

Desert Landscape Conservation Cooperative Outreach Meeting
US Geological Survey Office
Henderson, NV
August 17, 2010

This meeting, co-hosted by U.S. Fish and Wildlife Service and the Bureau of Reclamation, brought together participants from a range of federal and state agencies, academic and scientific institutions, and NGOs, to introduce the concept of Landscape Conservation Cooperatives (LCCs), and discuss both the direction and potential structure for the Desert LCC. Specifically, meeting objectives included:

1. Provide information on LCCs in general and specifically in the Desert LCC.
2. Determine agency and stakeholder interest in participating in Desert LCC and identify other potential partners.
3. Provide an overview of existing regional, state and local partnerships that link science and management and discuss how Desert LCC can build on and work with these partnerships.
4. Expand existing scoping committee (or other mechanism) to include other partners and to help guide future actions taken to organize and develop a charter for the LCC.
5. Initiate identification of landscape-scale research and science needs.

For a complete list of meeting participants, please see Appendix 1.

Presentations from this meeting are available at <http://www.usbr.gov/WaterSMART/lcc.html>.

Welcome and introductions

Avra Morgan (USBR) welcomed the participants and discussed the purpose of the meeting – to engage with agencies, tribes, NGOs, et al. to get input on the LCC’s organization and science needs. This was the first in a series of scoping meetings for the Desert LCC. Additional meetings will be held in San Bernardino (August 19), Tucson (September 20-21), Alpine, TX (September 23) and Las Vegas (TBD, to coincide with a meeting of the Colorado Basin States). An initial scoping committee has been formed and input is needed regarding who else needs to be involved and how the LCC should be organized.

Ed Moreno (Facilitator, The Keystone Center) reviewed the agenda and asked participants to introduce themselves. Many participants are also involved in other LCCs.

Landscape Conservation Cooperatives (Presentation by Avra Morgan, USBR)

What is an LCC?

- Management-science partnerships. They are not intended as an umbrella overarching existing partnerships, but are more like a net meant to link together existing efforts, identify synergies, identify what has been done, and identify science needs/gaps and get them met.
- Reclamation and USFWS are co-leads/hosts, but the LCC is intended as a partnership and will eventually be led by a steering committee (not BOR/USFWS).
- Resources: BOR and USFWS have requested funding specifically for the Southern Rockies and Desert LCCs. USGS is filling a science position to support the Desert LCC. BLM and NPS have also been actively engaged and will hopefully bring resources to the table.
- The LCC will be broad to accommodate multiple partners with multiple trust responsibilities.

- LCC was originally a USFWS initiative; Ken Salazar broadened it to include all DOI agencies with Secretarial Order No. 3289. The scope has also been broadened to include land management, cultural resources, et. al. The “Interior Plan Document” describes the role of LCC’s as the applied science branch of the strategy for a coordinated, science-based response to climate change impacts.
- The Desert LCC includes CA, NV, AZ, NM, and Texas and extends south into Mexico; the LCC will start first within the US and then will engage partners in Mexico (USFWS has many partners in Mexico). BOR is also co-leading the Southern Rockies LCC and hope to make coordination across boundaries smooth, e.g., by working together on issues like the Colorado River.
- Climate Science Centers (CSCs) are a USGS initiative to establish 8 regional climate science centers. They will have a close relationship with the LCC and provide fundamental science information, tools, and techniques. They will ultimately housed by a university or conglomerate of universities (locations are forthcoming).
- LCCs will be more focused on developing applied science.
- LCCs will help by facilitating getting science resources to conservation and science managers by providing a forum for collaboration, helping to avoid duplication of efforts, sharing information and identifying gaps. They will also leverage funding; the hope is that everyone will bring something to the partnership, whether funding, staff, resources, etc. Other LCCs have funded projects through RFPs; there may be a range of funding.
- Organizing the Desert LCC:
 - Overarching milestones include outreach through these meetings and one-on-one visits. Contact Avra to have a phone or face-to-phase meeting.
 - Ideally, a Steering Committee and operational plan/implementation plan will be in place in early 2011.
 - Some things have been defined, e.g., there is a basic concept that all LCCs should have and LCC coordinator and science coordinator and should at a minimum include state and federal agencies. There is a lot of flexibility.
 - The is currently a scoping committee with BOR, FWS, USGS, BLM, NPS, USFS, TX Parks and Wildlife, AZ Game and Fish, American Bird Conservatory, and TNC. The committee is trying to engage water resource arms for each of the states, all the states, NGOs, and tribes.
 - Scoping activities include identifying science needs and resource priorities, identifying existing partnerships to engage in LCC, and defining organizational structure.

Questions/Comments

- What sort of role do you see NGOs playing?
 - NGOs, states, tribes, federal agencies, universities would be included; the idea would be to share information and resources and find ways to collaborate. Many ways projects could get funded, e.g., through RFPs, staff support, peer engagement. NGOs could be on the steering committee or a subcommittee and can fully participate.
- Can LCCs look different in different regions?
 - An Interior LCC task force is coming up with some guidelines for how LCCs should look; it is not very specific. Everyone recognizes there has to be some flexibility.
- Who is the USFWS counterpart?
 - USFWS is in the process of hiring a Science Coordinator.
- Do you know the land ownership by acreage, and are you considering having private land owners on Steering Committee?
 - We don’t have acreage. Land ownership could be a potential criterion for the Steering Committee.

- One area of emission is agriculture; it has more effect on land than any other activity here.
 - Good point. There is intent to reach out to water managers. There has also been outreach to NRS and RC&D.
- Has it been decided whether the Desert LCC might be broken into different deserts?
 - It has been talked about in early scoping efforts. It has not been decided; let's do what works. A potential criterion could be geographic diversity or that entities on the steering committee has a broad area of interest.
- How are you limiting what NGOs are involved?
 - We don't know yet. There are multiple levels that people may want to participate on. We're hoping there will be subcommittees so everyone has a role that makes sense to them. We don't want an unwieldy size for the Steering Committee.
- Is the Steering Committee an invitation process?
 - This hasn't been discussed. The Scoping Committee is talking about criteria. There could be a blanket invitation to see who would be interested.
 - One group may be able to represent the interests of a constellation of others; interests should be represented directly or indirectly.
- Missing pieces:
 - State water managers
 - Tribes
 - NGO's
 - Landowner/land-based representation
 - Universities

Existing Partnership and Their Role in the Desert LCC (Multiple Presenters, Listed Below)

Southern Nevada Agency Partnership - SNAP (Kent Turner, NPS)

- Includes BLM, USFS, USFWS, and NPS with a chartered framework for over 7 m acres.
- Geographic scope is Southern Nevada including portions of Lake Mead.
- Legacy statement: Work with each other, our communities, and our partners to conserve and enhance the Federal Lands of Southern Nevada for current and future generations.
- The Science and Research team's mission is "to provide clear understanding of the health and trends of the southern Nevada ecosystem for uniform, informed management decisions regarding natural resources, cultural resources, and human use of public lands.:"
- SNAP has worked for over 3 years through a facilitated process to develop a science and research strategy with 3 goals and multiple subgoals including resource topic areas (fire, invasives, biodiversity, watersheds, cultural resources, historic context, recreation, land use, education).
 - Climate is incorporated into the topics.
- SNAP conducts an annual needs assessment.
- USGS and the USFS Rocky Mountain Research station are developing a science synthesis related to the 9 resource topic areas.

The Desert Managers Group – DMG (Russell Scofield, BLM)

- Vision: "Working together to conserve and enhance the California deserts for current and future generations."
- Includes the California desert with the exception of Great Basin. 25 million acres of desert, including 3 NPS units, 10 state parks, 72 congressionally designated BLM wilderness areas, BLM desert conservation areas, and military bases.
- Mission includes:
 - Develop coordinated and complementary management practices and programs.

- Develop and integrate the databases and scientific studies needed for effective resource management and planning.
- Promote compatibility in the application of each agency's mission.
- DMG was formed as part of the CA Desert Protection of Act 1994, chartered in 2000, and rechartered in 2005. It does not invoke FACA as it is not asking stakeholders to reach consensus.
- Mojave Desert Ecosystem is the digital arm of DMG and manages a variety of DMG websites.

Nevada's Wildlife Action Plan (John Schoberg, NV Division of Wildlife)

- The plan is a comprehensive inventory and assessment of NV's wildlife, species, and conservation efforts. It is a 10 year detailed action plan for the State of Nevada involving key partners including NDOW, TNC, Lahontan Audubon, BLM, FWS, and NV Natural Heritage Programs.
- The plan takes a habitat based approach, identifying 27 key habitat types in NV and conservation strategies for each key habitat.
- The Conservation Landscape Assessment developed a list of 195 focal areas statewide guide application of the Action Plan strategies.
- The plan identifies species of conservation priority. It includes strategies for conservation implementation, effectiveness monitoring and adaptive management; strategies are linked to existing efforts and programs where feasible.
- The Wildlife Action Plan is a living document. The current focus is on development and incorporation of climate change adaptation strategies. Substantial plan revisions will be determined by fall 2011.
- The Plan is available at www.ndow.org/wild/conservation/cwcs.

Lower Colorado River Multi-Species Conservation Program – MSCP (John Swett, USBR)

- The administrative boundary for the Lower Colorado is at Lee's Ferry.
- There are 4 major conservation programs on the CO River (Upper CO UCRIP, San Juan Recovery Program for native fish, Glen Canyon Dam Adaptive Management Program, and the Lower MSCP).
- The Lower MSCP is a multi-stakeholder federal and non-federal partnership. USBR is the lead implementing agency; MSCP has a 56-entity steering committee including Federal Agencies, Cities and Municipalities, States, Ag, Water, Power, Tribes, and NGOs.
- It is an ESA compliance program.
- Goals: 1) Conserve habitat and work toward recovery of T&E species as well as reduce the likelihood of additional species being listed, 2) Accommodate present water diversions and power production and optimize opportunities for future water and power development, and 3) Provide the basis for incidental take authorizations.
- The official start to the program was October 1, 2005 and it will run through 2055.
- Funding: 50% federal (USBR), 20% entities in CA, 12.5% AZ, and 12.5% entities in NV. Of 56 Steering Committee members, 41 pay money into program. The total budget is 626 million 2003 dollars.

Mojave Desert Initiative (Ken Turner, NPS)

- Established in 2007 to address invasive species issues. It includes government agencies and other partners.
- The 2007 Strategic Action Plan is currently under revision.
- Goals:
 - Protect Remaining Unburned Mojave Desert Vegetation and Reduce Re-burning.
 - Restore Strategically Located Islands, Key Habitat Areas, and Corridors.
 - Improve Communication, Collaboration, and Coordination.

- Maximize Leveraged Funding.
- Initial actions:
 - Develop regional guidance for Incident Commanders to minimize or avoid further habitat loss to fire (applies to entire Mojave not just the NE region). Re-issued annually.
 - Complete regional assessment to identify priority areas of work, and develop project ranking and selection criteria.
 - Assessment updated as needed to include new information, reflect changes in conditions, etc.
- Regional Assessment:
 - Geospatial component includes overlays of burned and unburned habitats, critical habitat, special designations, etc. resulting in priority protection and restoration areas.
 - Protection areas focus on unburned desert tortoise and other listed species habitats.
 - Restoration areas focus on establishing strategically located islands and corridors connecting intact habitats.
 - Maintaining or establishing corridors is key for plants and animals to adapt to changing climate.
- Implementation:
 - Identify, prioritize, and develop projects across the MDI eco-region.
 - Projects include fuel breaks and green stripping to protect unburned areas, seeding and plantings to establish islands and corridors.
 - A number of projects are currently being planned and implemented across the region.
 - Major new project just underway with USGS/ARS will establish a regional system of plots to test plant materials that are competitive with invasive annuals.

Discussion

Participants brainstormed additional ongoing partnerships for resource management/science identification and development within the region (see Appendix 2).

Participants then discussed how the LCC could work with these existing groups.

- Data sharing: Provide an inventory of existing datasets, provide processes for generating new data to fill gaps, collaborate, standardize data, and share data across partnerships.
 - Smaller entities don't have to be at LCC meetings but may have data to filter up/will benefit from information coming back down.
 - The LCC's have been described as "virtual libraries" for accumulating and providing linkages and adding value.
- Outreach: Develop some kind of common vocabulary/coordinated public message on these issues.
- There is concern that the LCC will try to provide an overarching management plan. The idea is that entities have their own plans but use information through the LCC and see how they fit into the broader context.
- There is a concern that LCCs will add extra layers of work rather than contribute to what exists.
 - The intent is not to create additional work or layers but to provide help and assistance.
- There is a concern that building better data creates an unfunded mandate for conservation actions that follow. How will future conservation efforts be funded and how they will be collaboratively driven? This is important for the state perspective; expectations come back to the states to implement conservation actions.
- It is important to ensure that shared data is good data; have some level of peer review.

Science and Research Needs (Presentation by Christine Vojta, USGS)

- A science subcommittee is exploring science and research needs to ensure that the LCC is funding work that is relevant to management needs and supports landscape conservation goals and leverage funding for common needs.
- Currently, the subcommittee is collating existing documents; it will synthesize and distribute information back as a foundation for a science plan and RFPs. The hope is to also have a some kind of needs assessment website.
- The scope of the needs explored:
 - Conservation planning with climate change in mind.
 - Broad spatial scale.
 - All biota, human environment, cultural resources and ecosystem services.
- A review of existing documents identified the following common topics: water, ecosystems (includes fire), wildlife populations, wildlife habitat, human environment, threats (includes invasive species, unmanaged recreation or unmanaged alternative energy development), decision support tools, monitoring needs, and needs for infrastructure/training (e.g., ability to store data).
- Some data on existing programs and science needs were collected during registration.

Discussion

Participants discussed science needs and then participated in a flip chart exercise to identify needs under each of the categories listed above (see Appendix 3).

- The Protected Area Database (PAD- US) only looks at existing data but there are gaps.
- The National Easement Database looks at existing data – but need partnerships to start aggregating datasets.
- Springs layers are needed.
- Soils: look at what impacts them, large scale events, soil quality, and soil typing (soils was added as a category for the flip chart exercise).
- Ecosystem/biophysical approach is important.
- Understand past climate change and shifts in vegetation over time.

Existing Approaches to the Development of LCCs (Presentation by Rick Kearney, USFWS)

- LCCs are intended as applied science partnerships that support rather than replace existing partnerships. There should be some level of comparability across the LCCs.
- Common elements of LCCs:
 - Elements of the governance structure, including some type of decision making body or Steering Committee made of senior members of the organizations that can speak for them and commit resources to the partnership.
 - Staff will include a full time LCC coordinator, and science/technology coordinator (full time staff members). Additional capabilities will be provided in house or by member organizations (e.g., collecting information or managing GIS based projects).
- First steps include outreach, an organizing committee, an operational plan, Steering Committee and charter, a science team to identify science needs, and a science research funding mechanism.
- There will be 21 LCCs at build out; 9 have been established to date (with a Steering Committee) and there will be up to 8 more in 2011.
 - They are Congressionally funded.
 - Those established have different structures. For example,

- In the Great Plains, the Playa Lakes Joint Venture expanded its scope beyond birds to become the LCC.
 - The California LCC has focused first on areas with existing partnerships and has hired a facilitator.
 - The Great Northern LCC established 3 geographic eco-forums.
- Congress established FY2010 FWS LCC performance measures; there is discussion of how these measures apply to LCCs being jointly led or not led by FWS, and how they would apply to the LCC.

Questions and Comments

- How are the LCCs overlapping with the CSCs?
 - The LCC's are envisioned as applied science partnerships. There is not a definitive cut-off between the two; there will be much area in the middle involving both.
- A clear way of translating science to management activities is needed. Add resource management to the spectrum with applied and fundamental science.
 - The function of the LCC is to help that conversion happen and to integrate science and managers. LCC is resource managers coming up with their science needs and communicating them to scientists, using an adaptive management approach.
- Follow-up: I understand the ideal, but a lot of resource management doesn't happen.
 - There is funding for the creation of the LCCs and establishment of new inventory and monitoring systems.
- Is there any evaluation of what makes the stand-up process successful?
 - Lessons have not been compiled, but there are regular calls of all the LCC coordinators. Rick can provide the website link to the operational plans that have stood up.
 - A philosophical commitment and funding for collaboration between CSCs and LCCs.
- What is the breakdown for the money that is coming? How much is for science, how much for implementation?
 - The funding is to support the science that is needed to support on the ground conservation (there is not funding for on the ground conservation).
- A lot of times we know what can be done now but don't have the resources.
 - There are existing programs through USBR; awareness of existing programs could be a by-product of the partnership and the criteria for the programs could be modified to include whether proposals address a need specified in an LCC.
- Could an LCC test the difference between two conservation projects? Could it include monitoring?
 - There is a spectrum, with a gray area where science and decision support overlap with applied science. A project testing the efficacy of conservation approaches could be a pilot project where an LCC could potentially provide funding. Monitoring could also be included.
- What is FACA?
 - The Federal Advisory Committee Act, which governs private-federal partnerships involving consensus decision-making; you cannot take away the authority of the agency.
 - Agencies are looking at how various structures of the LCC would be FACA compliant.

Organizing the LCC Steering Committee

Participants engaged in a facilitated discussion/brainstorming of who should be on the organization of the LCC steering Committee.

- Organizational Topics include:
 - Management approach: link science and management.

- Critical steps.
- Funding for CSC/LCC; coordination of funding.

Who should be on the LCC?

- The 3 deserts
 - They should be separate, or have them as subcommittees, or have them represented on the Steering Committee.
- But...
 - There are core ranges of species in certain deserts, but we also want to know what's happening in other parts of the species' range.
 - There are also migratory species that come in and out of these locations.
 - Current deserts are delineated based on current climate; future climate may not apply.
- The Colorado River/part of the Grand Canyon is included in the Desert LCC but does not fit in (it should be in the Southern Rockies).
 - There is a hope to coordinate with the Southern Rockies LCC on Colorado River issues.
- States (this is required by the guidance from the Interior)
- Tribes
- Place-based partnerships
- NGO's
- It is hard to talk about who should be on the Committee with out talking about what they are going to do.
- Don't create a new bureaucracy with only paperwork to show for itself.
- Who is going to select the Steering Committee?
 - The Scoping Committee (co-led by USBR and USFWS) is developing criteria and a charter for the Steering Committee.
- Facilitator Moreno drew a diagram of concentric circles, with the steering committee in the center, subcommittees outside of them, then stakeholders interested in monitoring the group, then the general public.
- Individual members of the Steering Committee need knowledge, organization ability, and ability to commit resources (e.g., money, data, person power, organizational power); they need to be senior people with the ability to commit resources.
 - Don't just want scientists need people who can organize
- How do you involve NGOs and place-based collaboratives/partnerships?
 - Place those with broader scope (e.g., TNC) on the Steering Committee and place-based collaboratives and NGOs on subcommittees?
 - Create nested partnerships, with the Steering Committee comprised of members of the partnerships?
 - There may be some gaps in the geographic scope of the partnerships.
 - Have agencies that are part of the partnerships on the Steering Committee
 - Create a stakeholder committee?
 - NGOs include not only conservation groups but also user groups, and others. How do you include all of these?
 - Include representative interests.
 - If the purpose the LCC is to look at resource management/resource conservation, that could criteria for selecting Steering Committee members.
 - Utilities or user groups could have relevant research.
 - OHVs may be impacted by land management decisions but do they need to prioritize/identify science research?
- Ed suggested the 3 I's for determining who should be on the committee:
 - Impact (who is impacted by decisions)
 - Implement (who implements decisions)

- Impede (who can impede implementation)
- LCC coordinator would be a USFWS or USBR employee;

What is the purpose of the Steering Committee?

- A net – lean and mean to coordinate across partnerships.
- Receive input on needs, organize funding and open it up to partnerships.
- Communicate vertically within your organization and across partnerships.
- Meet the needs that are presented; identify and commit funding/resources for science needs.
- Facilitating communication between scientists and research managers.
- Direct communication with the CSC: come up with down-scalable models and share with members.
- Prioritizing (rather than policy-making).
- High level decisions, supported by a coordinating team so that the Steering Committee meets less frequently (the Great Basin LCC uses this model).
- Establish funding mechanisms.
 - The mechanisms are not clear yet; they may include agencies contributing funds for a joint request for proposals (unclear whether this is possible), or issuing separate proposal, or hiring staff (e.g., USGS has hired a plant ecologist). Whatever the mechanism, it is the role of the Steering Committee to decide what to fund.
- Oversight committee to bring together the existing partnerships/bring together groups with resources.
- Get at what the science gaps are now (with some urgency).

Recap and Closing

- A summary and/or notes from the meeting will be emailed to participants and posted to the website along with the notes from upcoming websites.
- Contact Avra Morgan if you would like to be part of the Scoping Committee.

Recorder: Julie Shapiro, The Keystone Center

Appendix 1: Meeting participants – Desert LCC Scoping Meeting, Henderson, NV, August 17, 2010

- Scott Adella (UNLV)
- Roy Averill-Murray (FWS)
- Josh Avey (AZ Game and Fish Department)
- Dan Bright (USGS)
- Brian Brown (Amargosa Conservancy)
- William Dickinson (NPS)
- Fon Duke (DMG-DOD)
- Todd Esque (USGS)
- Larry Fisher (USIECR)
- Terry Fulp (USBR)
- Kate Hanson (SNAP)
- Kathleen Harcksen (BLM)
- Don Harper (USFWS)
- John Hiatt (Amargosa Conservancy)
- Debra Hughson (NPS)
- Rick Kearney (FWS)
- Brian Manwaring (USIECR)
- Elroy Masters (BLM-AZ)
- Maggie McCaffrey (USIECR)
- Leslie Meyers (USBR)
- Janet Monaco (SNWA)
- James Moore (The Nature Conservancy)
- Ed Moreno (The Keystone Center)
- Avra Morgan (USBR)
- Lynn Nemeth (Grand Canyon Wildlands Council)
- Fred Noack (USFS)
- Ken Nusser (USGS)
- Stephanie Phillips (USFS)
- Karen Prentice (BLM)
- Peg Rees (UNLV Public Lands Institute)
- Cameron Rognan (Washington County HCP)
- Carolyn Ronning (BLM)
- Sabra Schwartz (AZ Game and Fish Department)
- Russ Scofield (BLM)
- Julie Shapiro (The Keystone Center)
- Randy Sharp (USFS)
- Laurie Simons (FWS)
- Jon Sjoberg (NDOW)
- Brenda Smith (FWS)
- Stan Smith (UNLV)
- Tom Suchanek (USGS)
- John Swett (USBR)
- Dennis Sylvia (BLM)
- Cris Tomlinson (NDOW)
- Kent Turner (NPS)
- Christina Vojta (USGS)
- Jock Young (Great Basin Bird Observatory)

Appendix 2: List of regional conservation partnerships identified by participants, Desert LCC Scoping Meeting, Henderson, NV, August 17, 2010

- Additional Wildlife Action Plans (e.g., UT, AZ, and CA)
- Desert Fish Habitat Partnership (under the National Fish Habitat Action Plan)
- Western Governors Association is building on state Wildlife Action Plans through pilot projects with CA, NV, AZ, UT to help merge data
- NGO-Federal partnerships for specific regional projects (e.g., tamarisk)
 - Amargosa Conservancy
 - Mojave Desert Land Trust
- Grand Canyon Wildlands Council has a MOU with the Park and also works with USFS
- Sonoran Joint Venture
- Bird Conservation Community has really good models for the Joint Venture
- Partners in Flight – Regional and State chapters
- Avian Knowledge Alliance (NGO network conducting science research and monitoring)
 - Avian Knowledge Network is a data management network out of Cornell
- Western Native Trout Initiative (WNTI)
- Virgin River Conservation Program (VRCP) (UT, NV, AZ, state and federal agencies)
- BLM Rapid Ecological Assessments
- Western Regional Partnership (WRP)
- Western Association of Fish and Wildlife Agencies (and various committees)
- Utah Partners for Conservation
- Habitat Conservation Plans (HCPs) in various Counties (e.g., Park County and Clark County; work with USFWS to get a complete list of HCPs)
- Native Plant Societies (e.g., CA, NV, AZ)
- EPSCOR program (NV, ID, NM)
- Mojave Southern Resource Advisory Council
 - Similar partnership in NV
- Joint Fire Science Program
- Partners in Amphibian and Reptile Conservation (Southwest PARC)
- Weed Management Areas
- Grand Canyon MRIP (USGS/NPS)

Appendix 3: Science needs identified by participants, Desert LCC Scoping Meeting, Henderson, NV, August 17, 2010

Water

- Good springs data
- Models for groundwater loss/scenarios
- Springs – temporal data & source water assessments
- Recharge and runoff assessments
- Correlation between changed streamflow/runoff patterns and aquatic habitat maintenance
- Temperature effects from altered precipitation regimes
- I.D. factors that help make springs more resilient to climate change

Ecosystem

- Eco condition assessment – standardized, rapid assessment tools
- State and transition models

Wildlife Population

- What defines ecologically effective populations of strongly interactive species
- Tighter predictive models recognizing data gaps – soils, lack of locality data for use in land management planning efforts (RMP's, Forest Management plans, etc)

Wildlife Habitat

- Identification of corridors – restoration
- Study of ecological traps
- Water on the landscape – effects of temporal changes in precipitation on aquatic microhabitats and dependent wildlife species

Human Environment

- Water quantity/quality support for human population (over-allocation of Colorado River)
- Differentiating between natural and anthropogenic change

Threats

- Tamarisk eating the world!
- Salt cedar beetle impacts to SWWFC habitat and need for riparian habitat restoration
- Invasive species (aquatic/terrestrial) (plant/animal)
- Climate change
- Renewable energy/transmission
- Transportation/development
- Fire in slow-recovery systems like Joshua Trees
- Unsustainable grazing practices
- Groundwater development/inter-basin transport
- Recreational impacts

Decision Support Tools

- Useful species-habitat models (spatial specific)
- Protected areas/conservation easement datasets
- Habitat corridors (adaptation planning)
- Downscaled models to assess recharge and groundwater flow at resource management scale

Monitoring Needs

- Multi-state species monitoring programs
- Population trends
- Basic water data:
 - Spring discharge
 - Water levels
 - Evapotranspiration at discharge sites & high altitude recharge sites
- Basic climate data
 - Temporal and spatial rainfall
- State and transition models
- Eco condition assessments

Needs for Infrastructure/Training

- Species occurrence database
- Complete, standardized GIS cover type layers
- Data management plan – distributed – linked
- Data storage
- Data access and analysis

Soils

- What are climate change effects on cryptobiotic crusts? Future distributions?
- Where are areas of undisturbed crusts?
- Connections with Valley Fever
- Recoverability of degraded soils
- Standard methods condition assessments
- How will we deal with incised channels and headcuts?