

CLEARING THE WATERS

A quarterly newsletter by the Surface Water Quality Bureau

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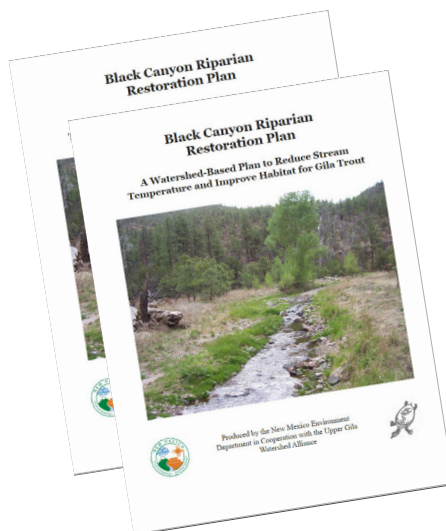
This newsletter is published quarterly by the New Mexico Environment Department's Surface Water Quality Bureau. Funding is provided by a Clean Water Act (CWA) §319(h) grant from the EPA.

EPA Accepts Watershed-Based Plan for Black Canyon Creek

In May of 2017, the Environmental Protection Agency accepted a Watershed-Based Plan (WBP) developed for Black Canyon Creek making it eligible for future CWA Section 319 funding for watershed implementation projects. The WBP has been in development since 2012 and was produced by the New Mexico Environment Department in cooperation with the Upper Gila Watershed Alliance.



Black Canyon Creek is a tributary to the East Fork of the Gila River. It is located in Grant County of southwest New Mexico in the Gila National Forest. Based on current New Mexico Water Quality Standards, Black Canyon Creek is impaired for temperature. It has also been identified as a critical recovery water for the threatened Gila trout (*Oncorhynchus gilae*). This WBP determines the nature of the causes and sources of increased temperature and outlines mitigation measures to decrease water temperatures and improve water quality in this vital New Mexico fishery.



The WBP can be viewed by visiting: www.env.nm.gov/surface-water-quality/accepted-wbp

Continue to read about Black Canyon Creek in *Stream of the Quarter* on page 3.



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Watershed Protection Section Staff Update - Santa Fe

Getting Fussy with Neal Schaeffer



In May, we bid fond farewell to Neal Schaeffer who retired after twenty-two years with NMED. After his service in the armed forces, Neal worked his way through college as a smoke jumper and contract nurse. After obtaining a bachelor's degree in biology, he worked as a wildlife biologist for a time prior to beginning his work in NMED in the two sections (Evaluation and Planning, and Surveillance and Standards) that now comprise the Monitoring, Assessment, and Standards Section of the Surface Water Quality Bureau (SWQB). He carried out an agricultural monitoring project, developed a volunteer monitoring program that gave him a taste for working with the public, planned and implemented several key water quality surveys in various parts of New Mexico, and developed a water quality database that served SWQB well for several years.

In 2004, Neal accepted a position in the Watershed Protection Section, where he became the State of New Mexico lead for Clean Water Act Section 401 certification of Section 404 permits issued by the Army Corps of Engineers (Corps). Over the years, he built a great relationship with the Corps. He improved the consistency and effectiveness of how Section 401 is applied in New Mexico so that more applicants statewide could better understand their responsibilities and design projects with minimal impacts to New Mexico's streams and wetlands. In 2010, he contributed significantly to development of state regulations for Section 401. The regulations were adopted in 2011, many years after they were required by the New Mexico Water Quality Act. Neal especially valued consulting with applicants, to help them comply with water quality certifications, but he was not afraid to "get fussy" over noncompliance with certification conditions.

Neal's project level effort was concentrated in the San Juan Basin, the Pecos headwaters, and the east side of the Sangre de Cristo Mountains. He helped develop the capacity of watershed groups in different parts of the state, by putting them in contact with one another and organizing workshops for them to share information and ideas. Neal felt strongly that local people should lead (and are qualified to lead) water quality improvement efforts in their watersheds, and he was judicious in offering assistance beyond the occasional workshop or shared article.

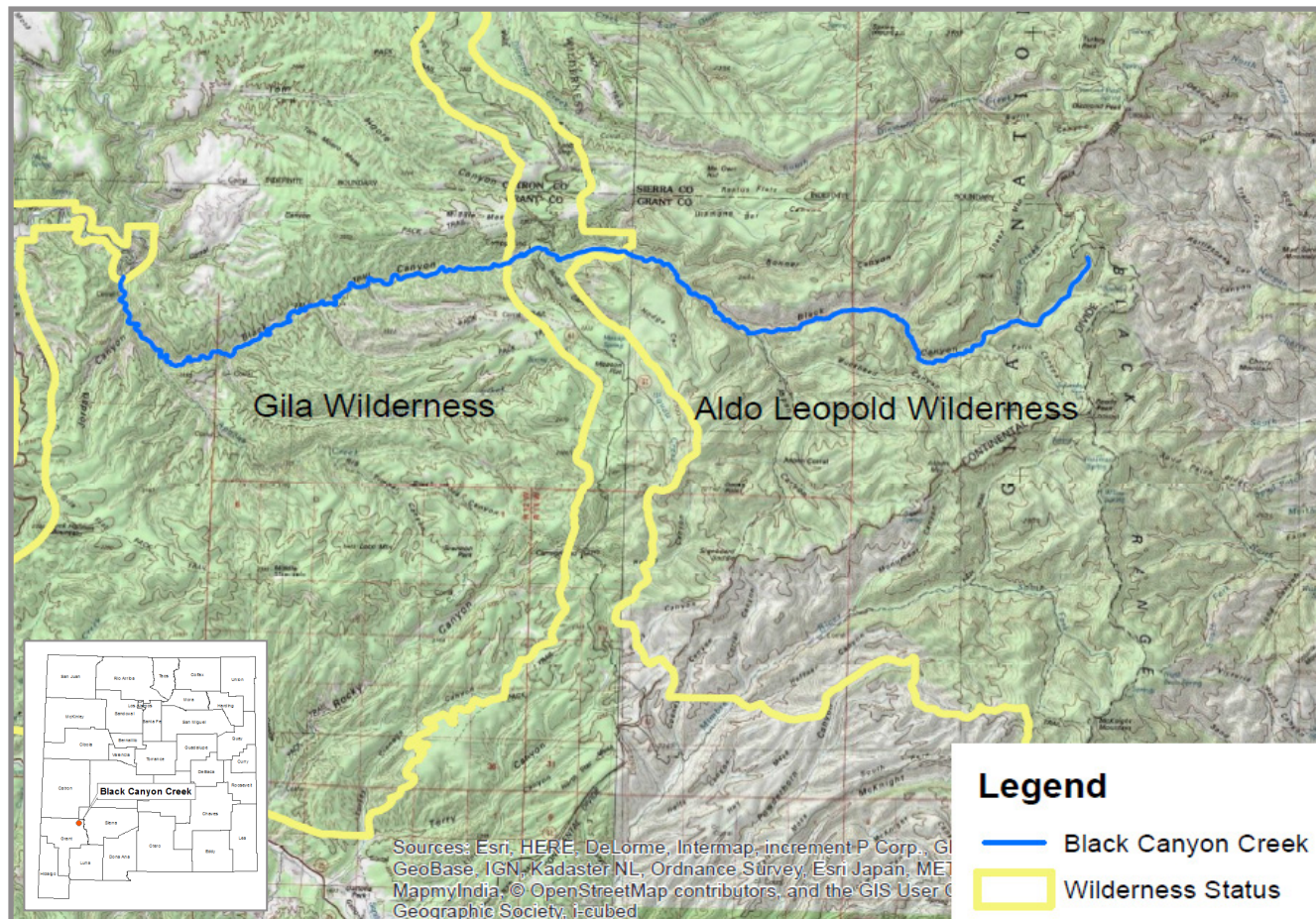
We're not sure what's next for Neal, but we doubt he will leave the field of watershed management completely. He intends to finish and market a water quality database, but only after a long motorcycle ride this summer. His knack for protecting water quality, even when that means getting fussy, will long be appreciated.

STREAM OF THE QUARTER

By Chris Canavan, SWQB Environmental Scientist - Southern NM Team Leader,
Las Cruces

BLACK CANYON CREEK

is a small tributary to the East Fork of the Gila River in southwest New Mexico. It emanates from the western slope of the Black Range along the Continental Divide and flows west to its confluence with the East Fork of the Gila River (Map). Along the way it flows through both the Aldo Leopold and Gila Wilderness areas.



Over the past 30 years, the watershed has been heavily impacted by livestock grazing and multiple wildfires which has led to severely degraded conditions including a lack of streamside vegetation, channel incision and widening, and associated loss of floodplain storage capacity. The result has been an increase in water temperature that threatens its status as a quality trout fishery. Based on current New Mexico Water Quality Standards, Black Canyon Creek is impaired for temperature. Black Canyon Creek has also been identified as a critical recovery water for the threatened Gila trout (*Oncorhynchus gilae*).

The Gila trout is a species of salmonid native to the Gila River Watershed in Arizona and New Mexico. Due to competition, and predation and hybridization from non-native trout species such as the brown trout (*Salmo trutta*) and rainbow trout (*Oncorhynchus mykiss*) their occurrence and range has decreased significantly.

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By 1973, Gila trout persisted in only five streams within the Gila National Forest: Iron, Whiskey, and Spruce creeks in the Gila Wilderness, along with Main and South Diamond creeks in the Aldo Leopold Wilderness. A recovery program was developed which included efforts to expand their range beyond the original five streams and included Black Canyon Creek as one of the critical recovery waters.

A concrete fish migration barrier was completed in August 2011 to prevent migration of non-native trout to the upper watershed. Despite annual mechanical removal efforts to rid the stream of non-native trout, brown trout remained a problem. Following the Silver Fire in 2013, subsequent flooding and associated sediment and ash flows eliminated all fish above the barrier but also degraded the stream even further. But this also presented Gila trout recovery efforts with an opportunity to stock the stream above the fish barrier and establish a population of Gila trout unfettered by competition and cross breeding. Gila trout were stocked in the fall of 2013, 2014, and 2015. Fish surveys in September 2015 showed that some Gila trout are persisting and reproducing. Instream habitats are slowly beginning to recover.

In 2012, CWA 319 funds were awarded to the Upper Gila Watershed Alliance to develop a watershed-based restoration plan to address the temperature impairment in Black Canyon Creek. The plan was completed in the summer of 2016 and was accepted by the EPA in spring of 2017. (See page 1 for more information for this watershed-based plan.) One of the primary mitigation measures identified in the plan is to encourage beaver activity to assist in restoring the riparian area.



Many stretches of Black Canyon Creek are wide, shallow, and exposed to the sun.

Beaver (*Castor canadensis*) build dams that can provide a variety of ecological services. In recent years facilitating beaver activity to restore watersheds has become a recognized tool to address problems of channel incision, loss of riparian habitat, and impaired water quality including temperature. The water impounded behind a beaver dam raises the shallow groundwater table and sub-irrigates the surrounding area. The increase in available water promotes riparian plant growth increasing canopy cover and shade. Additional benefits include: maintaining baseflow, moderating flood flows, capturing sediment, reconnecting floodplains, creating wetlands, providing both terrestrial and aquatic habitat, and increasing complexity of riparian and aquatic habitats.

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There has long been a limited population of beaver in Black Canyon and there is currently one beaver pond located about two miles upstream from the Aldo Leopold Wilderness boundary (*see photos above and below*). Successful implementation of a program to enhance beaver activity requires only three things- beavers, available water, and a sustainable supply of food and materials for dam building. The presence of beavers indicates that all these requirements are met for the locations in which dams have been built. The limiting factor to increase dam building is the lack of available riparian plants. Increased riparian vegetation is the key to enhancing beaver activity.

Increasing riparian vegetation that increases canopy and the percent shade is a first step to reducing water temperature. Channel incision and disconnection from the floodplain has drastically reduced water storage in the riparian area along Black Canyon Creek and reduced baseflow to ≈ 1 cfs in early summer. Expanding riparian vegetation by planting riparian vegetation to include more stream miles will not only increase canopy but provide the materials necessary for beavers to expand their range and provide the ecosystem benefits associated with dam building that will improve habitat and reduce water temperatures. It is anticipated that this two-pronged approach will sufficiently reduce temperatures initially along stream segments with high potential and then expand over time.



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It is hoped the combined efforts in Black Canyon will reduce water temperature, improve aquatic habitat and maintain a sustainable population of Gila trout. Black Canyon Creek is one of the few easily accessible streams where fishing for Gila trout is currently allowed and is designated as a Special Trout Water for catch and release only. The 2017 fishing season at Black Canyon Creek above the fish barrier will run from July 1 – October 31, and is limited to catch and release, single hook/artificial lure.



Photo by G. McReynolds

Threatened Gila trout (Oncorhynchus gilae)



Over 4,000 Gila trout (4") were stocked throughout Black Canyon since 2015. A large school of Gila trout were observed in June 2016 near Bonner Canyon on Black Canyon Creek.

For more information about New Mexico native fish and current Gila trout recovery projects, along with up-to-date fishing regulations, please visit the NM Department of Game and Fish website, <http://www.wildlife.state.nm.us/fishing/native-new-mexico-fish/gila-trout-recovery-angling/>



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Kristine Pintado, Non-Discrimination Coordinator
New Mexico Environment Department
1190 St. Francis Dr., Suite N4050
P.O. Box 5469
Santa Fe, NM 87502
(505) 827-2855
nd.coordinator@state.nm.us

If you believe that you have been discriminated against with respect to a NMED program or activity, you may contact the Non-Discrimination Coordinator identified above or visit our website at www.env.nm.gov/NMED/EJ to learn how and where to file a complaint of discrimination.

EVENTS & ANNOUNCEMENTS

August

August 6th - Rio Chama. Join the New Mexico Wilderness Alliance for a river day trip from 9-5. This 10 mile Rio Chama river rafting trip begins near the tranquil setting of the Christ in the Desert Monastery and ends at the head of Abiquiu Reservoir on a beautiful desert river, rolling among the rainbow cliffs. Register: \$115 per person. The registration for the August 6 Rio Chama trip is now operational with Far Flung Adventures. Please call their office at 800-359-2627 and ask for the NM Wild trip August 6. If you register over the phone the cost is reduced (there is a convenience fee for online registrations). Email tisha@nmwild.org or visit <http://www.nmwild.org/events-outings/62-chama-river-day-trip?date=2017-08-06-09-00> for more details.

August 11th - 13th - Sulphur Creek, Valles Caldera National Preserve. Los Amigos de Valles Caldera and Albuquerque Wildlife Federation volunteer restoration work weekend. For additional details or to sign up: <http://losamigosdevallescaldera.org/> or contact Scial at rioscial@gmail.com or 505-480-2906 or abq.nmwildlife.org/projects.html.

August 15th - 16th - Socorro at New Mexico Tech. NM WRRI 62nd Annual New Mexico Water Conference. Hidden Realities of New Water Opportunities. Socorro's center-of-the-state locale and proximity to the Rio Grande offers an ideal backdrop for contemplating the water supply and management challenges facing our entire state. Learn more about the conference and register at: <https://nmwaterconference.nmwrri.nmsu.edu/2017/register/>.

August 18th - 20th - Midnight Meadows, near Questa, NM. Albuquerque Wildlife Federation volunteer restoration project. For additional details or to sign up: Contact Scial at rioscial@gmail.com or 505-480-2906 or abq.nmwildlife.org/projects.html.

September

September 8th - 10th - Limestone Canyon, San Mateo Mtns. Albuquerque Wildlife Federation volunteer restoration project. For additional details or to sign up: Contact Scial at rioscial@gmail.com or 505-480-2906 or abq.nmwildlife.org/projects.html.

September 10th - Rio Grande - Algodones to Corrales. Join the New Mexico Wilderness Alliance and Quiet Waters Paddling to explore the primitive aspects of the lifeline of New Mexico from Algodones to Corrales (weather permitting). Experienced guides will provide history and discuss important issues about this gorgeous stretch of the Rio Grande River. Enjoy the fall colors along the bosque! Cost: \$75, including canoe, kayak, or inflatable kayak, gear, guides, light lunch, and shuttle. 4-5 hours. Email: lois@nmwild.org for questions or visit <http://www.nmwild.org/events-outings/55-rio-grande-paddle-algodones?date=2017-09-10-09-30>.

September 21st - 24th - Silver City. The 13th annual Gila River Festival, *Gathering the Gila*, in Silver City, the Gila National Forest and along the Gila River. The Festival will engage participants in an exploration of the bountiful native foods, plants, and medicines found throughout the Gila River and its watershed. Presented by the Gila Conservation Coalition, the Festival will feature dynamic presentations and hands-on activities designed to foster a deeper intimacy with the Gila River, including river outings, field trips, workshops, storytelling, cooking, and foraging. Learn more about this event and view the full festival program and register at www.gilariverfestival.org.