

PAST EFFORTS TO REDUCE POLLUTANT LOADING

Water Quality Improvement Projects and BMPs

Below is a list of water quality improvement and BMP projects that Prescott Creeks and WIC partner organizations have undertaken the watershed. A map of project sites is shown in **Fig. 6**.

1. Watson Woods Riparian Preserve Restoration, 2008-current
Project goal(s): to restore 126 acres of floodplain and a one-mile stretch of Granite Creek, currently listed as impaired.
Accomplishments: Four reaches realigned; 23,000 native trees (primarily cottonwoods/willows) planted since 1992; six ephemeral wetlands constructed
Pollutants of concern: Urban stormwater (nitrogen, phosphorus, metals, bacteria) and sediment from erosion
Implementation by: Prescott Creeks
Funded by: ADEQ 319 and Arizona Water Protection Fund grants
Project cost: \$1.4 million
2. Stormwater Detention Basin, Prescott Lakes Parkway, 2007
Project goal(s): To manage runoff from a recently constructed four-lane roadway that drains into Granite Creek and Watson Lake, both impaired waterways
Accomplishments: Constructed basin encompassing approximately four acres; planted 200 trees
Pollutant concern: Urban stormwater (nitrogen, phosphorus, metals, bacteria) and sediment from erosion
Implementation by: Prescott Creeks
Funded by: ADEQ 319 grant
Project cost: \$123,000
3. Yavapai Reservation Slaughterhouse Gulch wetland restoration, 2000
Project goal(s): to restore wetland habitat along Granite Creek, an impaired waterway
Accomplishments: 40 acres restored; 4,800 trees and native vegetation planted
Pollutants of concern: urban stormwater (nitrogen, phosphorus, metals, bacteria) and sediments
Implementation by: Yavapai-Prescott Indian Tribe
Funded by: EPA
Project cost: \$88,000
4. Yavapai County Stormwater Quality Improvement Project at Pioneer Park, 2009
Project goal(s): To construct a 24-acre demonstration project that removes pollutants from stormwater that discharges into Granite Creek, an impaired waterway, and to recharge the Prescott aquifer with clean water
Accomplishments: Construction of detention basins, channel filtration trenches, and vegetation improvements to slow down, filter and remove solids and oils from the first-flush; slopes terraced, rip-rapped and landscaped to prevent further erosion; public education, outreach and partnership program on site with information signs, and kiosks

Pollutants of concern: Urban stormwater (nitrogen, phosphorus, metals, bacteria) and sediment from erosion

Implementation by: Yavapai County Flood Control District

Funded by: ADEQ 319 grant

Project cost: \$620,000

5. Storm Drain Markers, 2007

Project goal(s): To educate the public about stormwater pollution and the connection surface water quality of local water bodies; to discourage illicit dumping and littering

Accomplishments: Approximately 1,000 children reached through education efforts while developing design, 400 storm drain markers produced, approximately 200 markers placed (remainder with City of Prescott to replace when current ones go missing)

Pollutants of concern: Urban stormwater (nitrogen, phosphorus, metals, bacteria)

Implemented by: Prescott Creeks and City of Prescott

Funded by: ADEQ 319 grant

Project cost: \$15,000

6. Creek Signing Project (Phase I), 2000

Project goal(s): Increase public awareness regarding existence of creeks, creeks names and number of road crossings

Accomplishments: Approximately 80 signs installed at roads crossing streams

Pollutants of concern: N/A

Implemented by: Initiated by Prescott Creeks and implemented by City of Prescott

Funded by: Prescott Creeks (private donations) and City of Prescott

Project cost: Approximately \$3,000

7. Creek Signing Project (Phase II), 2001

Project goal(s): Increase public awareness regarding existence of creeks, creeks names and number of road crossings

Accomplishments: Approximately 20 signs installed at roads crossing streams

Pollutants of concern: N/A

Implemented by: Initiated by Prescott Creeks and implemented by Yavapai County and Prescott Creeks' volunteers

Funded by: Yavapai County Community Foundation, JA McDougal Fund for the Environment

Project cost: Approximately \$750

8. Watershed Posters, 2004-present

Project goal(s): Increase public awareness regarding watershed concept and boundary, origin of creek names, existence of creeks, creeks names and number of road crossings

Accomplishments: Approximately 5000 map/posters printed

Pollutants of concern: N/A

Implemented by: Prescott Creeks

Funded by: Yavapai County Community Foundation Fund for the Environment; sponsoring contributions also from Kiwanis Club of Prescott, Prescott Unified School District, City of Prescott Keep Prescott Beautiful Committee, and Sharlot Hall Museum

Project Cost: Approximately \$5,000 (included graphic design and printing)

9. Manure Management Brochure, ca. 2008

Project goal(s): To educate property owners about water quality impacts of manure and proper manure management

Accomplishments: 1,000 brochures printed.

Pollutants of concern: Nutrient and bacteria input to the creeks through manure

Implemented by: Prescott Creeks. Distributed through ADEQ, Arizona Water Protection Fund, NEMO, and Yavapai County Cooperative Extension.

Funded by: ADEQ 319 grant

Project cost: \$7,000

10. Granite Creek Cleanup, ca. 1989-2011

Project goal(s): To engage the community beautifying their local creeks by removing trash from the riparian habitat that is harmful to native riparian wildlife and vegetation

Accomplishments: 3.4 to 10 tons of waste removed annually; 300 – 500 volunteers per year

Pollutants of concern: Debris, petrochemicals, and nutrients

Implemented by: Prescott Creeks

Funded by: Community and corporate sponsors

Project cost: Approximately \$4,000 per year.

11. Rambling River (originally funded as: From Education to Action in the Granite Creek Watershed), 2009

Project goal(s): Educate community members through active participation in BMP implementation at Watson Woods Riparian Preserve and through interaction with a stream-table/watershed model

Accomplishments: Design and construction of Rambling River - a trailer-mounted, mobile, interactive stream-table/watershed model

Pollutants of concern: N/A

Implemented by: Prescott Creeks

Funded by: ADEQ Water Quality Improvement Education grant

Project cost: \$67,875.50

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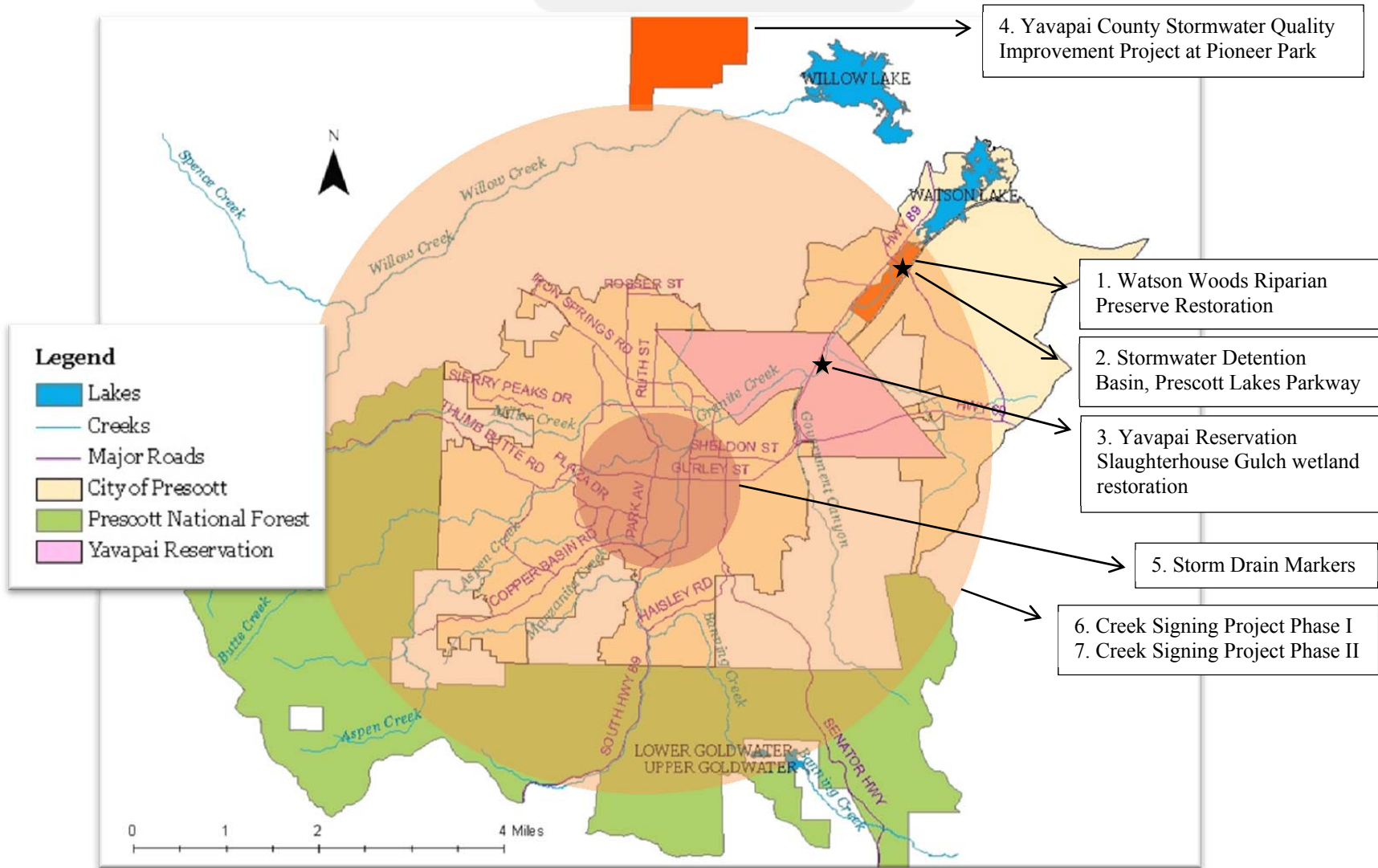


Figure 6: Past Water Quality Improvement and BMP Project Sites

Efforts to improve water quality in the Granite Creek Watershed have been undertaken by Prescott Creeks, the City of Prescott, Yavapai County, and the Yavapai-Prescott Indian Tribe, and partnerships between the entities. These projects vary from riparian and wetland restoration to stormwater mitigation and public education.

General Permit BMPs Applied in Watershed

This document has already detailed that stormwater carries pollutants from streets, parking lots, and roofs into water bodies. Amendments to the CWA in 1987 defined a process for controlling municipal and industrial stormwater pollution in two phases (Killam, G. 2005). In the early 1990's, Phase I required cities, or Municipal Separate Stormwater Sewer System (MS4s), with populations over 100,000 to obtain a permit through the National Pollutant Discharge Elimination System (NPDES). Phase II followed in 2003, requiring MS4 communities with "urbanized areas" or populations over 50,000 to obtain a permit. The permit requires MS4s to develop and implement storm water management plans to reduce pollutant loadings to the maximum extent practicable. In Arizona, ADEQ is the NPDES permitting authority.

Yavapai County, the City of Prescott, and Arizona Department of Transportation (ADOT) each have an Arizona Pollutant Discharge Elimination System (AZPDES) permit for stormwater discharges. Yavapai County and the City of Prescott both operate under the Phase II MS4 General Permits while ADOT was issued an Individual Permit. Permitted entities are considered point sources. However, activities to mitigate stormwater runoff that are *not* specifically required by a draft for final AZPDES permit may still be eligible for nonpoint source grant funding under Section 319(h) of the Clean Water Act.

The December 8, 1999 stormwater phase II rule requires operators of small Municipal Separate Storm Sewer Systems (MS4s) in urbanized areas to develop and implement a stormwater management program that addresses six minimum control measures:

1. Public Education and Outreach
2. Public Participation/Involvement
3. Illicit Discharges Detection and Elimination
4. Construction Site Stormwater Runoff Control
5. Minimum Control Measures for Post Construction Stormwater Management in New Development and Redevelopment
6. Pollution Prevention/Good Housekeeping for Municipal Operation

Yavapai County

Yavapai County has been operating under the AZPDES General Permit since 2003 and has satisfied the requirements of the six control measures.

For more information on Yavapai County's Stormwater Management Program contact:

Yavapai County Flood Control District
500 South Marina Street
Phone: (928) 771-3197
Flood Status/Message Line: (928) 771-3196

City of Prescott

The City of Prescott has been operating under the National Pollutant Discharge Elimination System's General Permit since 2003 and has satisfied the requirements of the six control measures.

For more information on the City of Prescott's Stormwater Management Plan contact:

Stormwater Management
430 North Virginia Street, Prescott, AZ 86301
Phone: 928-777-1140
Illicit Discharge:
928-777-1140 (business hours, from 7:00 a.m. to 3:30 p.m.)
928-445-5357 (non-business hours)

Arizona Department of Transportation

The Individual Stormwater Permit, issued in September of 2008, recognizes ADOT's unique qualities as a Municipal Stormwater Separated Sewer System (MS4) because its primary activities resemble those of a municipality, an industry, and a construction site operator on a statewide basis.

For more information on ADOT Prescott District's Stormwater Management contact:

Prescott District Environmental Coordinator
1109 East Commerce Drive
Phone: (928) 777-5966

Or

ADOT Statewide Water Quality Manager
1655 West Jackson Street
Phoenix, AZ
Phone: (602) 712-8353