

Wildlife TWG

The first meeting of the Wildlife TWG was held on May 9, 2013. The group identified potential indicators and threats for a set of focal resources: mountain lion, desert bighorn sheep, mule deer, Mexican spotted owl, California condor, northern goshawk, and herpetofauna. Other potential focal species were brought up: peregrine falcon, tamarisk beetle, golden and bald eagles, avifauna, bats, southwest willow

flycatcher, lower trophic/prey species, invertebrates and water resources.

The group identified potential data sources for focal resources, which include avifauna data from a variety of sources, Arizona Game and Fish Department (AZGFD) Habimap, invertebrate data from the Museum of Northern Arizona, condor data from the Peregrine Fund, and herpetofauna data from US Fish and Wildlife Service and AZGFD.

Landscape TWG

At Workshop I stakeholders identified biodiversity, ecosystem intactness, and fire as broad resources across the GGCLA landscape. On June 12, 2013, the Landscape TWG got together to translate these broad concepts into specific resources that can be assessed using existing information, and identify how they could be represented in a spatially explicit manner. Criteria for assessing biodiversity identified by the group include endemic plants, habitat diversity, ecosystem structural attributes, and culturally significant species. Threats to biodiversity were identified as climate change, urban influence, and intensive management.

Criteria for assessing ecosystem intactness include connectivity, vis a vis "barriers", viewsheds, soundscapes, wilderness characteristics, and composition and analysis. Threats to ecosystem intactness were identified as increasing human footprint (development, visitation, energy development, and roads), and barriers to movement of wildlife and natural processes across the landscape.

Fire can be both a resource and a threat, which must be weighed when making land-management decisions. Some criteria for assessing fire include fire regime parameters and forest structure and composition.

Hualapai Open House

GGCLA project leaders Todd Chaudhry and Tom Sisk traveled to the Hualapai Reservation on July 25, 2013 to explain the project to the Hualapai Tribe in an open house at the Hualapai Cultural Center. Staff from the Hualapai Cultural Department and the Department of Natural Resources stopped by, as well as interested community

members and a group of fourth grade students. Hualapai children are taught that they are one with the land and that they have a responsibility to care for the land. Todd Chaudhry explained that the GGCLA was an important step in taking care of Grand Canyon and the surrounding area. Many thanks to Peter Bungart and Loretta Jackson-Kelly of the Hualapai Cultural Department for arranging the event.

What's next?

The staff at Grand Canyon National Park and the Landscape Conservation Initiative have taken the feedback collected at Workshop I and at the Technical Work Group meetings and have been working to produce preliminary spatial data products. GGCLA team members will be providing an update on the project and presenting those initial spatial layers at an Open House on Client's

Day, September 16, 2013, at the Biennial Conference of Science and Management on the Colorado Plateau (see the Save the Date notification for times and locations). Hope to see you there!

A second full stakeholder workshop will be held in early 2014. A draft for each resource condition assessment will be completed and a final workshop will be held in mid-2014. The final report is slated to be out in December 2014.



Desert bighorn sheep. NPS photo

Save the date!

Please join us **September 16, 2013** on the NAU campus at the Biennial Conference of Science and Management on the Colorado Plateau to learn what we've been up to since the stakeholder workshop, view some preliminary spatial data products, and tell us what you think.

You **do not** have to be registered for the conference to attend. For your convenience, there will be two sessions:

12:00 to 1:30 p.m.
Southwest Room, Du Bois Center

3:30 to 6:00 p.m.
Drury Inn, first floor Conference Center

For more information, contact **Sasha Stortz** at sashastortz@nau.edu.

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Greater Grand Canyon Landscape Assessment

Number 1, August 2013

Collaborative work bolsters the GGCLA

What sets the GGCLA apart from other assessments of Grand Canyon and NPS Natural Resource Assessments? First, it invites the park's neighbors and others with an interest in Grand Canyon and the surrounding area to participate and contribute their knowledge, expertise and values in the process. While no actions are being considered at this time, when big issues arise, like uranium mining or wind power development, we can continue to work together as partners to address them. Plus, we'll be one step ahead, having already identified key resources and how best to protect them.

Second, the GGCLA encompasses neighboring lands and watersheds, as well as the park. In this way, it will consider the park's influence on surrounding lands and their influence on the park. By doing so, the products of the assessment will be useful for all stakeholders and big issues can be addressed efficiently.

In addition, the GGCLA will assess natural, as well as cultural resources. We will collect as much of the available data on focal resources as possible, and integrate them in a spatial analysis that will generate maps. These maps will identify areas prioritized for management attention. Where there are little or no data, future research and monitoring needs will be identified.

We'll keep you informed about dates times and locations of future workshops. Hope to see you there!

Todd Chaudhry, NPS Project Leader
Tom Sisk, NAU Project Leader

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- Message from the project leaders
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What is the Greater Grand Canyon Landscape Assessment?

With its high biological diversity, astounding natural beauty, and great cultural significance, the Grand Canyon region warrants the highest level of stewardship for all of its resources. The Greater Grand Canyon Landscape Assessment (GGCLA) will assess the condition of natural and cultural resources for the Grand Canyon and surrounding landscape (Figure 1) by (1) evaluating current conditions for a subset of collaboratively defined resources and indicators, (2) reporting on trends in resource condition and relevant threats, and (3) identifying critical data gaps. This project provides an opportunity for stakeholders to participate in a collaborative process which will help to develop a sound, scientific foundation for park decision making, planning and stewardship.

How will stakeholders be involved?

Tribes, governmental agencies, non-profit organizations, and other interested parties may participate in the project by attending one or more of a series of workshops to (1) identify focal resources and threats, (2) prioritize areas for future management actions, and (3) finalize

spatial and other products of the project (see Figure 2).

Stakeholders may also become involved in one or more Technical Work Groups convened to review resource-specific conditions, develop data, and guide analyses.

How will the results of this project be used?

The GGCLA will provide a robust foundation for the park to develop a Resource Stewardship Strategy and other planning documents that develop and prioritize specific management actions based on current and desired conditions; and identifies meaningful measures of success within an interdisciplinary, adaptive management framework.

Because of its collaborative nature, the GGCLA will also help to strengthen existing partnerships and foster new working relationships with regional stakeholders.

For more information see http://www.lci.nau.edu/projects/GreaterGrandCanyonLandscapeAssessment_Docs.aspx

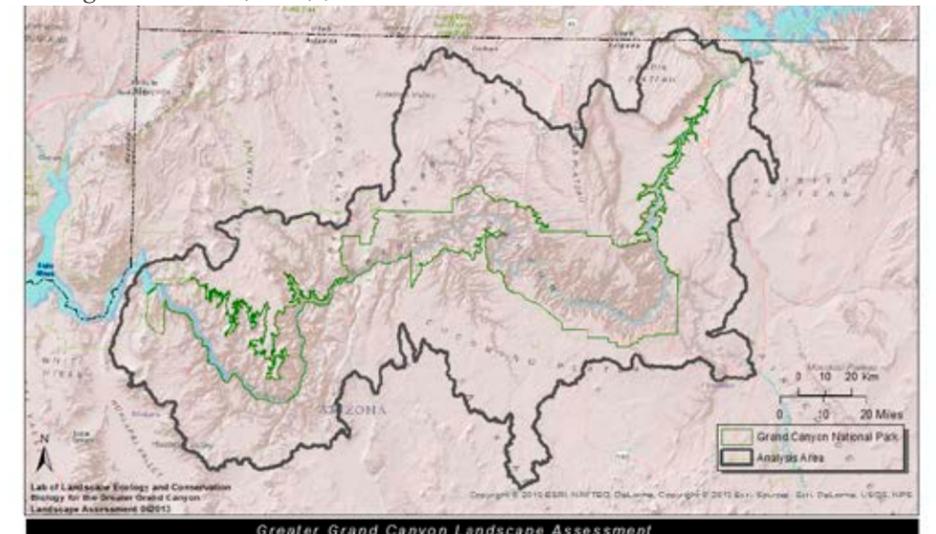


Figure 1. The GGCLA project area encompasses 5.6 million acres in Grand Canyon NP and surrounding watersheds, including the lower sections of the Little Colorado River, Havasu Creek, Kanab Creek, and the Paria River watersheds.

Greater Grand Canyon Landscape Assessment Participatory Analysis Diagram

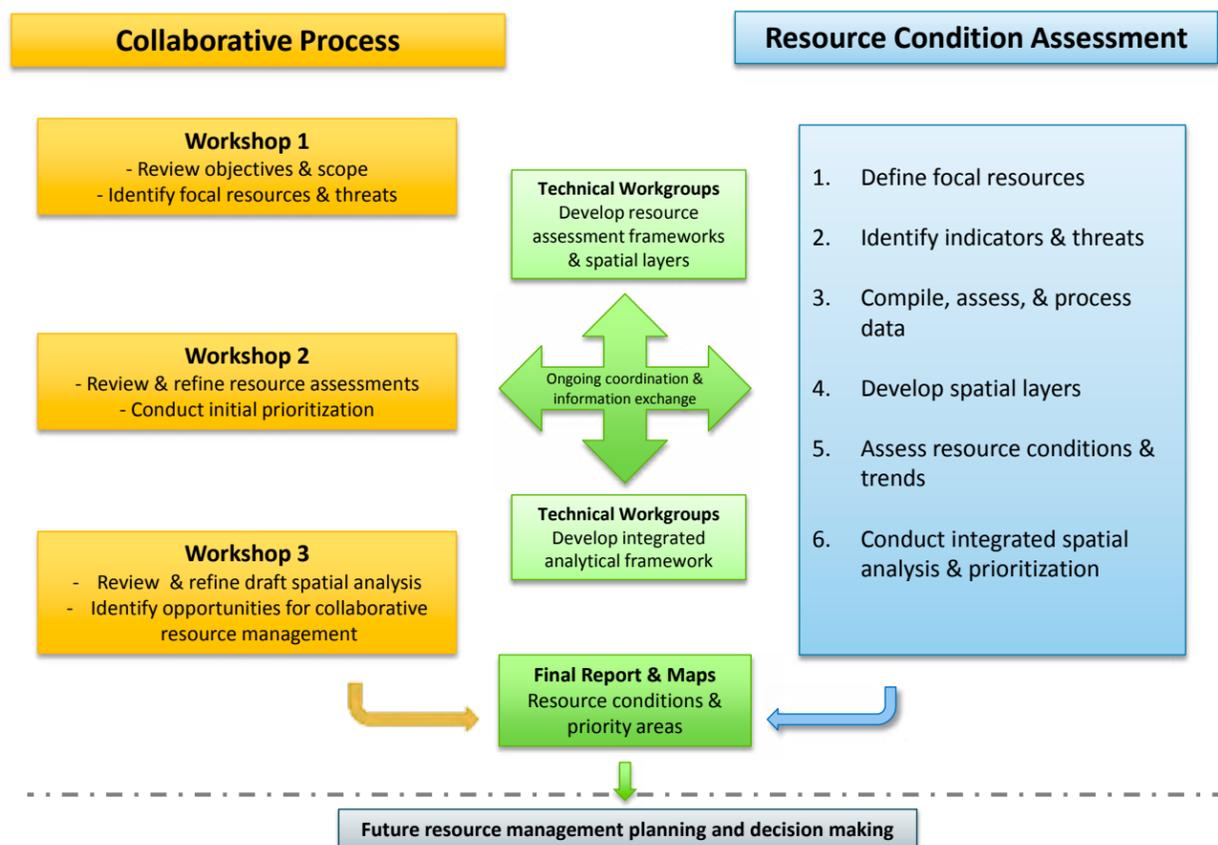


Figure 2. The GGCLA takes a two-pronged approach to landscape assessment. The blue boxes on the right outline the Natural Resource Condition Assessment process that is common throughout the National Park Service. The yellow boxes on the left illustrate the collaborative process that engages stakeholders and neighboring landowners. The green boxes and arrows describe the ways that technical consultation with subject-matter experts advance both process and keep them connected. Ultimately, the two come together to inform multiple land and resource management planning and decision processes involving Grand Canyon National Park.

Workshop #1 summary

On October 11, 2012, about 45 people of different interests and affiliations, but all of whom were committed to protecting the resources of the Grand Canyon Region, met at Northern Arizona University to kick off the Greater Grand Canyon Landscape Assessment (GGCLA). The goals of this collaborative workshop, the first of three proposed, were to (1) share background on the GGCLA context, process, and roles; (2) identify focal resources of value, threats to those resources, and information sources; and (3) discuss the importance of stakeholder participation and define the next steps.

The results of the workshop were:

- Participants supported the project approach and time line.
- Participants developed and priori-

tized a list of focal resources based on values and threats.

- Participants discussed the relevance of the proposed project products to management decisions within and outside of park boundaries.
- Participants provided input on the extent of the analysis area.
- Participants shared additional data sources that might be relevant to the landscape assessment, and volunteered for Technical Work Group participation.

Technical Working Groups

Technical Work Groups (TWGs) were organized around resource categories and were comprised of people who had subject matter expertise, or simply an interest in the resource category.

The objectives of the TWGs are to

- Refine the scope of assessment for focal resources
- Identify condition indicators & reference/desired conditions
- Identify known/potential threats
- Develop condition assessment criteria and analytical approach
- Identify information/data needs
- Synthesize information & assess current conditions/trends

TWGs met through the spring and summer of 2013. Brief summaries of the results are presented on pages 3–4 of this newsletter. For full reports on TWG meetings see http://www.lci.nau.edu/projects/GreaterGrandCanyonLandscapeAssessment_Docs.aspx.

Technical Working Group meeting summaries

Vegetation TWG summary

Riparian communities and endemic and rare species were identified as focal vegetation resources by stakeholders in Workshop 1. On March 26, 2013, the Vegetation TWG met to discuss how to conceptualize these focal resources. For example, the group discussed whether to focus on riparian communities along the mainstem, tributaries or both. Macro-invertebrates, invasive species and rare riparian vegetation associations were suggested as potential indicators, while erosion, grazing and OHV use were identified as potential threats. Several different assessment efforts and datasets

were suggested as resources.

In discussing rare plants, the group found defining rarity to be challenging, and several different approaches were discussed. Some suggested indicators were genetics, geology, and specific listed species, such as sentry milk-vetch. Some potential sources of information included the Desert Botanical Garden's state-wide spatial analysis of endemic plants, the Ecological Restoration Institute's studies on endemic species and riparian areas, and the Museum of Northern Arizona's (MNA) work on rare species in the Kaibab National Forest.



Sentry milk-vetch (*Astragalus cremnophyllax* var. *cremnophyllax*) is a federally-listed endangered species found only in Grand Canyon NP. NPS photo

Caves TWG summary

The Caves TWG meeting took place on the morning of April 2, 2013. Grand Canyon caves have not been well studied. The park has documentation for 500 caves, representing about 20 – 25% of what likely exists in the park. Of these, only a small number have been well documented, a larger set have been partially documented, and the vast majority are in poorly surveyed or unsurveyed territory. Cave resources include biologi-

cal resources, physical resources, hydrologic elements (amount of water, water quality), paleontological resources, and cultural resources. Indicators for cave resources included location and accessibility, which were linked to visitation, which is a major threat. Microbiology was suggested as an indicator of cave resources, but the park has no information on microbiology of caves, so it was noted as an information gap that needed to be addressed.



It is estimated that only 20 – 25% of caves in Grand Canyon have been documented. NPS photo

Springs and Seeps TWG summary

The Springs and Seeps TWG met on the afternoon of April 2, 2013. The group decided to utilize the assessment framework developed by Larry Stevens and Jeri Ledbetter of MNA's Springs Stewardship Institute and Abe Springer at NAU. They have developed an ecosystem model for springs and adapted their springs database to address management issues regarding springs. Key indicators for springs and seeps include: aquatic invertebrate species richness, exotic

invertebrate species abundance, native plant richness, exotic plant species cover, spring flow, habitat area, and habitat complexity. It was proposed that springs and seeps in undisturbed areas of the park could be used to define reference conditions.

Sources of data identified for springs and seeps include the Southern Colorado Plateau Network's spring database, the Grand Canyon Trust's Spring Stewardship Program, and MNA's Spring Stewardship Institute springs database.



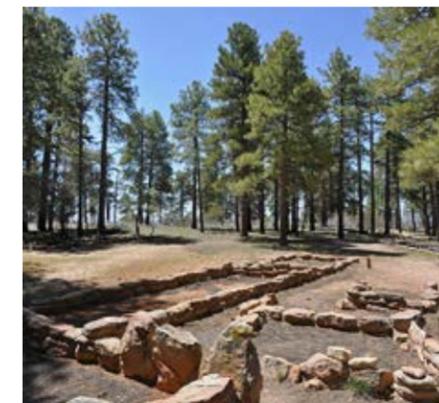
Cliff Spring on the North Rim. NPS photo

Cultural TWG

The first meeting of the Cultural TWG was held on April 23rd, 2013, to begin refining the scope and approach to assessing cultural resources, which include archeological and ethnographic resources. Six percent of the park has been inventoried for archeological resources, from which 4,255 sites were identified, of which 2,221 are considered in "good" condition. The park has recently begun to focus on ethnographic resources and is compiling a database from informa-

tion gathered through literature searches. Currently there are more than 400 records that document important plant, animal, water, topographic and landscape resources in the park.

Tribal involvement is critical for identifying ethnographic resources and landscapes. Efforts to engage Tribes traditionally associated with Grand Canyon is ongoing (see Hualapai Open House on page 4).



Walhalla Glades Ruin. NPS photo