

Summary of Biological Surveys and Cultural Surveys of Canyons that Might be Used if AWSA Proposals are Funded

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Input Group and Public Meetings

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Biological Survey

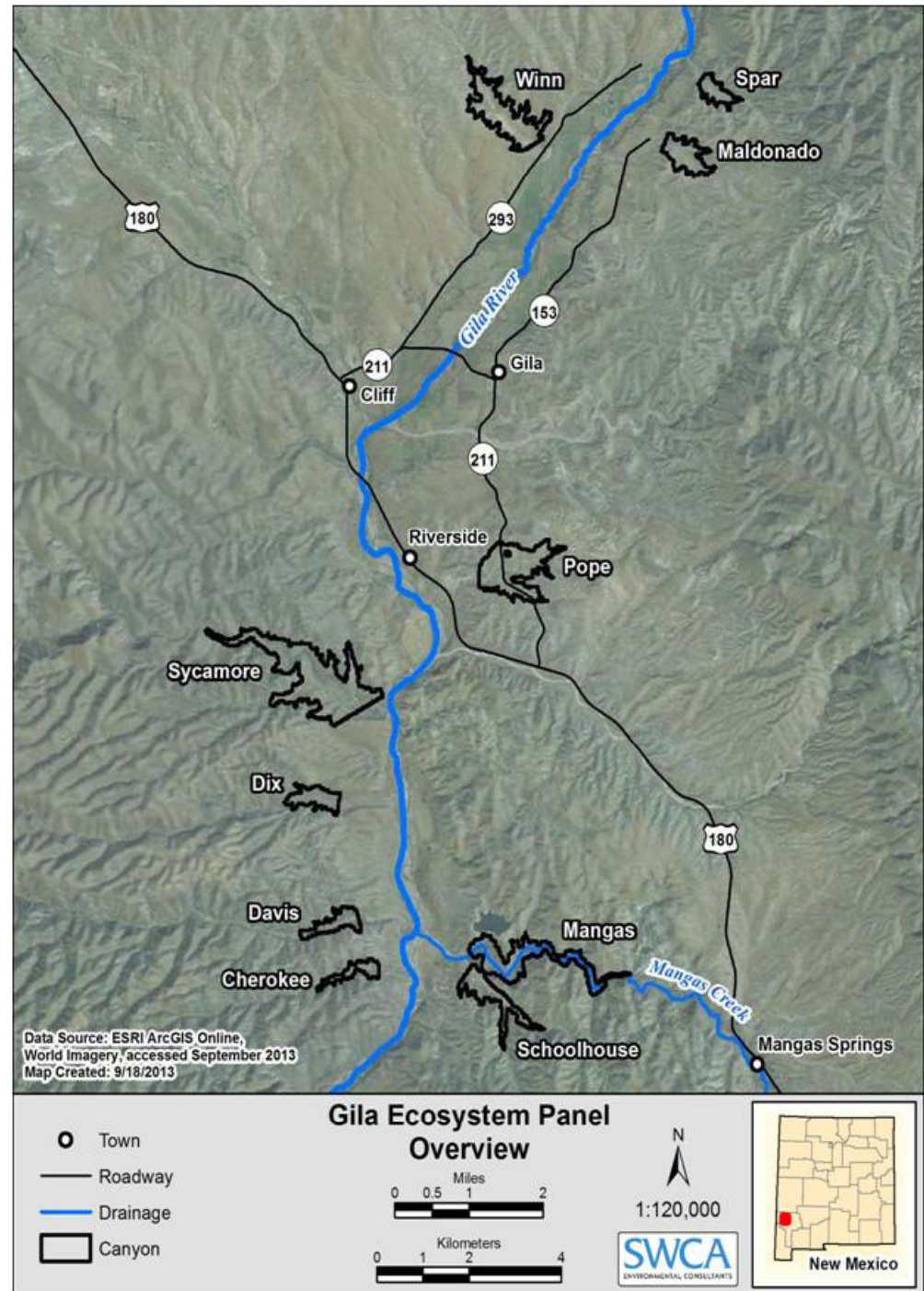
- Goal- determine what species of plants and animals might be found in AWSA proposal areas
- SWCA was hired to investigate
- SWCA approached the task in 2 steps
 - 1.Desktop Survey: Pre-field survey background information
 - 2.Field Survey: On-the-ground field survey to verify desktop survey information, and to obtain additional information

Methods: Desktop Survey Information Acquired

- Each canyon geographic location, acreage, land ownership.
- U.S. Fish and Wildlife Service, U.S. Forest Service, and NM Dept of Game and Fish special status animal species and their habitats
- New Mexico Energy, Minerals and Natural Resources Department, USFS, and New Mexico Rare Plant Technical Council special status plant species and their habitats.
- USDA National Resources Conservation Service soils classification types
- Southwest Regional Gap Analysis Project (SWReGAP) vegetation community types
- University of New Mexico Heritage Program information
- Freshwater springs data (U.S. Geological Survey]
- National Wetlands Inventory wetlands and riparian data

All that data was gathered for each canyon and summarized in a spreadsheet to guide the field work.

Schoolhouse Canyon



Methods: Field Survey Information Acquired

- Verification of all desktop survey information including soils and SWReGAP vegetation community type maps.
- Collection of data for:
 - New Mexico Rapid Assessment Method (NMRAM) for riparian environmental condition and health.
 - NRCS pasture/rangeland condition index scores for both upland and riparian areas.
 - Photographs at designated points

1. Relative Native Plant Community Composition: Score = ____
Comments: _____
2. Vegetation Horizontal Patch Structure : Score = ____
Comments: _____
3. Vegetation Vertical Structure: Score = ____
Comments: _____
4. Native Riparian Tree Regeneration: Score = ____
Comments: _____
5. Invasive Exotic Plant Species Cover: Score = ____
Comments: _____
6. Total Biotic Metrics Score: _____

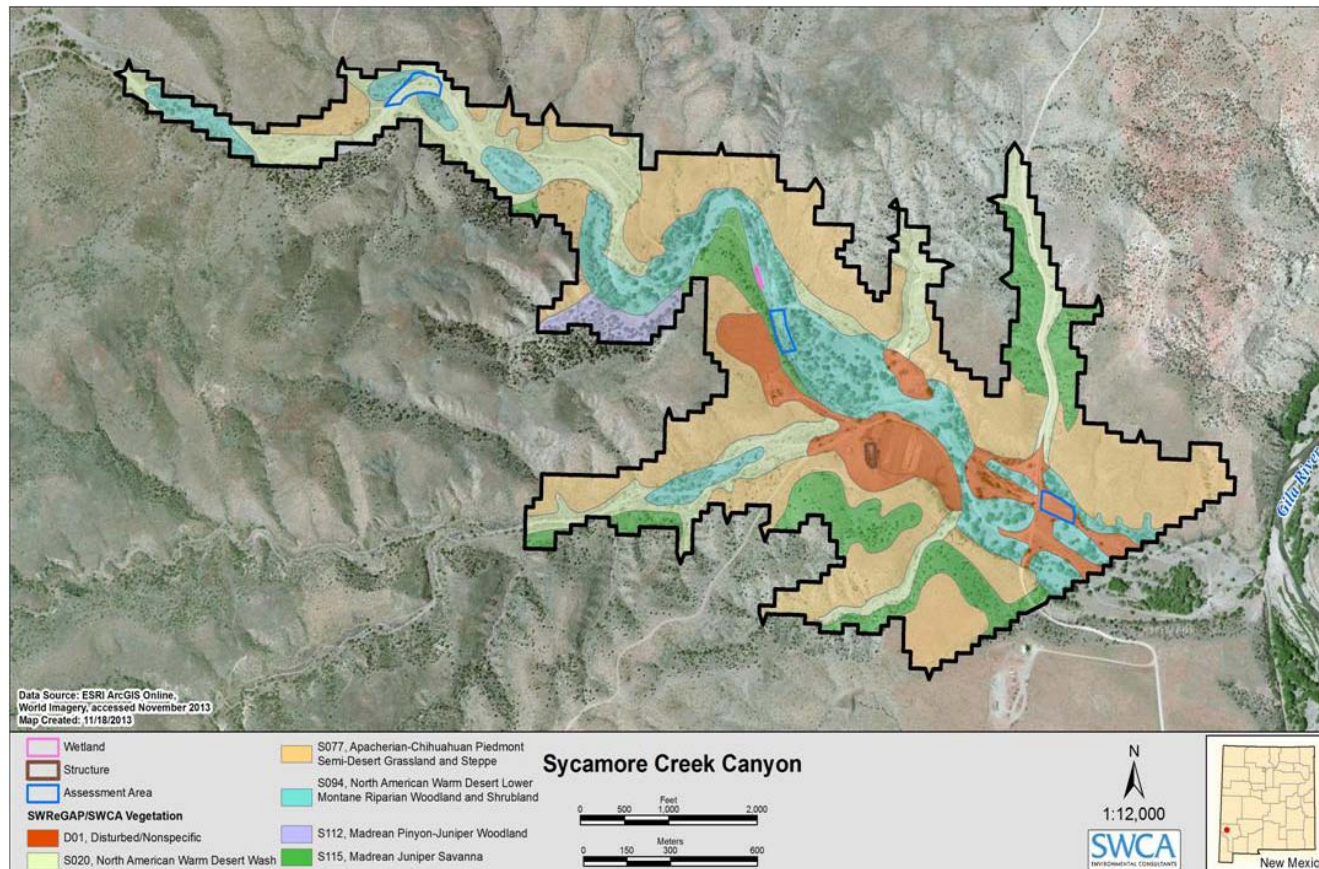
Any additional information on NMRAM Biotic Metrics:

Example: New Mexico Rapid Assessment Method score sheet. Important to analyze each study area the same way. The Manual and Field Guide for NMRAM can be found at <http://www.nmenv.state.nm.us/swqb/Wetlands/NMRAM/>

Sycamore Canyon vegetation community map produced from SWReGAP GIS layer and field verified and corrected. Information about SWReGAP can be found at

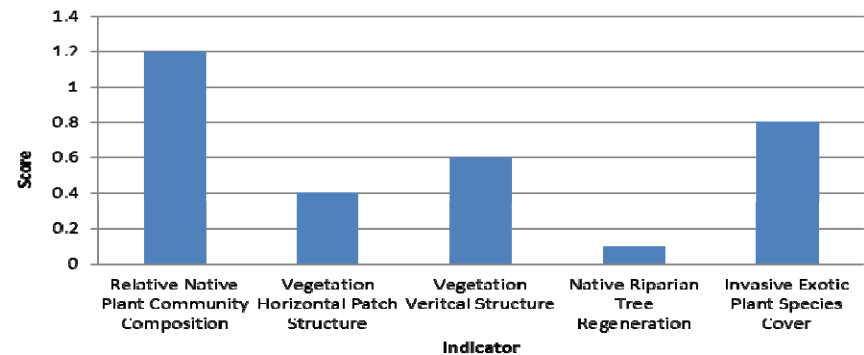
<http://swregap.nmsu.edu/factsheet.htm> and

http://earth.gis.usu.edu/swgap/data/landcover/descriptions/landc_database_report.pdf



Example: NMRAM scores for 3 Areas within Sycamore Canyon

Indicator	AA #1			AA #2			AA #3		
	Raw	Multiplier	Total	Raw	Multiplier	Total	Raw	Multiplier	Total
Relative native plant community composition	4	0.3	1.2	3	0.3	0.9	3	0.3	0.9
Vegetation horizontal patch structure	2	0.2	0.4	3	0.2	0.6	2	0.2	0.4
Vegetation vertical structure	3	0.2	0.6	3	0.2	0.6	2	0.2	0.4
Native riparian tree regeneration	1	0.1	0.1	3	0.1	0.3	1	0.1	0.1
Invasive exotic plant species cover	4	0.2	0.8	2	0.2	0.4	1	0.2	0.2
Totals:	3.1 (78%)			2.8 (70%)			2.0(50%)		
Grand Total Averaged over 3 AAs:	2.6 (65%)								



Example: NRCS pasture condition scores for Sycamore Canyon

Indicator	Score	
	Upland	Riparian
Percent desirable plants	1	3
Percent cover	3	3
Plant diversity	1	3
Plant residue	2	4
Percent legume	3	3
Uniformity of use	5	5
Livestock concentration areas	1	1
Soil compaction	2	2
Erosion	1	1
Total	19 (42%)	25 (56%)

This is for RANGE
MANAGEMENT
issues relating to
raising livestock.

For detail about this scoring method, please visit:

http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044239.pdf

And http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044243.pdf

Conclusions

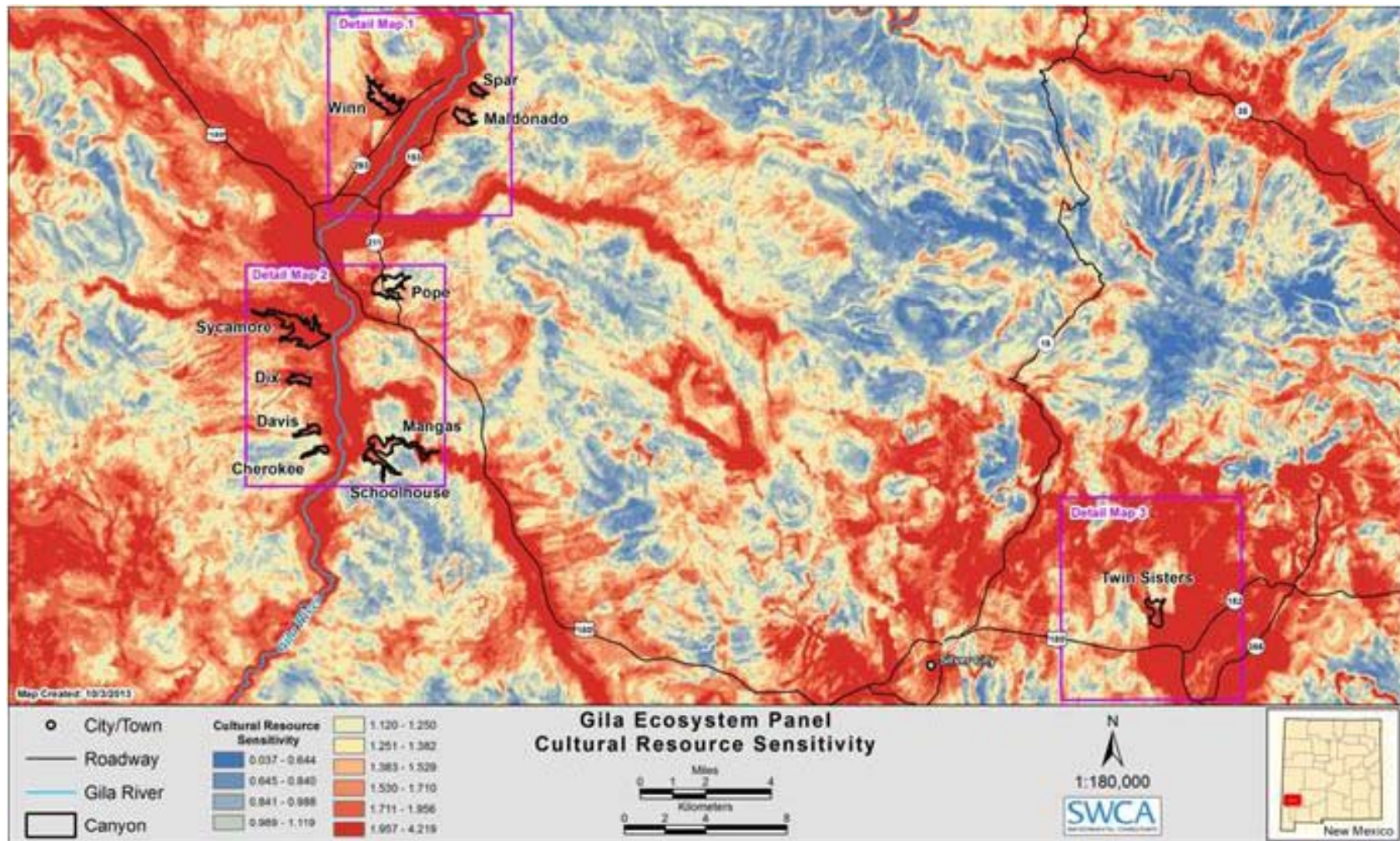
- Results from the Field Study sometimes differed from the Desktop Study.
- Status of rangeland health has been documented
- Potential species and habitat diversity documented
- Potential presence of sensitive species documented
- The only animals actually identified as SEEN in the field campaign were cattle and frogs (species not identified)



Cultural Resources (CR) Survey aka: Archeological Ruins Survey

- Goal- determine where archeological artifacts might be found in AWSA proposal areas
- SWCA was hired to investigate
- SWCA approached the task as a **Desktop Survey**

- None of the areas of interest have been field surveyed .
- Bureau of Land Management has created a statistical model of CR sensitivity in the area.
- This model was used to evaluate canyons in the area
- This is just a starting point



This map shows the results of the BLM model for Cultural Resource Sensitivity applied to the areas proposed for AWSA projects.

Canyon Name	Total Acres	Total Potential Impact
Sycamore	567.66	1.00
Winn	277.16	0.38
Mangas	271.18	0.34
Pope	303.86	0.31
Twin Sisters	171.93	0.25
Schoolhouse	146.75	0.18
Dix	94.83	0.14
Maldonado	122.19	0.14
Davis	83.74	0.11
Spar	67.52	0.09
Cherokee	62.61	0.08

Total potential impact reflects the sensitivity and the size of the area considered. All normalized to the largest canyon.

Link to the Draft Report of the Biological Survey

[http://nmawsa.org/ongoing-
work/ecological-studies/arizona-water-
settlements-act-proposed-water-
impoundment-canyon-survey-
report/view](http://nmawsa.org/ongoing-work/ecological-studies/arizona-water-settlements-act-proposed-water-impoundment-canyon-survey-report/view)