphaeralcia coulteri	7	3(0-4)	1(0-3)	0.7
Pleuraphis rigida	7	2(0-3)	1(0-3)	0.7
Brassica tournefortii	6	1(0-3)	.5(0-2)	
Ferocactus wislizeni	5	0(0-2)	0(0-1)	
Ambrosia dumosa	3	0(0-3)	0(0-2)	0.5
Lycium unknown	3	0(0-3)	0(0-2)	0.9
Annual grass	1	0(0-3)	0(0-2	
Astragalus sp.	1	0(0-3)	0(0-1)	
Krameria grayi	1	0(0-3)	0(0-2)	
Phacelia ambigua	1	0(0-3)	0(0-2)	
Tidestromia lanuginosa	1	0(0-3)	0(0-2)	
Castela emoryi	1	0(0-2)	0(0-1)	
Krameria erecta	1	0(0-2)	0(0-1)	
Lycium andersonii	1	0(0-2)	0(0-1)	
Palafoxia linearis	1	0(0-2)	0(0-1)	
Parkinsonia microphyllum	1	0(0-2)	0(0-1)	
Carnegiea gigantea	1	0(0-1)	0(0-1)	
Olneya tesota	1	0(0-1)	0(0-1)	

Prominence ranks
5= dominant
4= co-dominant
3=common
2=uncommon
1=rare

Audubon
8x25
GARMIN
OREGON 550t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Bumi 2
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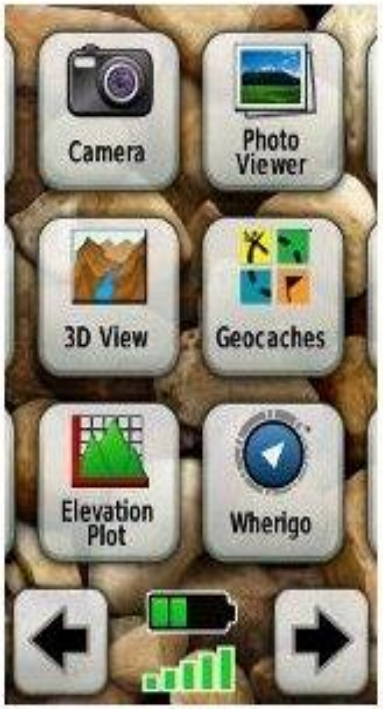
OREGON 550
GARMIN

Map
Where To?
Compass
Mark Waypoint
Trip Computer
Setup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Elevation Plot
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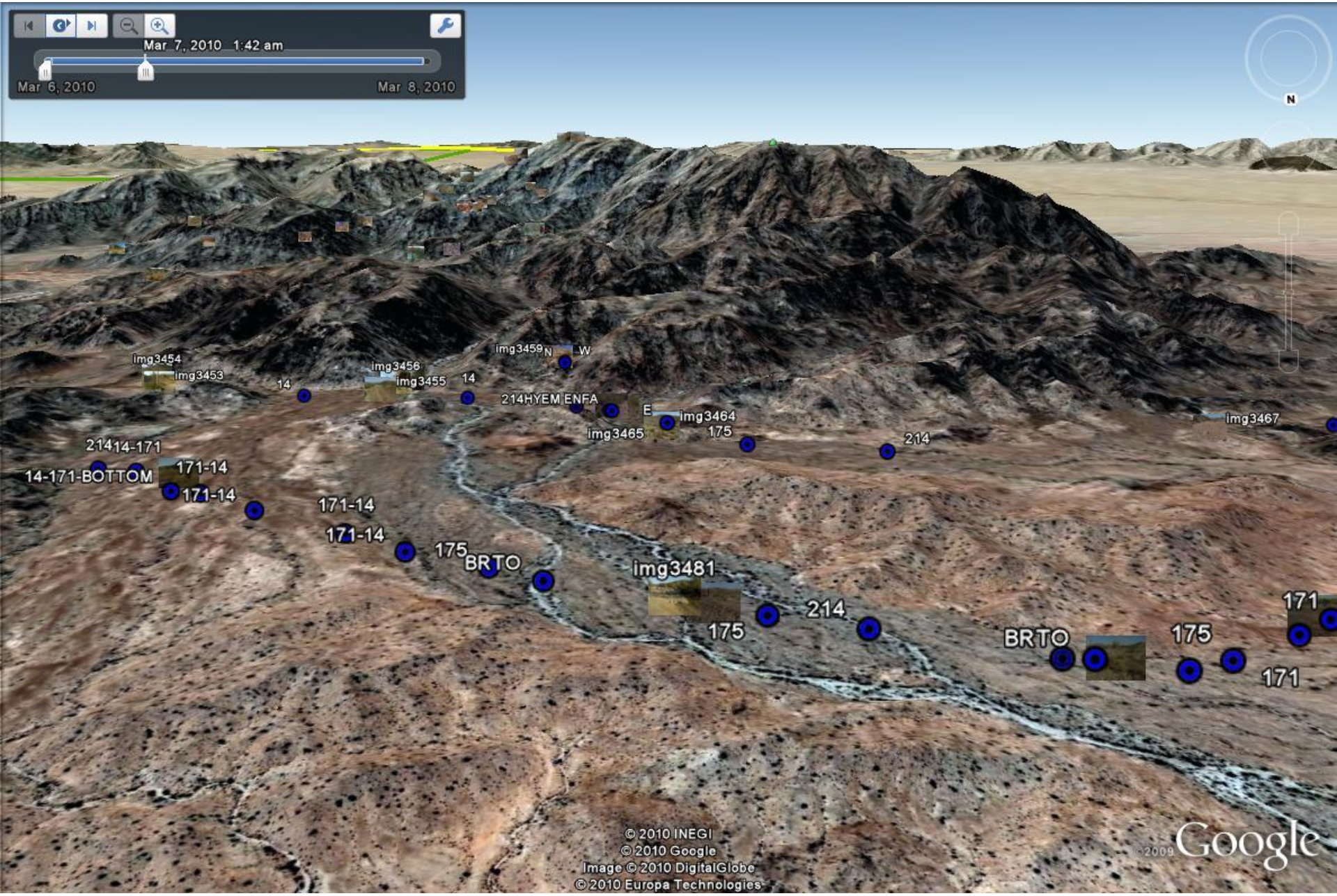
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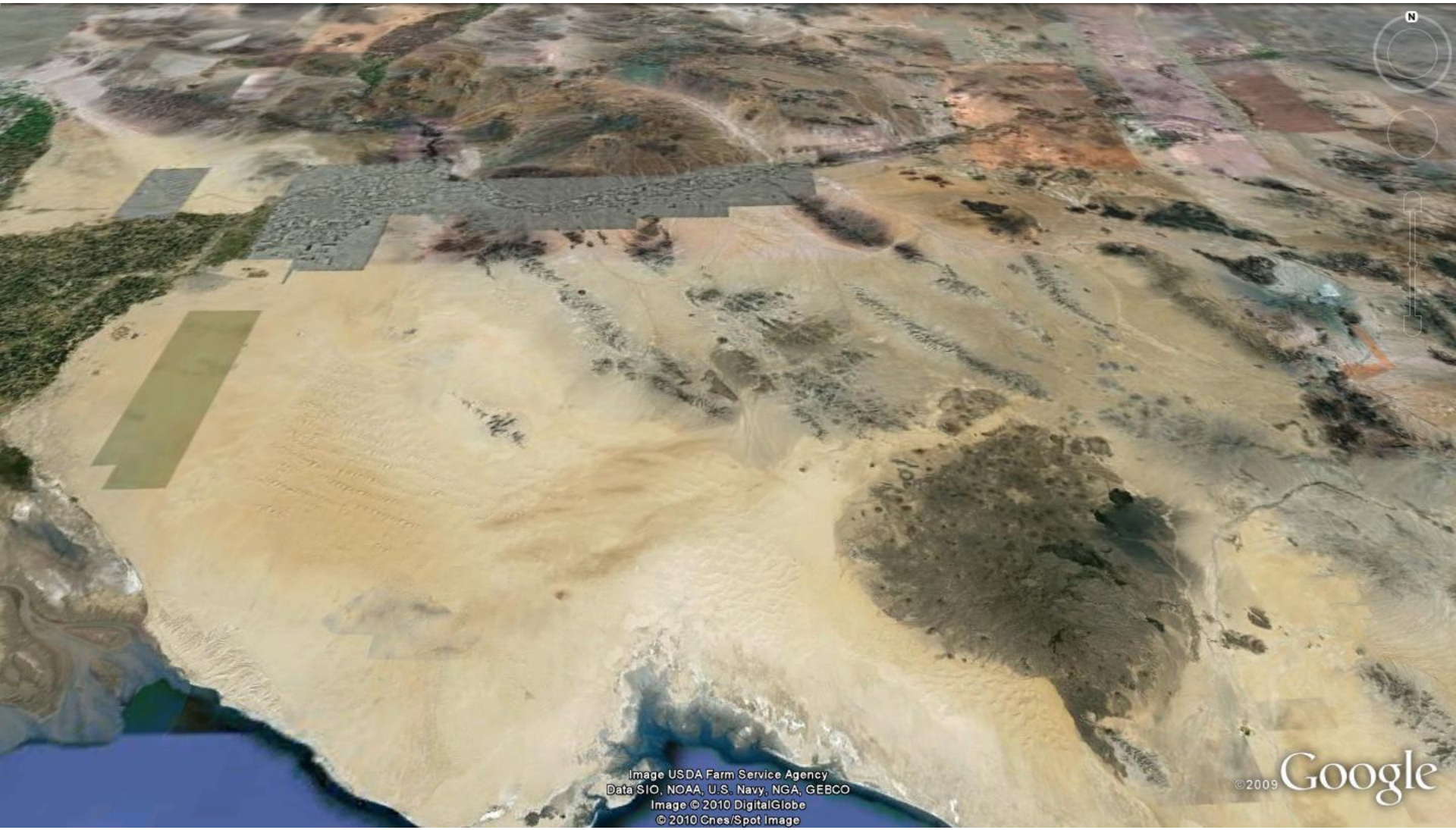
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Image USDA Farm Service Agency
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
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Taxonomic Code	Prominence	Height	Cover Code
Hyem	5	1.50	3
Amil	3	0.40	2
Enfa	3	0.50	2
Gygl	3		1
Acgr	3	2.00	1
Pami	3	2.50	2
Ziob	3		1
Plpl	3		1
Spam	3	0.60	2
Vipa	3		1
Xapi	3		1
LYCIU	3	1.10	2
Plri	2		
Trca	2		
Agde	2		
Pepa	1		
Cybi	1		
Cagi	1		

Taxonomic Code	Prominence	Height	Cover Code
Hyem	4	1.00	3
Enfa	4	0.60	3
Spam	3		1
Pami	3	3.00	2
Dila	3		1
Amil	3	0.40	2
Trca	2		1
LYCIU	2		
Hide	2		1
Epas	2		1
Amdu	2		1
Ziob	1		
Xapi	1		1
Latr	1		1
Faca	1		1

Taxonomic Code	Prominence	Cover Code
Hyem	5	4
Spam	3	2
Pami	3	2
LYCIU	3	
Enfa	3	2
Amil	3	3
Acgr	3	2
Niob	2	
Latr	2	
Gast	1	1
Cagi	1	
Bumi	1	
Mapi	0	

Taxonomic Code	Prominence	Height	Cover Code
Hyem	4	1.5	3
Pami	4	5	3
Amil	3	0.6	2
Dila	3		1
Enfa	3	0.7	2
Acgr	3	2.5	2
LYCIU	3		1
Trca	3		1
Spam	3		1
Mesc	2		
Mibi	2		
Niob	2		
Hone	2		
Gast	2		
Olte	2		
Plpl	2		
Crbi	2		
Mapi	2		

Vegetation of Rubble Chutes

Hyptis emoryi (desert lavender) is abundant

Prominence ranks
5= dominant
4= co-dominant
3=common
2=uncommon
1=rare

Has the Association been named?

Yes

Has the association been described?(with data)

Yes.
Use existing name.

No.
Collect data to define the association.

No. Start from scratch, keeping in mind that the most difficult part is deciding upon the boundaries separating associations.

NatureServe *Explorer* | Data Search | About the Data | About Us | Contact Us | Help

Plants/Animals | Ecological Communities & Systems | Site Index

Name | Location | Status | New Search | Check Criteria | Search Now

Search by Name

Search Tips

Enter the name of any ecological unit
(No plurals. Separate multiple names with a comma.)

Hyptis emoryi [Search Now]

○ **Systems** ○ **Associations** ○ **Alliances** ◉ **All**

○ scientific ○ informal ◉ either

☑ ignore punctuation in the database

And/Or Search by Group

Select a group to search within for the name entered above, or search for an entire group (e.g. forest):

[ ] Find Group Below | Next

- **All Ecological Units** [☑ Entire group selected] Search Now
- Ecological Systems
- Ecological Communities

Refine Results

Limit Ecological Communities Results:

◉ No Limit

○ By Wetlands

Limit Ecological Systems Results:

By Wetlands:

◉ No Limit

○ Only Wetlands

○ Only Isolated Wetlands

Results Detailed Report - Windows Internet Explorer

http://www.natureserve.org/explorer/servlet/NatureServe?loadTemplate=tabular_report.wmt&paging=home&save=all&sourceTemplate=reviewMid

Favorites | (0 unread) Yahoo! Mail,... | Results Detailed Report

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Search Results: 1 - 1 of 1 records matching your criteria.
| Systems: 0 | Associations: 0 | Alliances: 1

Deselect All | Select All | Show Selected Only

Alliance Records ☑ = Selected for report browsing.

Browse ☑	Alliance Name Translated Alliance Name
Deciduous shrubland	
☑	*Hyptis emoryi Intermittently Flooded Shrubland Alliance* Desert-lavender Intermittently Flooded Shrubland Alliance

^ Return to Top

Deselect All | Select All | Show Selected Only

Your Current Plant/Animal Search Criteria

None yet selected.

Your Current Ecological Units Search Criteria
- Ecological Systems (Excluding Aggregates), Associations and Alliances

Name/Group:
Scientific or informal names with words matching the following pattern (ignoring punctuation):
Hyptis emoryi

Ecological Alliances Comprehensive Report: Record

-1 of 1 selected.

See All Search Results
View Glossary
<< Previous | Next >>
---Jump to Section---

Hyptis emoryi Intermittently Flooded Shrubland Alliance

Translated Name: Desert-lavender Intermittently Flooded Shrubland Alliance
Unique Identifier: A.2537
Classification Approach: International Vegetation Classification (IVC)

Summary: This xeromorphic tall shrubland alliance is found in the Mojave, Colorado and Sonoran deserts. Stands occur locally in minor washes, arroyos, floodplains or steep, lower colluvial slopes of canyons where additional soil moisture is available. Substrates are typically cobbly or bouldery alluvium or rocky colluvium. The vegetation is characterized by an open to intermittent, xeromorphic, tall-shrub layer (3-6 m tall) that is dominated by *Hyptis emoryi* over a short-shrub layer. Other tall shrubs/small trees present may include *Acacia greggii, Chilopsis linearis, Olneya tesota, Parkinsonia florida*, or *Psorothamnus spinosus*. A sparse short-shrub layer of species such as *Bebbia juncea, Encelia farinosa, Hymenoclea salsola, Justicia californica, Larrea tridentata, Opuntia basilaris, Psorothamnus schottii*, or *Trixis californica* may also be present. The herbaceous layer is sparse and consists of annuals or is absent. Diagnostic of stands of this alliance is a tall-shrub layer with cover of *Hyptis emoryi* that is over 5% and exceeds the cover of any other shrub.

---Jump to Section---

Classification

Has the Association been named?

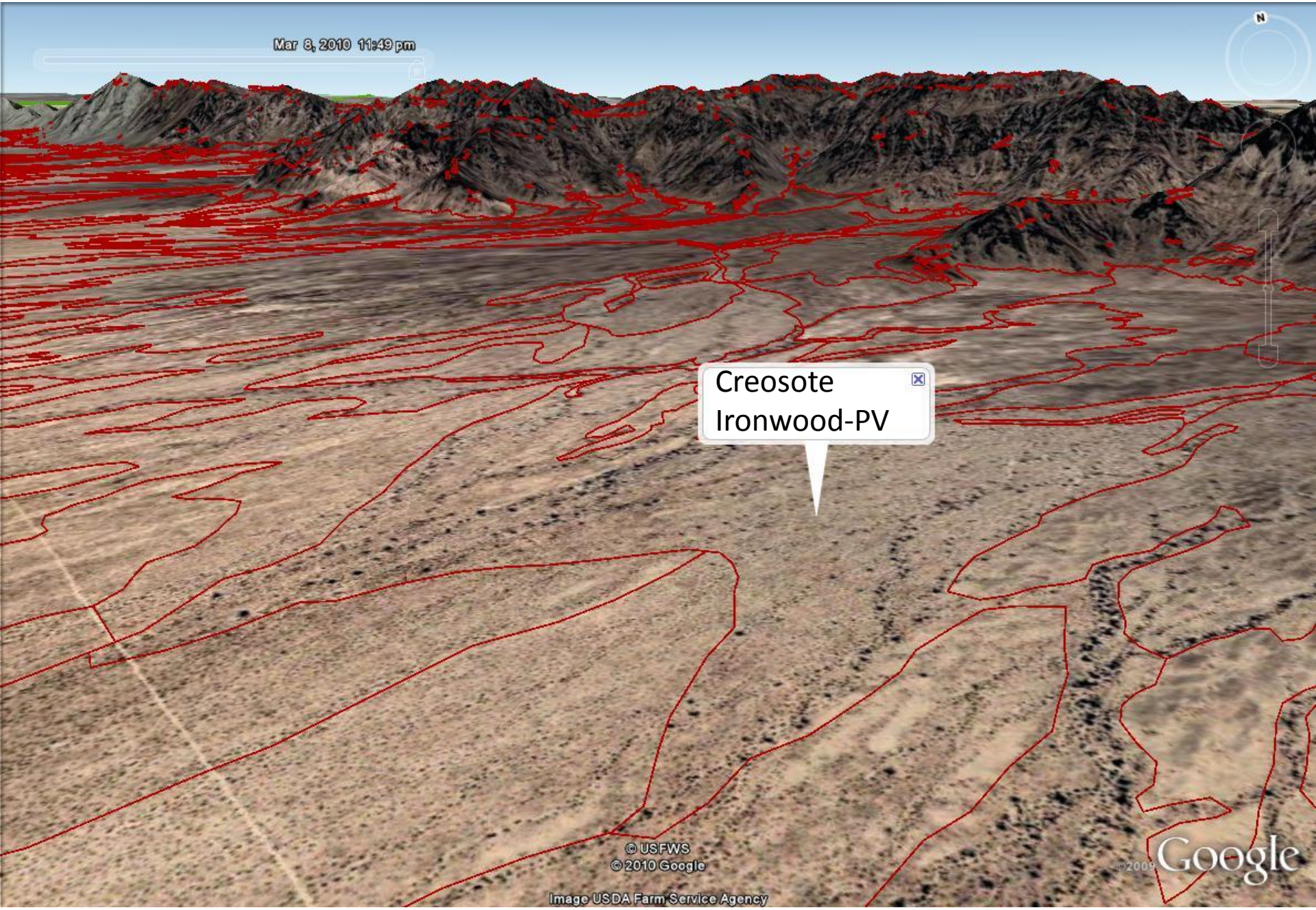
Yes

No. Start from scratch, keeping in mind that the most difficult part is deciding upon the boundaries separating associations.

Has the association been described?(with data)

Yes.
Use existing name.

No.
Collect data to define the association.


Mar 8, 2010 11:49 pm
Creosote
Ironwood-PV
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Has the Association been named?

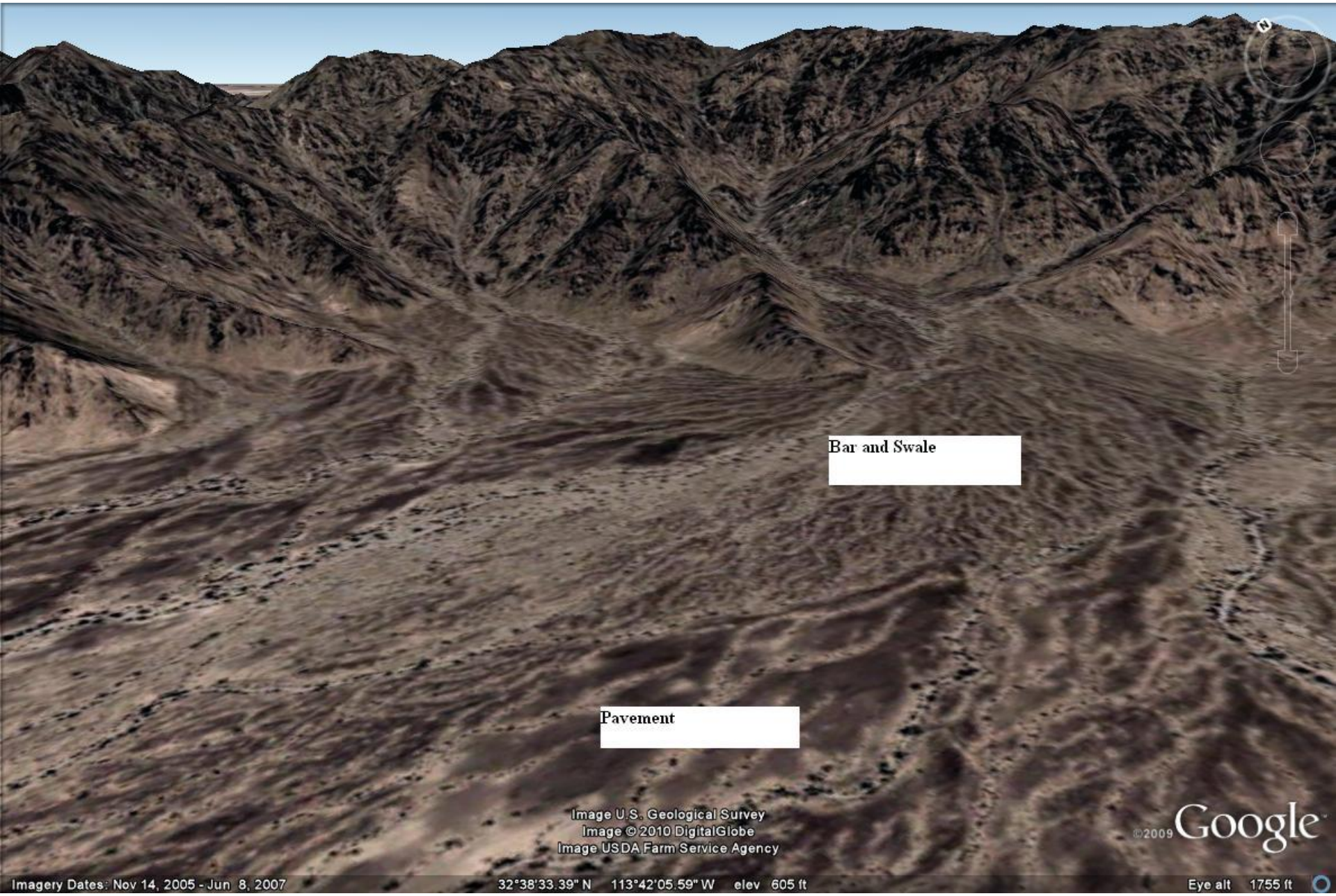
Yes

Has the association been described?(with data)

Yes.
Use existing name.

No.
Collect data to define the association.

No. Start from scratch, keeping in mind that the most difficult part is deciding upon the boundaries separating associations.


Bar and Swale
Pavement
Image U.S. Geological Survey
Image © 2010 DigitalGlobe
Image USDA Farm Service Agency
©2009 Google
Imagery Dates: Nov 14, 2005 - Jun 8, 2007
32°38'33.39" N 113°42'05.59" W elev 605 ft
Eye alt 1755 ft

Association: Bar and Swale
Classification: 154.1175
Number of Sample Sites: 5

Cover Codes: 0 = Not present 1 = <1 % 2 = 1-4 % 3 = 5-9 % 4 = 10-14 %
5 = 15–25 % 6 = 26-40 % 7 = 41-60 % 8 = 61-80 % 9 = > 80 %

Taxon	Sites	Median Prominence (Range)	Median Cover (Range)	Avg Height (m)
Larrea tridentata	5	5(4-5)	3(2-3)	1.0
Cylindropuntia acanthocarpa	5	3(1-3)	2(1-3)	1.1
Parkinsonia microphyllum	5	3(2-4)	2(1-3)	3.1
Ambrosia dumosa	5	3(2-3)	1(1-2)	0.4
Encelia farinosa	5	3(1-3)	1(1-1)	0.6
Fagonia californica	5	3(1-3)	1(1-1)	0.3
Krameria grayi	5	2.5(1-3)	1(1-1)	
Carnegiea gigantea	5	2(1-2)	1(1)	
Olneya tesota	4	2.5(2-3)	1(1-2)	
Ambrosia deltoidea	3	1.5(0-3)	1(0-2)	0.6
Hibiscus denudatus	2	1(0-2)	0.5(0-1)	
Ditaxis lanceolata	2	2(0-2)	0(0-1)	
Lycium unknown	2	0.5(0-1)	0.5(0-1)	
Cylindropuntia bigelovii	2	3(0-3)	0(0-2)	0.8
Ditaxis unknown	1	0(0-1)	0(0-1)	