

San Pedro Riparian NCA – Resource Management Plan

Field Trip: Hydrology

May 9, 2014 (9:00– 5pm)

Participants:

Kim Mulhern, Cochise County

Mary Darling, City of Sierra Vista

Justin Nixon, Fort Huachuca

Brooke Bushman, The Nature Conservancy

Tricia Gerrodette, Huachuca Audubon Society

Tom Engel, Arizona Department of Transportation

Jayne Knoche, Water Sentinels

Chuck Minckley, Citizen

Anna Lands, Community Watershed Alliance

Richard Bouilly, Citizen

Shar Porier, Bisbee Review

Bob Rogers, The Nature Conservancy

Karen Simms, Assistant Field Manager, Bureau of Land Management

David McIntyre, SPRNCA RMP Team Lead, Bureau of Land Management

Amy Markstein, Assistant Planner, Bureau of Land Management

Ben Lomeli, Hydrologist, Bureau of Land Management

Dave Murray, Hydro-Tech, Bureau of Land Management

Colleen Whitaker, Southwest Decision Resources (facilitator)

Julia Sittig, Southwest Decision Resources (facilitator)

Note: Questions/comments from participants are in *italics*. Overviews/
Presentations/Responses from BLM staff are in regular font.

Stop 1: Kingfisher Pond

Updates on RMP Process (David McIntyre, BLM)

- The Hydrology field trip was designed to discuss different strategies to address concerns and issues about hydrology raised during Scoping (Summer 2013) and at Alternative Development meetings (February and March 2014).
- Discussion points listed on the agenda are based on Scoping concerns
- Input on Alternatives Development (covering all resource areas) is welcomed through May 20, after the last field trip (Cultural Resources).
- Outreach for input on the Travel Management Planning (TMP) process, which will coincide with the RMP process, will begin within the next few weeks.
- BLM is working internally on Alternatives Development, and will incorporate feedback from resource fieldtrips, alternatives development meetings, and input received up until May 20th. Meetings and communications will continue as BLM writes the draft Alternatives which will be incorporated into the Draft RMP.
- Estimated date of Draft RMP release is July 2015.



Kingfisher Pond Overview

- Kingfisher Pond is an old gravel pit. It becomes filled with groundwater from the San Pedro River during wet periods.
- Having a foundation of gravel, Kingfisher Pond will naturally fill in with sediment and become a Sacaton grassland if left unmanaged
- Maintaining the pond would require periodic dredging of sediment
- Issues relevant to RMP
 - Kingfisher Pond provides habitat for many wildlife species, and could be managed to maintain that habitat
 - Drawbacks to maintaining the pond include finding a location for dredged sediment, disturbance caused by dredging equipment, potential release of contaminants during dredging, cost of dredging, loss of groundwater through evaporation
- Potential Management Strategies
 - Dredging- frequent dredging less sediment, or infrequent dredging of more sediment; dynamite
 - Erosion control- Planting vegetation, installing gabions
 - Allow Kingfisher and other ponds to fill in
 - Dredge some wetlands, and not others

Questions/Discussion:

- *Does Kingfisher Pond create erosion concerns?*
 - No, the pond acts as a spillway for river flows.
- *How do you prioritize different resources and uses (?) (recreation vs. wildlife vs. hydrology etc.)?*
 - The range of alternatives identified in the RMP will present different ways to prioritize and balance the resources and uses, and the chosen (preferred) alternative may combine different management actions from each of the alternatives
- *Are there threatened/endangered species to manage at Kingfisher Pond?*

- No, most of the listed species inhabit off-channel ponds; habitat from river water contains many exotic species, so attempting to introduce listed species may be ineffective.
- *Could we use Kingfisher Pond to manage non-listed natives such as suckers?*
 - Perhaps we could manage some non-listed natives, but encouraging fish inhabitation would be challenging because the pond dries up in the summer.
- *How important would the impacts of climate change be in dredging operations?*
 - Climate change could result in less available water and deeper dredging needed.
- *Has anyone considered repairing the rifts caused by the 1800s earthquake to prevent loss of groundwater?*
 - The 1800s earthquake caused some areas to contribute to river flows, and others to create losses.
- *Anecdotal reports state that native fish were harvested from the river after the earthquake, so the flows must have increased in some places. However, the commenter said the earthquake did deepen the river channel, which is now cutting.*
- *Does Kingfisher Pond have any water sources other than the San Pedro that could be used?*
 - No, the San Pedro groundwater is the only source.
- *Does current information exist regarding the potential value of Kingfisher Pond for removing contaminants from the upstream Cananea mine?*
 - Cananea has caused contamination of the San Pedro in the past, but recent reports state that contamination no longer occurs. However, if a mass flow event were to occur, contamination could reach various locations at various concentrations. Contaminants from the past are also probably present in the pond, and could be released upon contact with oxygen during the dredging process.

Recommendations

- Provide a range of strategies for pond management that would allow response to climate change impacts
- Prioritizing vegetation can compete with prioritizing hydrologic resources; need flexibility to remove or add vegetation as appropriate
- Much of Kingfisher Pond's value is for wildlife watching

Stop 2: Moson Springs



Overview

- Del Valle Road: often washed out from increased peak flows caused by upstream watershed erosion and bare ground. Employing erosion control, flow spreading mechanisms, and enhanced tributary recharge and induced meanders could prevent washing out of road, but unlikely that funds will be available for treatments
- Moson Spring and proper functioning of tributaries: There are sedimentation issues coming from the tributary. Proper functioning of tributaries is very important – they help supply a good balance of sediment, and good quality water (if it is properly regulated). Also need some flushing stream flows to provide scouring effects and seed transport. It is a balancing act.

Questions/Discussion:

- *What is the balance of sediment that is needed?*
 - You can usually assess this visually. For example today where we parked, you could see it was swollen with sediment. You can also use imagery to assess what it has looked like historically
- *If we want to “slow, spread, sink” then why is a tributary with sediment bad?*
 - It depends on how quickly it is filling in. Here we see it is filling in, which means it’s eroding elsewhere upstream. Usually you want to start watershed treatments upstream, not down here. It is a dynamic equilibrium (balance) of not too much too fast, but not too little too slow.
- *Partnerships are important since BLM doesn’t control much of the tributaries. There are some opportunities with Riverstone and Bella Vista to work together*



- *Can you tell if peak flows have increased with urbanization?*
 - Can probably see evidence of this at Del Valle road where it has been washed out from increased peak flows. This may be due to the increased bare ground that comes with urbanization.
- *Can you map areas where urbanization has had an impact?*
 - ARS has an impervious surface map for the county that can be downloaded
- *Need RMP strategies that identify actions to lessen peak flows, in case money becomes available*
- *How do partnerships manifest in the RMP?*
 - One of the alternatives will be watershed wide. So the strategies there would be watershed wide and require partnerships. The BLM already participates in partnerships. Perhaps in the RMP we should include more details on this (e.g. identify areas where different jurisdictions agree on priorities that we can harness all energy for, such as impervious surface mapping).
- *Can you try to target efforts to where you can have the most impact?*
 - Yes. BLM and Ft. Huachuca are in early stages of working together to develop criteria to do just that. This work (and the map) is critical to the RMP to help provide strategic focus.
 - The army is using these criteria and moving into low-impact development to reduce the impervious surface (e.g. collecting rainwater, downspouts and infiltration, etc).
- *The Upper San Pedro Partnership plays into all this too – County, City, TNC and others working together on recharge*

Stop 3: Charleston Bridge (and lunch)

Overview: Effect of roads on the watershed and connection to RMP

- BLM has not measured the impacted from roads on the watershed. But generally a high density of roads can be a problem. Individually, a well-engineered road shouldn't be problematic
- In San Pedro some of the sheet flows can be difficult to maintain across roads. On Hwy 90 in some places there are culverts with roadside ditches, but development has come in on the downstream sides, further focusing the water flow.

- There are not a lot of back roads in the SPRNCA. On federal roads the older ones can sometimes be problematic – be we are starting to see some retrofitting and rehabilitation.
- We do have 2-3 old railroad lines in the SPRNCA, and those can sometimes be problematic. The old railroads would combine 2-3 washes resulting in huge canyons.
- The impact of potential new roads or new ROW, new trails, and “illegal” roads/trails will be addressed in the Travel Management Plan.

Questions/Discussion:

- *ADOT seems to be less good at wildlife crossings. This should be considered in the RMP.*
 - Check out blogs on ADOT website about this:
<https://azdot.gov/media/blog/-in-tag/Tags/Wildlife-Crossing>
- *Can roads be retrofitted?*
 - It’s very expensive.

Stop 4: St. David Cienega



Overview

- St. David Cienega is an artesian area; it draws water from a confined aquifer below the water table. Where the aquifer breaks the surface, wetlands form.
- The cienega naturally drains at the north end, but now drains at the south end because erosion (head-cut) is entrenching the area.
- The National Riparian Service Team (NRST) conducted an assessment of the SPR and the Cienega in 2012. However, they mistook Little Joe Springs for St. David’s Cienega, so some recommendations may be misplaced.

- A major recommendation was not to burn the cienega; however, many cienegas are burned in order to prevent vegetation and its decay from “choking” open water and encouraging sedimentation and surface water loss
- Valid NRST recommendation: Tucson Field Office should hire a second hydrologist
- NRST Assessment did not study groundwater resources
- Issues relevant to the RMP
 - Whether to burn the cienega
 - Whether to stop head-cut at south at to north end of cienega
- Potential RMP Strategies
 - Burning: Assess appropriate targets and conditions for controlled burn
 - How to control southern head-cut; (Ex: lay logs to pool water around native species)

Questions/Discussion:

- *Does the mesquite get dry enough to burn?*
 - Yes, the cienega retreats during the summer months.
- *In terms of burning, what would you do if an endangered species such as a snail were present in the cienega?*
 - Biologists and fire experts would need to be consulted to determine whether the species could be relocated during the burn, and whether the species would thrive in post-burn habitat.
- *How much scientific monitoring is done on the SPRNCA by BLM?*
 - Most of the scientific monitoring is conducted by partners. BLM monitors 9 Federal Reserve water right wells, and 13 stream flow monitoring sites.
 - The Sierra Club Sentinels monitor groundwater levels near Murray Springs and water quality in the stream. USGS (U.S. Geological Society Survey) maintains stream gages, and ARS (Agricultural Research Service) monitors streamflow permanence using cameras. Those agencies report to Upper San Pedro Partnership. . TNC (The Nature Conservancy) has done wet/dry mapping of the SPR for since 1998. Las Cienegas NCA has wet/dry data since 2004. TNC is also helping to fund USGS starting gravimetric monitoring. Some additional Water quality monitoring has been is done by the University of Arizona, Apache Powder, the City Health Department, and ADEQ.
- *Does the RMP need to include specific action points for the SPRNCA?*
 - There will be an Implementation Plan written after the RMP that will drill down to more details, but the RMP will also contain action-level recommendations.

- The RMP will focus on a conceptual scale, not a project scale, in order to promote flexibility. The key is to identify BLM actions that could be taken, depending on which conditions arise as the plan is being implemented.
- *In order for the SPR to remain viable, it looks like the river will need to be actively managed.*
 - Active management strategies will be one group of alternatives in the RMP EIS; passive strategies will also be considered. One group of strategies will be the Chosen Alternative in the Final EIS. However, the Record of Decision can modify the Chosen Alternative to incorporate strategies that were listed in other active/passive alternatives.
- *Are management actions possible for increasing river sinuosity?*
 - Yes, the river can be directly managed for sinuosity. However, directly affecting the river is one of many management options for encouraging sinuosity; managing the upper portions of the watershed first can result in improvements that include river sinuosity along with other benefits. Rivers will always respond to upper watershed treatments according to the Laws of Conservation of Mass, Energy, and Momentum.

Recommendations

- Install flexibility for actions to assess appropriateness of burning St. David Cienega, especially which areas could be burned and frequencies
- Could burn sections at a time, like the City EOP
- Utilize adaptive management: identify triggers and thresholds for action
- Establish a structure for obtaining and sharing data among agency partners as well as the public
- Use Verde River and Las Cienegas Watershed Partnership as examples for data structures
- Restoration could be SPRNCA's theme for data collection
- Assure that open participation is possible and encouraged
- Create website with interactive maps and historical and present data from all partners
- Acknowledge need for experimentation for funding solutions to complex issues

Field Trip Debrief

- Appreciate BLM making effort to organize and host so many field trips and solicit meaningful input
- For BLM, meaningful input means constructive suggestions for strategies
- Managing the SPRNCA is a huge job, and an important one

- The elephant in the room is groundwater pumping, and there will be no riparian areas without available water. We need to think about where groundwater meets law- pumping is not all monitored
- This would have been a great field trip for a high school advanced math class.
- It has been difficult to understand the paths that can be taken by BLM in this RMP, but now it's clearer how input and field trips fit into the EIS process. BLM staff seems to have a clear idea of where it's going.
- The SPRNCA is a microcosm of all the larger water resource issues in the Southwest; we need to work together and learn from each other about the SPRNCA and on a larger scale