

**MEETING SUMMARY**  
**Virgin River Watershed Analysis Working Meeting**  
**Las Vegas, NV**  
17 September 2007

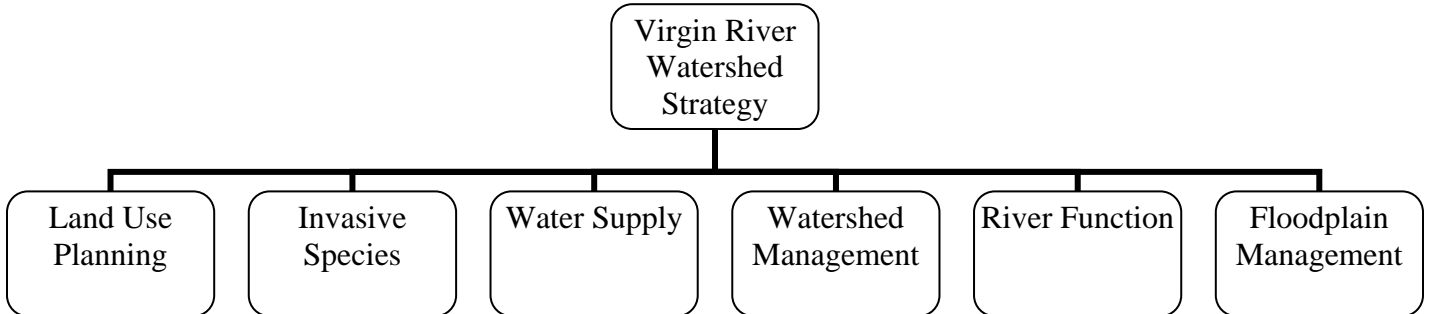
1. **Introductions:** Nearly 30 participants attended the September 17 working meeting to Review and further develop watershed objectives, priorities, and potential solutions to address the issues previously identified. Sign in list is attached. Not listed there is Ondrea Hummel (Corps) who participated via telephone during the afternoon.
2. **Overview and Background:** Scott Estergard provided a brief overview of the Watershed Analysis purpose and status to date. Power Point slides from the meeting are available online with other study information at <http://www.spl.usace.army.mil/virginriver.htm>. The purpose of today's meeting is to work as a group to review the planning objectives developed in Mesquite on May 24 and discuss means to address those objectives within the watershed. These action items will be added to the watershed strategy and implementation plan.

There have been questions about the other 4 federally funded watershed analysis currently ongoing, so a brief overview of those studies was provided. They include: Great Lakes Habitat Protection and Restoration, Delaware River Basin, NY, PA, NJ and DE, Comprehensive Water Resource Planning for the 18 Western States, and Middle Mississippi River (MMR) Regional Corridor. Information can be found at:

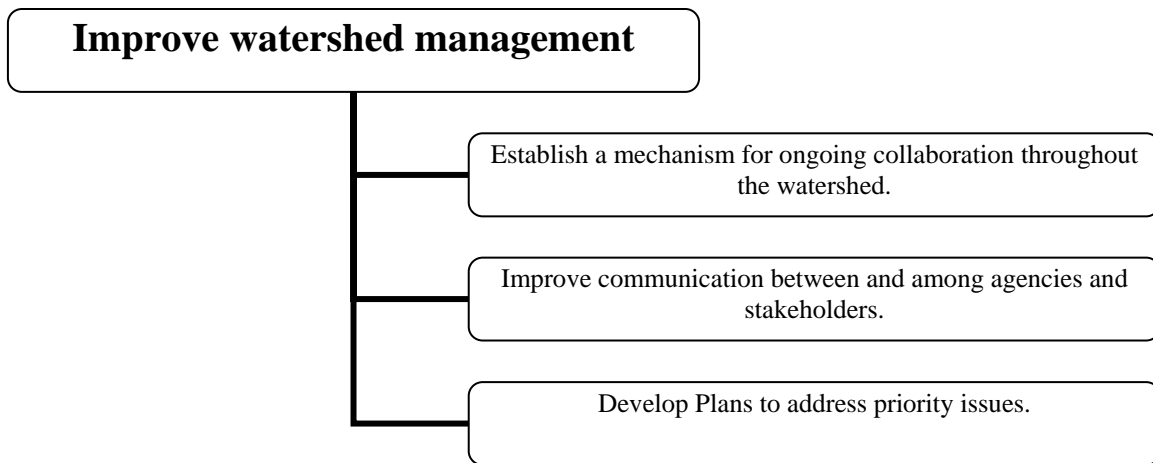
[http://www.usace.army.mil/civilworks/cecwp/news/watershed\\_06.html](http://www.usace.army.mil/civilworks/cecwp/news/watershed_06.html)

3. **Floodplain Strategy Update:** Although floodplain management is an integral component of the overall watershed study and interrelated to the other issues the Floodplain Management Strategy is being developed as a stand alone component. Scott Estergard provided a brief overview of the status of this work. Needs and goals for floodplain management can be categorized into the following areas: Technical, Regulatory, Communication, Environmental, and Education. A draft floodplain management strategy will be distributed for review in early October 2007. As was recommended in the meeting it will be available online at the Virgin River website listed in item 2 above. This will be followed with a watershed wide meeting in early November to discuss the strategy with the intent to have a final strategy document by the end of December.
4. Watershed goals, objectives and potential actions to address objectives were discussed for the rest of the day. Notes below are a summary of what was recorded during the meeting.

A. The overall watershed strategy could be viewed as an interagency management plan. Issues were categorized into the six areas listed below. A goal of the strategy is to address the issues in the categories below.



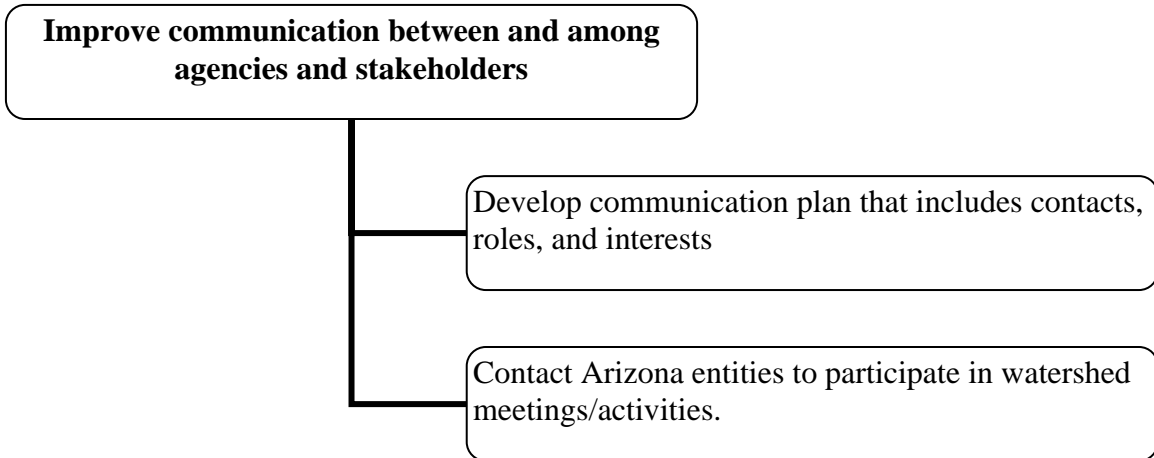
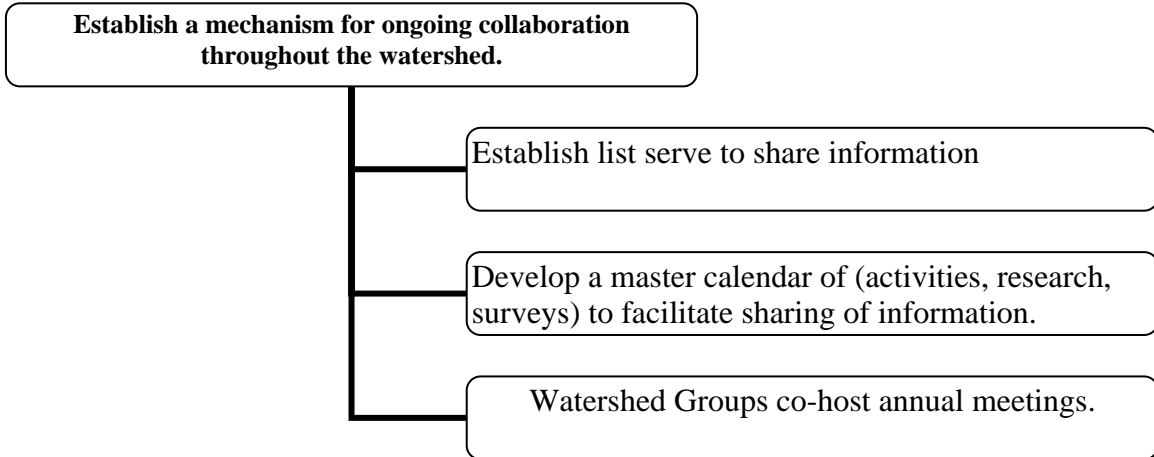
B. **Watershed Management.** Objectives to meet the goal of improved watershed management are listed here.



There was discussion about existing and continued collaboration on issues throughout the watershed. Collaboration is currently happening in pieces or on specific projects but not in a whole coordinated effort throughout the watershed.

- Funding would be necessary to support a larger collaborative group.
- There are existing watershed groups in Utah and also the Virgin River Conservation Partnership on the lower watershed. Has been discussion of holding annual meetings to discuss watershed issues. Suggested that this should be a 2 day meeting.
- There is desire to involve State of Arizona and Mohave County more in watershed and VRCP activities.
- Someone suggested to check if AZ Water Protection Fund, or other State funding available for watershed groups?

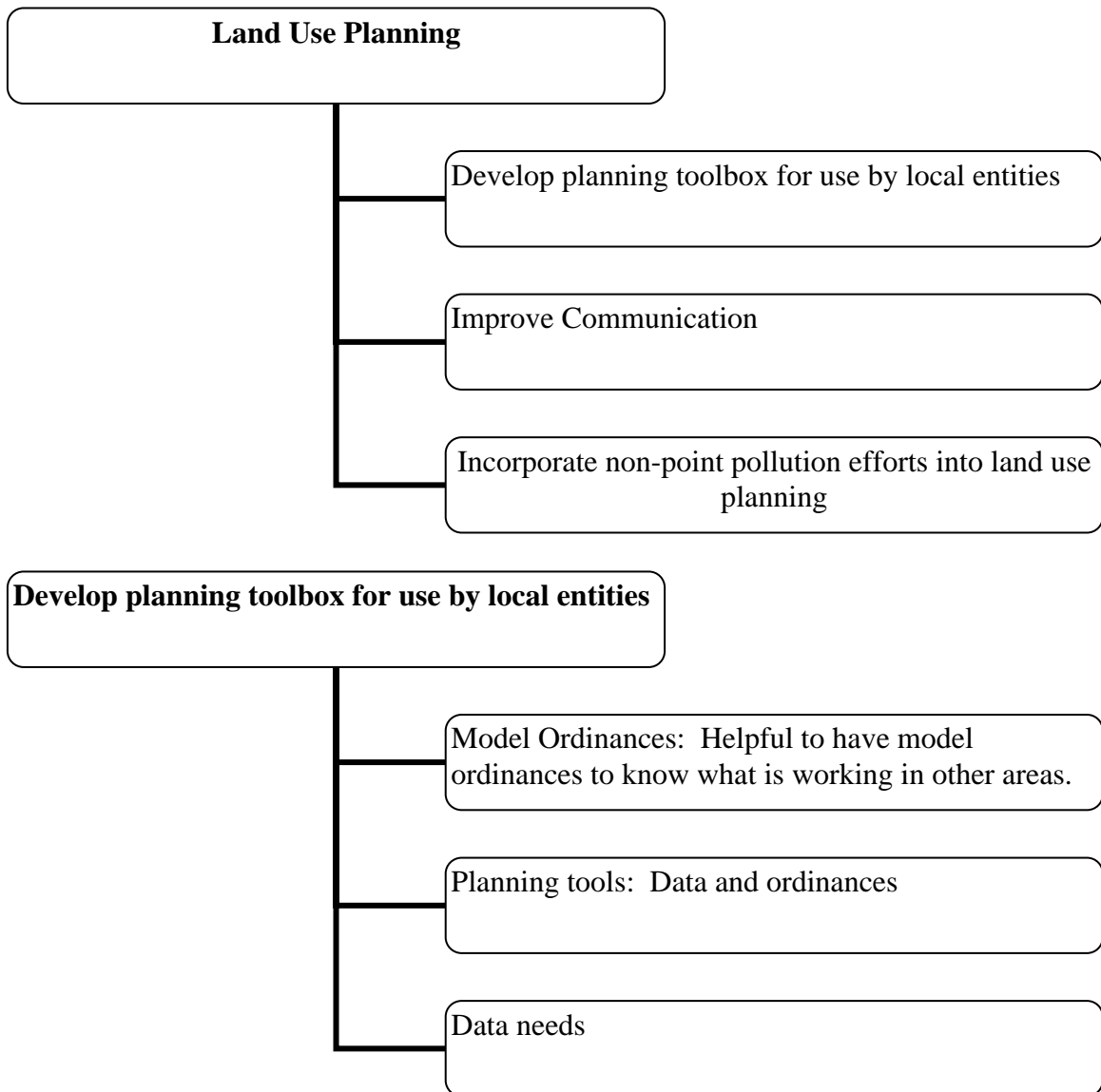
Objectives and Actions for Watershed Management follow:



Also listed as a recommendation was to cross boundaries (jurisdiction and political) to address watershed issues, although policy constraints likely prevent it.

A final objective not included here in a chart is to Develop Plans to Address Priority Issues. This is in essence what is being done herein. The priority issues include: invasive species, floodplain management, water supply, and land use planning.

C. **Land use planning** was the next issue area discussed. Improve communication was an areas listed and that is pertinent to land use planning but also addressed under overall watershed management previously.



**Incorporate non point source efforts into local land use planning**

Need information from similar regions (arid/semi arid) to be incorporated into local plans.

There was discussion about the need for education and training for local decision makers pertaining to watershed concepts and non point pollution control. In terms of ordinances and non point pollution anything needs to be from a like region to be pertinent, not from a different climate as it is not relevant.

- Mesquite: Master plan recently updated for area north of Mesquite.
- Data needs from Arizona portion of the watershed (Mohave County)
- BLM land use plans will be reviewed and any pertinent portions will be incorporated into the watershed strategy.

D. **River function** is a broad category that actually crosses more other issue areas than any other.

**River Function**

- Identify areas for potential habitat preservation, enhancement and restoration.
- Develop streamlined permitting process for river maintenance and restoration.
- Maintain natural river channel and floodplain dynamics where feasible.
- Integrate conservation planning for sensitive species.

Four additional items were listed under River Function that are being addressed elsewhere. Those include: Identify areas for potential nonstructural approaches to flood protection, Improve coordination of invasive species removal and control efforts, Improve communication, and Consider flood mitigation measures (Ft. Pearce and Beaver Dam washes).

**Identify areas for potential habitat preservation, enhancement and restoration.**

See below

Specific action items that meet the objective need to be further developed from meeting input. Ideas and recommendations below were discussed at the meeting:

- Coordinate with NDOW, USFWS and other agencies about potential locations.
- Likely a strong tie to the floodplain, and floodplain management.
- There may be private lands included in this objective.
- Mormon Mesa and downstream likely candidate.
- Steve Roberts (Corps Regulatory) suggested that there are sometimes permit applicants seeking areas to complete mitigation, he would like to know if there are potential sites to recommend.
- Need to consider vegetation, soil and hydrology in making the determination.

**Allow natural river channel and floodplain dynamics where feasible.**

See below

This item is more of a statement than an objective and likely fits into floodplain management and the objective above. It will be tied in to the strategy where most appropriate.

**Develop streamlined permitting process for river maintenance and restoration**

See below

Permitting (Clean Water Act) for performing maintenance and restoration activities had lengthy discussion. This included inconsistencies when crossing jurisdictional boundaries and complicated coordination with different offices. There are two Corps Districts responsible for different parts of the watershed, 3 USFWS offices, 2 EPA Regions, and 3 different States.

Someone recommended that a single permit application for 404 and state permits would be beneficial to everyone. There is one standard DA 14345 application form for all Department of the Army Permits. There is a joint permit application for Utah but not Nevada. Also discussed was the benefit in having a Biological Opinion coordinated among the 3 FWS jurisdictions.

Steve Roberts discussed briefly the Supreme Court Rapanos Decision. He also said that since the St. George Regulatory Office has permitting responsibility for Utah and Nevada portions of the watershed he will assist in including pertinent permitting information within the watershed strategy. This will include guidance as per activities that need or do not likely need permits, information requirements, and contact information. There may be Nationwide and Regional Permits that include some of the maintenance and restoration activities discussed. However, it is best to discuss project specifics with the Regulatory Office.

<http://www.spk.usace.army.mil//organizations/cespk-co/regulatory/index.html>

**Integrate conservation planning for sensitive species**

Existing efforts and plans are accomplishing much of this. Need to include Arizona.

- E. **Invasive species** was the next item on the agenda. Ondrea Hummel (Corps-Albuquerque) participated in this portion via teleconference. Ondrea gave an overview of the status of the Tamarisk toolbox prior to the group discussing objectives related to invasive. Power Point presentation is also online.

Map of ongoing efforts- still attempting to summarize activities in the watershed.

- NRCS (UT) provided updated imagery.
- BLM data is up to date.
- Need Washington County Information still
- Zion efforts, Curt Deuser said that the main stem has been treated through the park, finishing the East Fork.
- Doug Merkler said that an updated floodplain soil map is available from NV state line downstream from NRCS.

A spreadsheet was handed out for discussion of a framework to include tamarisk removal options and the pros and cons within the toolbox (Attached).

Recommended changes to that include:

- Costs are very site specific; need to be careful including costs and probably specify their basis.
- Maintenance costs should be called Follow on Treatments.
- Add mechanical removal w/basal bark spraying (Get info from Tim Rash)
- Need to add beetle information.
- Recommended that aerial spraying should be separated into a stand alone category.

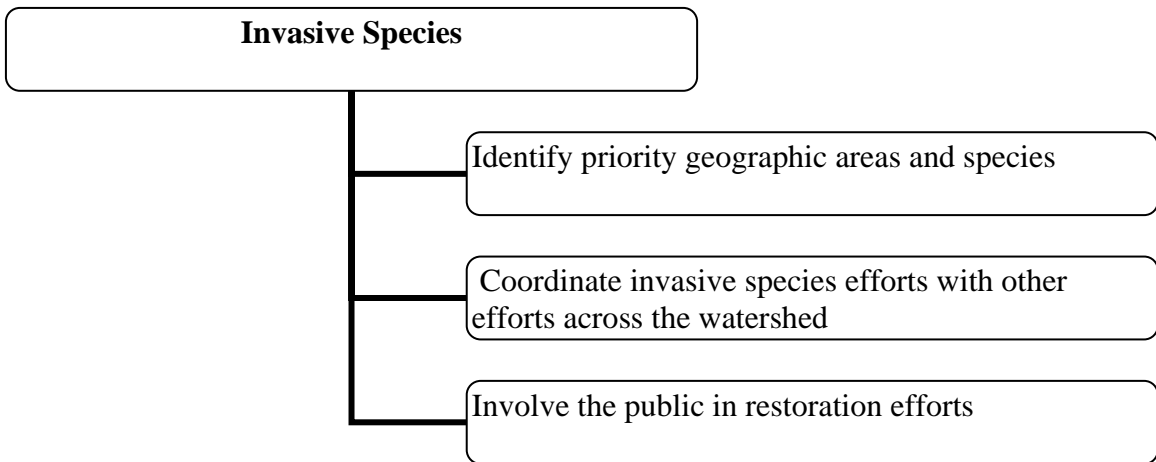
The following sample matrix for prioritizing removal was reviewed. Recommended that previously treated areas be added to the sheet. Need to add additional reaches throughout the watershed including tributaries.



**Sample, Prioritization of Tamarisk Removal Efforts**

Location (Reach)	Flooding threat	Fire threat	Water Quantity	Soil salinity	Wildlife value	Overall Score
UT						
Headwaters through East Fork						
East Fork to North Fork						
North Fork to North Creek						
North Creek through St. George						
W boundary of St. George to State Line						
AZ						
UT State Line to NV State Line						
NV						
State Line to Park boundary						
<i>Example Reach</i>	X	X			X	

Continued to discuss the objectives as identified in the strategy. For invasives the objectives are listed below:



Minor modifications were made to the existing outline of action items to address invasives. They are shown below and include: ensuring that invasive species coordination is tied into other activities, consider a Cooperative Weed Management Area, such as the Four Rivers CWMA covering a portion of the watershed in Nevada. Also suggested including the green industry in restoration education efforts.

**Identify priority geographic areas and species**

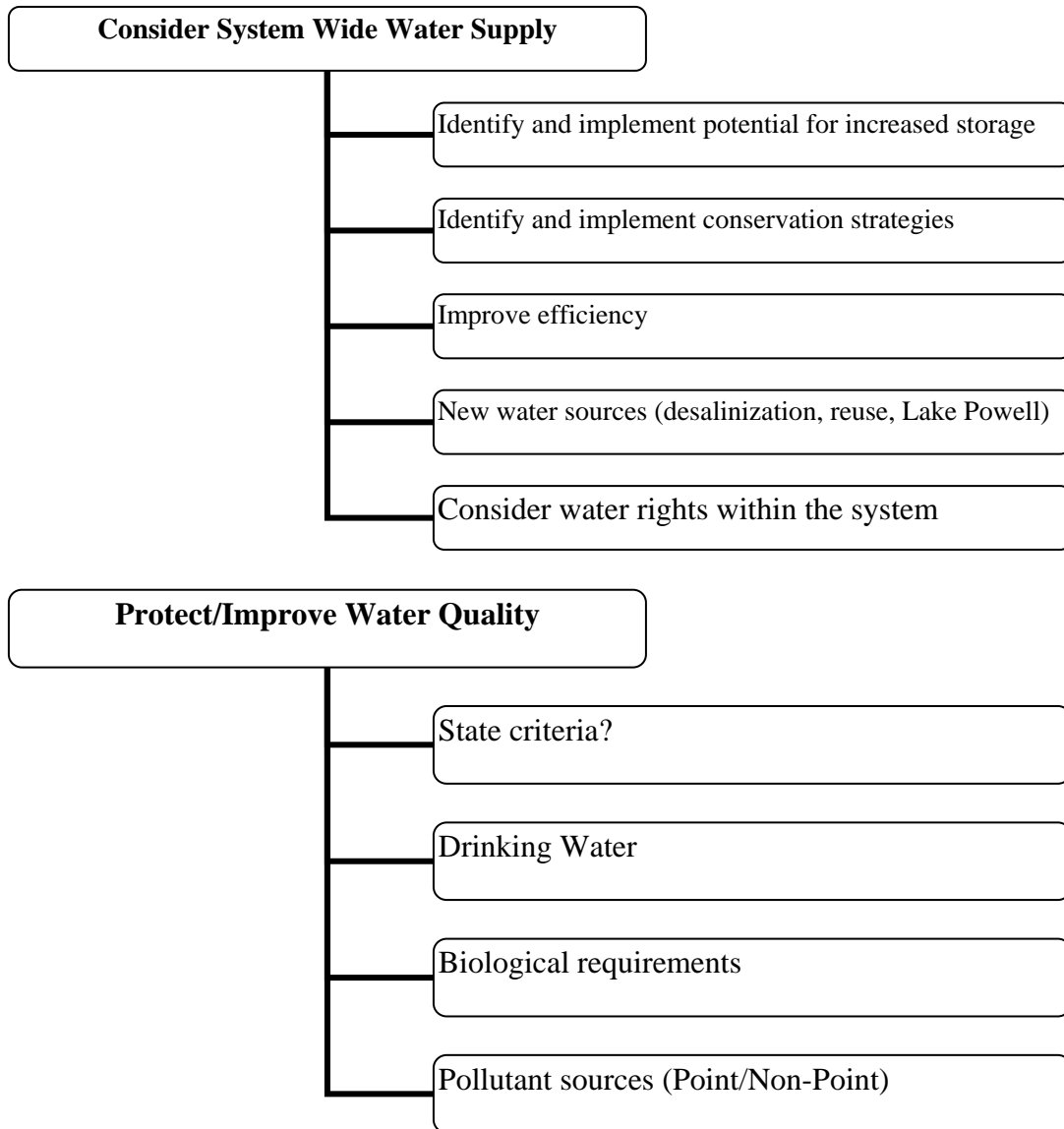
- Prioritize species (upland, riparian, aquatic)
- Prioritize locations: see example matrix above

**Coordinate invasive species activities across the watershed with other activities**

- Ensure invasives tied in with other components/project coordination
- Consider CWMA as discussed above

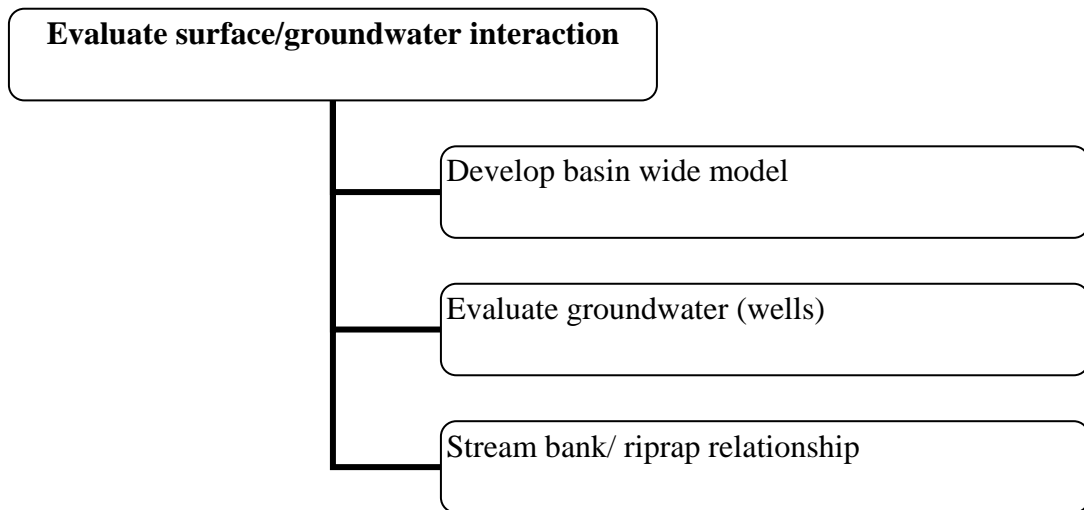
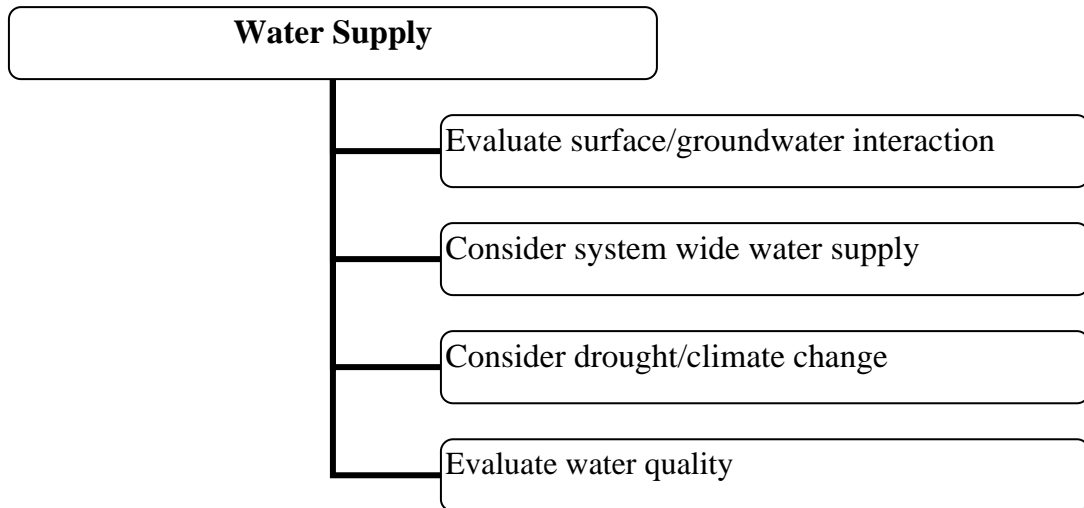
**Involve the public in restoration efforts**

- Educate recreation users of issues with invasives
- Conduct ecosystem related education
- Involve the green industry in invasive efforts and education



5. **Review and Adjourn:** Items included in today’s meeting will be incorporated and further developed into the watershed strategy. As usual, there was a lot of great discussion of the issues, needs and available information for completion of the watershed strategy. Next meeting will be held after a draft plan is developed and will hopefully include representatives from the entire watershed. The floodplain strategy meeting is anticipated in November but further detailed meeting to review the watershed strategy will not likely occur until January 2008.
6. Questions or further information proving useful for the strategy should be addressed to Scott Estergard at 602-640-2004 ext 242 or [scott.k.estergard@usace.army.mil](mailto:scott.k.estergard@usace.army.mil)

F. **Water Supply** was the final issue area discussed. Although water supply is an issue in the watershed it is not likely an area where a significant amount of work can be completed within this watershed analysis. Anything further than discussion and need for analysis and discussion of planning objectives would likely go beyond budget and schedule to finish this study. Objectives were developed in the Mesquite meeting and discussed again here for clarification.



Note that there was discussion of the potential cost to develop a basin wide model and suggested that a Basin/Range model ran \$6M. Could be similarly costly to do so for the watershed.

# VR Watershed

4/17/09

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**Non-native vegetation removal options Sample Framework for Tamarisk Toolbox**

**September 17, 2007**

**Note: These estimated costs are based on a 500 acre block.**

<b>Method</b>	<b>Costs</b>	<b>Pros/Cons</b>	<b>Operations and Maintenance Costs</b>	<b>Total cost (500 acres)</b>	<b>Timeline</b>	<b>% Success/Kill</b>	<b>Total cost of project</b>
A. Aerial spraying (would also need B, F, C2 and possibly C1)	\$200/acre	Fast & effective/ Herbicide use, standing dead for 18 months, still have to mechanically remove	See C1	\$100,000	3-5 years		<b>\$1,450,000</b>
B. Mechanical removal (of dead sprayed or live cut and remove) (would also need C1, C2 and F)	A. \$1200/acre chipping: bucking: hauling:  A2. Contractor:  B. Mechanical with root ripping: \$690/acre (Bosque del Apache)	Immediate removal of all material, spraying stump directly/ Have to spray resprouts	See C1	\$500,000	1-3 years	B. 97-99% (BdA)	<b>\$1,350,000</b>
<i>C1. Hand spraying of stumps</i>	<i>\$300/acre</i>	<i>Direct application and confinement of chemical/have to continue spraying for 3-5 years annually</i>	<i>\$/acre/year – spraying of resprouts</i>	<i>\$50,000</i>	Ongoing		
<i>C2. Removal of material – hauling costs</i>	<i>\$500/acre</i>			<i>\$250,000</i>			
D. Hand removal (chainsaws and crews) (would also need C1, C2 and F)	\$2500/acre \$1800-3000/acre	Less soil degradation/ Slow and expensive, still having to spray resprouts	See C1	\$1,000,000	3-5 years		<b>\$1,850,000</b>
E. Natural	?	Natural method that	Ongoing	?	?		<b>\$?</b>

removal using animals (ie: goats, beetles)		doesn't utilize chemicals/Slow and doesn't work for large trees					
F. Prescribed burning in combination with any of above or separate	Herbicide/burn - \$225/acre		See C1		1-3 years		
<i>F. Revegetation with native species</i>	<i>\$1,100-1,500/acre species breakdown</i>	<i>Native component for wildlife and watershed health/Needs water and possible maintenance</i>	<i>\$100/acre/year - Replacement planting</i>	<i>\$550,000</i>	1-3 years		
G. Public participation		Be part of project – use wood for fuel, help plant, etc.					Could reduce costs