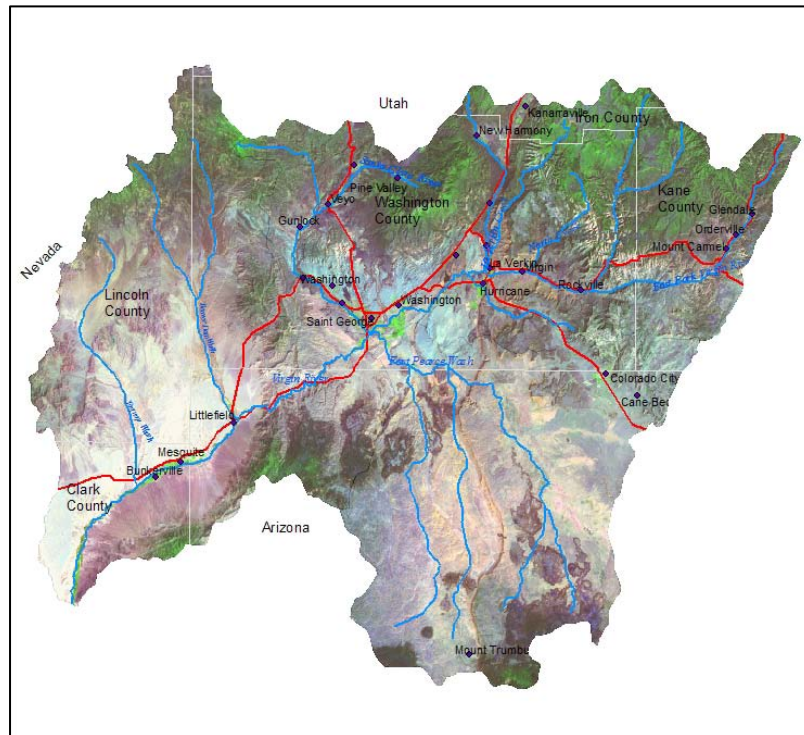


**VIRGIN RIVER WATERSHED**  
Comprehensive Watershed Analysis  
Utah, Arizona and Nevada  
April 2008

This is one of five federally funded watershed studies being conducted in response to the 2006 Energy and Water Development Appropriations Act (PL 109-103). That legislation directed the Secretary to conduct, “*at full federal expense, comprehensive analyses that examine multi-jurisdictional use and management of water resources on a watershed or regional scale*”.

In carrying out this analysis, the Corps is working in partnership with local and county governments, tribal, state and federal agencies, municipalities, landowners, citizen groups and the public. A goal of the analysis is to produce a watershed plan that assists stakeholders in successful management of the Virgin River and tributaries and related resources.

**Watershed:** The Virgin River’s headwaters are in Washington, Kane and Iron Counties of Utah and the lower watershed includes portions of Mohave County, Arizona and Clark and Lincoln Counties, Nevada. The river eventually empties into the Colorado River at Lake Mead in southeastern Nevada.



Major tributaries to the Virgin River include the Santa Clara River, Fort Pearce Wash and Beaver Dam Wash. Approximately 85% of the watershed is in public ownership, although the private lands include rapidly growing areas such as Washington, Clark, and Mohave County.

**Issues:** Through coordination with stakeholders and review of nearly sixty reports the key issues in the watershed have been defined as shown in the table below. An overarching issue is the need for improved communication and collaboration across jurisdictional boundaries and among agencies.

| Issue                        | Description  |
|------------------------------|--|
| <b>Floodplain Management</b> | Floodplain regulations are in place and studies and projects underway throughout the watershed. However, multiple flood risks remain and management of that risk is an ongoing issue with technical, regulatory, environmental, communication and education needs identified.  |
| <b>Land Use Planning</b>     | Communication among agencies and the public has room for improvement, inconsistencies occur across jurisdictions, watershed wide plans are lacking, linkage between uplands and floodplains is often not recognized. Rural communities have expressed a need for useful planning tools and data.   |
| <b>Invasive Species</b>      | Invasive species of concern include Salt Cedar, cheat grass, Red shiner. Although numerous individual efforts to address tamarisk are underway, and some collaboration is occurring, there is no comprehensive watershed scale coordination or sharing of data.  |
| <b>Water Availability</b>    | Water supply and water quality are important aspects of the watershed and needs are described in numerous reports. With growing populations and drought the pressures for the finite water supply will only continue to grow. Water conservation, additional water sources, and evaluation of existing sources are discussed as needs. Groundwater and surface water interaction and salinity have also been expressed as areas of concern within the watershed. |
| <b>River Function</b>        | River function is a balance of sediment and water transport that results in channel morphology and associated biotic communities. It includes unusual events and is dynamic. The issue includes habitat, channel maintenance and endangered species, some of which are currently being addressed.  |

**Products:** Two major products, including reports and associated materials, that will result from this study are described below.

**Floodplain Management Strategy:** This report includes an evaluation of lessons learned from 2005 flooding, identification of hazards, organization of existing policies and constraints, recommendation of floodplain management measures and tools. It lists 14 mitigation actions recommended for implementation with the following highest priority: Establish a Watershed Steering Committee, Conduct Post-Fire Hydrologic Assessments, Develop and Conduct Public Information/Outreach, and Implement a Flood Warning System (Flood Response Plan/Flood Detection Network). The main report may be downloaded at <ftp://ftp.usace.army.mil/pub/spl/VirginRiver/>.

**Watershed Strategy:** The strategy, currently in draft, includes a review of existing projects and unmet needs, reviews the issues described above, and is currently developing an implementation plan. Implementation of the actions to address the watershed issues may be carried out by any of the multiple jurisdictions, private or non government organizations. It is intended that this strategy be the basis for prioritizing and bringing resources together to seek solutions.

The following table outlines objectives developed in meetings with stakeholders, which are intended to be implementable and measurable means of addressing the overall watershed issues. Completion of the Strategy requires definition of actions and identification of entities that have the ability to carry them out. Stakeholder input is required to finalize this set of recommendations.

|  |
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| <p><b>Improve Watershed Management, to include communication and collaboration among agencies and the public.</b></p> <ol style="list-style-type: none"> <li>1. Establish a mechanism for ongoing collaboration throughout the watershed.</li> <li>2. Improve communication between and among stakeholders and agencies.</li> </ol>  |
| <p><b>Support and improve Land Use Planning efforts throughout the watershed.</b></p> <ol style="list-style-type: none"> <li>1. Develop planning toolbox for use by local entities</li> <li>2. Incorporate non-point source efforts into local land use planning.</li> <li>3. Encourage a watershed approach to large scale planning efforts.</li> </ol>   |
| <p><b>Establish, maintain and support a functional river system throughout the watershed.</b></p> <ol style="list-style-type: none"> <li>1. Identify areas for potential habitat preservation, enhancement and restoration.</li> <li>2. Develop a streamlined permitting process for river maintenance and restoration</li> <li>3. Maintain natural river channel and dynamics where feasible.</li> <li>4. Integrate conservation planning for sensitive species.</li> </ol>                         |
| <p><b>Manage (monitoring, removal, restoration) Invasive Species to acceptable levels.</b></p> <ol style="list-style-type: none"> <li>1. Identify priority geographic areas and species of concern.</li> <li>2. Coordinate invasive species activities across the watershed with other activities.</li> <li>3. Involve the public in restoration efforts</li> </ol>  |
| <p><b>Maintain a suitable and sufficient water supply for the watershed.</b></p> <ol style="list-style-type: none"> <li>1. Evaluate surface/ground water interaction</li> <li>2. Consider system wide water supply</li> <li>3. Protect/Improve water quality</li> </ol>  |
| <p><b>Develop a comprehensive approach to floodplain management which will increase public safety and awareness, reduce flood damages, and protect natural and beneficial uses of floodplains.</b></p> <ol style="list-style-type: none"> <li>1. Establish a Watershed Steering Committee</li> <li>2. Conduct Post-Fire Hydrologic Assessments</li> <li>3. Develop and Conduct Public Information/Outreach</li> <li>4. Implement a Flood Warning System (Flood Response/Flood Detection).</li> </ol> |

**Schedule:** This study is to be finalized no later than August 2008. Specific dates depend upon input and discussion of recommendations among stakeholders.

| <u>Milestone</u>                           | <u>Date</u> |
|--|-------------|
| Watershed Meeting, Review Recommendations  | May 9, 2008 |
| Final Watershed Meeting (under this study) | June 2008   |

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Study information including meeting materials, presentations, and products as they are completed, are available online at <http://www.spl.usace.army.mil/virginriver.htm>