



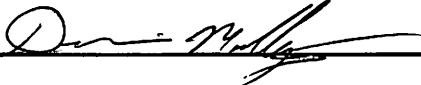
Native Fish Management Plan

Bandelier National Monument

Natural Resource Report NPS/XXXX/NRR—201X/XXXX



Plan Approved By:


Dennis Milligan, Acting Superintendent, Chief Ranger


Scott McFarland, Chief of Resource Management


Sarah Milligan, Acting Natural Resources Program Manager

ON THE COVER

Rio Grande Cutthroat Trout

Credit: NPS Photo, Scott McFarland

Native Fish Management Plan

Bandelier National Monument

Natural Resource Report NPS/XXXX/NRR—201X/XXXX

C. Nicolas Medley
Fish Program, Water Resources Division
National Park Service
1201 Oakridge Drive, Suite 250
Fort Collins, CO, 80525

Scott D. McFarland
Chief of Resource Management Division
Bandelier National Monument
15 Entrance Rd.
Los Alamos, NM 87544

Sarah Milligan
Acting Natural Resource Program Manager
Bandelier National Monument
15 Entrance Rd.
Los Alamos, NM 87544

March 2020

U.S. Department of the Interior
National Park Service
Natural Resource Stewardship and Science
Fort Collins, Colorado

Table of Contents

	Page
Figures.....	v
Tables.....	v
Appendices.....	v
Executive Summary	vii
Legislative and Management History	1
Geographic and Physiographic Setting.....	3
Importance of Fire	4
Waterbody Descriptions and Fish Presence.....	7
El Rito de los Frijoles (Frijoles Creek).....	8
Fish Community of Frijoles Creek	8
Rio Capulin (Capulin Creek).....	11
Fish Community of Capulin Creek.....	11
Regionally Native Species historically extant within BAND.....	13
Rio Grande cutthroat trout (<i>Oncorhynchus clarkii virginalis</i> , RGCT)	13
Rio Grande chub (<i>Gila pandora</i> , RGC)	14
Rio Grande sucker (<i>Catostomus plebeius</i> , RGS)	15
Longnose Dace (<i>Rhinichthys cataractae</i> , LND)	16
NPS Mission and Management Policies	17
NPS Mission.....	17
NPS Natural Resource Management Policies	17
Chapter 1: The Foundation.....	17
Chapter 4: Natural Resource Management.....	18
Chapter 8: Use of the Parks	19
NPS Management of Fishing.....	20
NPS Regulation of Fishing.....	21
Fishing Management and Regulation in BAND	22
Enforcement of Fishing Regulations	23
Standards and Thresholds to Prevent Unacceptable Impacts	23

Management Plan.....	24
Purpose of Management Plan.....	24
Need for Management Plan.....	24
BAND Natural Resource Planning Priorities.....	24
Fundamental Resources and Values (FRVs).....	24
Other Important Resources and Values (OIRV)	24
Interpretative Themes.....	25
State of New Mexico Planning Priorities	25
Rio Grande Cutthroat Trout.....	25
Rio Grande Sucker and Rio Grande Chub	26
Other Planning Considerations.....	26
Opportunity for Aquatic Species Restoration.....	27
Unacceptable Impact Thresholds	27
Goals of BAND Native Fish Management Plan.....	28
Management Strategies	28
1. Establish regional native fish community to Frijoles and Capulin Creeks.....	28
2. Implement genetic monitoring program	28
3. Monitor park fish communities and conduct research within BAND to further native fish conservation goals.....	28
4. Protect and restore native fish habitat.....	29
5. Manage and regulate fishing within the wilderness boundary to protect native fish resources while providing appropriate opportunities for visitor enjoyment of the fish and fishing resource.....	29
6. Cooperate with state and federal natural resource agency and other stakeholders to further cooperative goals of BAND and New Mexico native fish conservation.....	30
7. Create opportunities and materials for education and outreach concerning the protection and conservation of BAND fish and aquatic resources.....	30
References.....	31
Appendices.....	35

Figures

	Page
Figure 1. Map of administration boundaries of BAND. (Credit: NPS).	4
Figure 2. Map showing Capulin and Frijoles Creeks along with the 2018 and 2019 release sites.	10
Figure 3. Rio Grande cutthroat trout. (Credit: New Mexico Department of Game and Fish).	13
Figure 4. Rio Grande chub. (Credit: Jennifer Mack, Pajarito Environmental Education Center).....	14
Figure 5. Rio Grande sucker. (Credit: Colorado Parks and Wildlife).....	15
Figure 6. Longnose dace. (Credit: Colorado Parks and Wildlife).....	16

Tables

	Page
Table 1. Recently documented fish in BAND (NPSpecies 2019).....	7

Appendices

	Page
Appendix I	35
NPS General Service-wide Fishing Regulations.....	35
36CFR § 2.3 Fishing.....	35
Appendix II: National Environmental Policy Act Compliance	37
Fish Management Plan	37
National Environmental Policy Act (NEPA)	37
Use of Categorical Exclusions.....	38
Wilderness Act: Minimum Requirements Analysis.....	38

Executive Summary

The Bandelier National Monument Native Fish Management Plan (Plan) explains the regulatory and policy basis of the National Park Service's role in managing fish and fishing within units of the NPS, and identifies the management goals, objectives, strategies and major activities necessary for the conservation of the regionally native fish community within Bandelier National Monument (BAND), New Mexico, U.S.A. The species of management interest consist of the Rio Grande cutthroat trout (*Oncorhynchus clarkii virginalis*, RGCT), Rio Grande chub (*Gila pandora*, RGC), Rio Grande sucker (*Catostomus plebeius*, RGS), and longnose dace (*Rhinichthys cataractae*, LND).

The Plan identifies a programmatic framework that would (1) restore, and maintain the regional native fish community in the two Rio Grande tributary streams capable of sustaining a persistent fish community within the Monument (El Rito de los Frijoles and Rio Capulin), and (2) provide unique opportunities for visitors to experience wildlife viewing and recreational fishing for RGCT within its native range, to the extent that such opportunities do not conflict with other NPS management policies. Other proposed fish management strategies include fish community population monitoring, genetic management and visitor education and outreach about the importance of native fish conservation.

The Plan aligns future native fish management at BAND with National Park Service (NPS/The Service) Management Policies (NPS 2006), the natural resource management goals of BAND, and the goals of the New Mexico Department of Game and Fish (NMDGF). The Plan is consistent with the Department of the Interior (DOI) Fish and Wildlife Policy: State-Federal Relationships. 43CFR24.1 (DOI 2003), and the recently published DOI Memo (DOI 2018) and Secretarial Order 3356; Hunting, Fishing, Recreational Shooting, and Wildlife Conservation Opportunities and Coordination with States, Tribes, and Territories (DOI 2017) that requires federal agencies to enhance conservation stewardship in collaboration with the States, improve the management of game species and their habitats, and increase opportunities for outdoor recreation.

The Plan, and the restoration of native fish, is also consistent with the native fish conservation goals of both BAND and the NMDGF as described in the NMDGF 2016 Statewide Fisheries Management Plan: and the Conservation Agreement for the Rio Grande Cutthroat Trout in the States of Colorado and New Mexico (RGCT Conservation Team, 2013a), and the associated Range-wide Conservation Strategy (RGCT Conservation Team, 2013b), and the Conservation Agreement for the Rio Grande Chub and Rio Grande Sucker (RGC and RGS Conservation Team, 2018), to which the NPS Intermountain Regional Office and NMDGF are both signatories.

Legislative and Management History

Bandelier National Monument (BAND), located in Los Alamos County in the State of New Mexico was established by Presidential Proclamation on February 11, 1916, to preserve the archeological resources of a “vanished people, with as much land as may be necessary for the proper protection thereof...” (No. 1322; 39 Stat. 1746). BAND’s original 22,352 acres were administered by the U.S. Forest Service from 1916 until the National Park Service (NPS) assumed responsibility in 1932. At various times since its establishment, the Congress and the President, through further Presidential Proclamations, have adjusted the Monument’s boundaries and purpose to further preservation of archeological and natural resources within the Monument. The monument’s current boundaries include approximately 32,831 acres of which 23,267 acres of the monument are designated as wilderness.

BAND contains one of the largest concentrations of pre-Hispanic archeological sites in the American Southwest. Within the monument are more than 3,000 sites associated with the Ancestral Pueblo period, most dating from AD 1100 to 1550. These sites consist of large villages containing up to 400 rooms, hundreds of small farming hamlets, cliff houses, and scatters of artifacts. Major sites include Frijolito, Yapashi, Tyuonyi, Long House, San Miguel, Painted Cave, and Tsankawi. The monument and the surrounding area also contain a high concentration of a unique architectural form called *cavates* (cliff houses that have been carved out of the soft volcanic tuff bedrock).

The 799-acre Tsankawi unit of BAND is 12 miles from the main park. It includes more than 150 archeological sites, including *cavates*, petroglyphs, and the Ancestral Pueblo village of Tsankawi on Pajarito Mesa. The Tsankawi unit is of critical importance to the cultural heritage, beliefs, customs, practices, and history of nearby San Ildefonso Pueblo—the direct descendants of the people who inhabited the Tsankawi unit.

The purpose of BAND is to protect, preserve, and interpret an outstanding portion of the Pajarito Plateau, including one of the largest concentrations of Ancestral Pueblo archeological sites in the American Southwest. The monument provides opportunities for people to connect with and enjoy a diversity of cultural and natural resources, striking scenery, wildlife habitats, remnants of a volcanic landscape, and wilderness.

Geographic and Physiographic Setting

BAND is within the Pajarito Plateau, a large geographic feature composed of volcanic ash ejected from the Valles Caldera in Valles Caldera National Preserve (VALL), itself a unit of the NPS, in a series of eruptions, the last occurring approximately one million years ago. After the ash and flows of the last eruption had cooled and coalesced, the forces of erosion carved the plateau into a series of deep canyons that reach from the edge of the Valles Caldera, in a southeast direction, to the Rio Grande. The monument extends from the Rio Grande at 5,300 feet to the summit of Cerro Grande at 10,200 feet on the caldera rim. Major vegetation types vary with increasing elevation, including juniper savannas, piñon-juniper woodlands, canyon-wall shrublands, ponderosa pine forests, riparian forests, mixed conifer forests, and montane grasslands.

One of the defining characteristics of BAND is the series of deep, canyon streams that flow southeast from their headwaters at the edge of the Valles Caldera, to the main-stem Rio Grande, which defines the monument's southeastern boundary (Figure 1).

The Rio Grande is a large, highly managed, high desert river. While it defines the parks southeastern boundary, the park does not have any authority to manage the river either upstream or downstream, and there is little or no opportunity for the park to manage fish within this reach. Consequently, the mainstem Rio Grande will not be considered further in this document, except to note that the park will continue to nurture the current cooperative relationship with NMDGF, and should issues arise that are of concern, work with the state to address them.

Of the multiple canyons present in BAND, only two have enough perennial flow to sustain a permanent fish community: El Rito de los Frijoles in Frijoles Canyon (Frijoles Creek), and the Rio Capulin in Capulin Canyon (Capulin Creek). Flows are generally derived from spring snowmelt and summer rainstorms, with perennial flows maintained by springs during the summer season. Other canyons may contain significant seasonal flows, and short reaches of perennial flow (Alamo/Lummis, Medio, Sanchez) but do not possess sufficient baseflows, or cold enough water temperatures to create habitat to sustain a fish community.

All waters originating in the Dome Wilderness within land administered by the Santa Fe National Forest, and which subsequently flow through BAND (Capulin Creek, Medio Creek, Sanchez Creek) have been designated by the State of New Mexico as "Outstanding Natural Resource Waters" (ONRW), under the federal Clean Water Act (CWA) (<https://www.env.nm.gov/swqb/ONRW/>). As such, they are afforded special protection to ensure that the water quality is not degraded under the CWA anti-degradation policy.

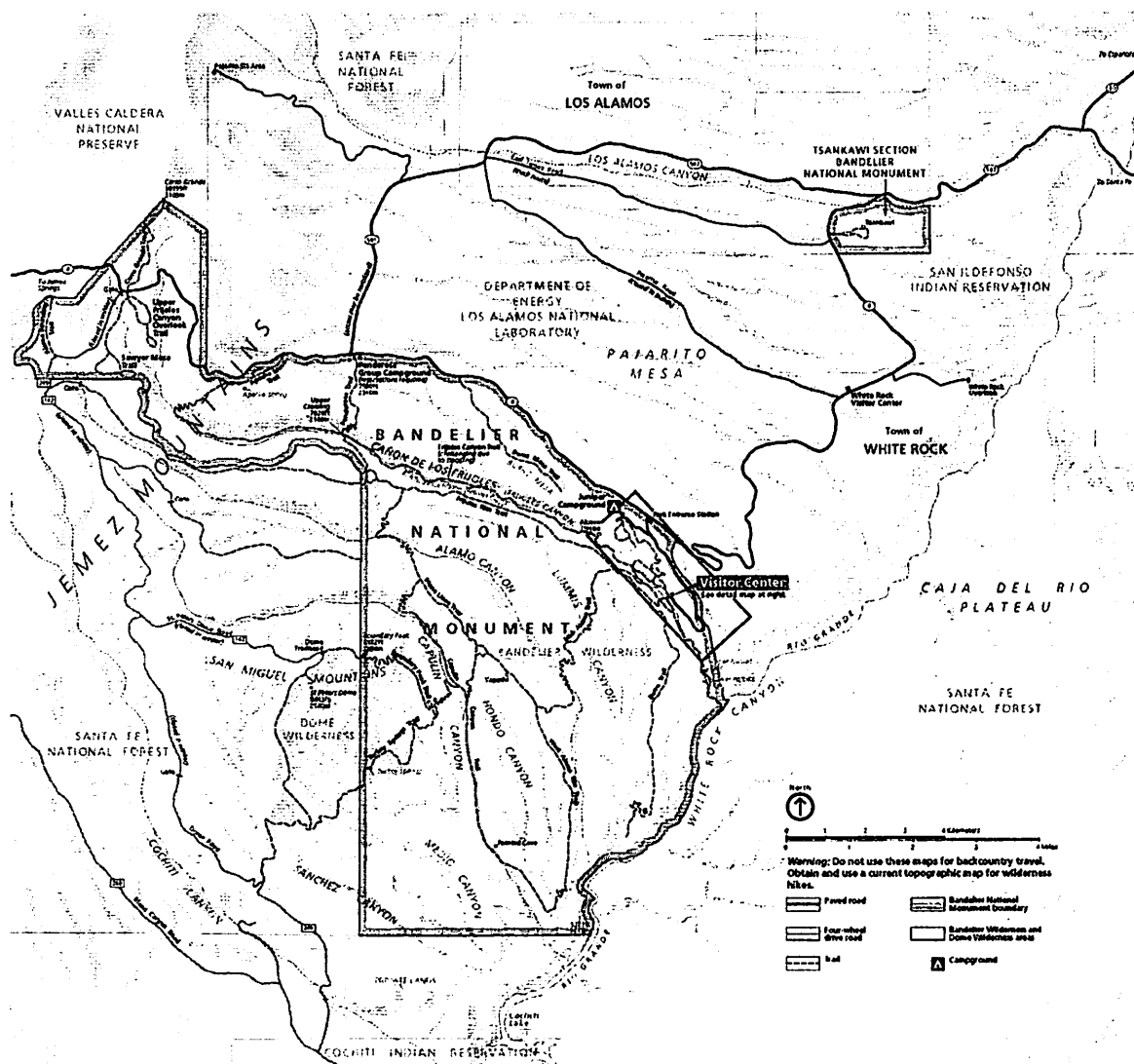


Figure 1. Map of administration boundaries of BAND. (Credit: NPS).

Importance of Fire

At BAND, wildland fire is an important natural process. In the last twenty years, fire has been the dominant factor structuring both terrestrial and aquatic ecosystems, and a series of both uncontrolled, and prescribed wildland fires (Dome Fire 1996, Cerro Grande 2000, Upper Frijoles 2007, San Miguel 2009, Las Conchas 2011) has precipitated a recurring cycle of impact and recovery, and played an important role in determining the state of natural resources at the park (see BAND webpage at <https://www.nps.gov/band/learn/nature/wildlandfire.htm>).

Of particular concern is the impact of fire on aquatic systems and its subsequent negative impact on native fish both within BAND, and regionally within New Mexico (see NMDGF webpage at <http://www.wildlife.state.nm.us/fishing/native-new-mexico-fish/rio-grande-cutthroat-trout/>). A

wildfire risk assessment written by The Nature Conservancy (TNC 2013) for NMDGF to assess the risk of fire on RGCT populations concluded:

“As wildfires in New Mexico have become larger, more frequent, and more intense, the negative impact they have on natural resources has also increased. The Rio Grande cutthroat trout is a valued sportfish and species of conservation concern in New Mexico that is threatened by wildfires themselves and the flooding and debris flows that often occur afterward. Such catastrophic events can eliminate entire populations and leave stream habitats unsuitable to fish for several years. To better understand how wildfire could affect Rio Grande cutthroat trout, The Nature Conservancy was contracted to conduct a wildfire risk assessment for all known populations.

Models using landscape scale variables (e.g., forest type, years since last burn) were developed to determine wildfire risk, the likelihood of a catastrophic flow event, and the intensity or severity of such an event. Overall risk was then calculated by combining these risk factors into a single index. The risk of wildfire, debris flows, and overall risk was determined for each Rio Grande cutthroat trout population, but also at the watershed scale (e.g., Upper Rio Grande, Canadian Headwaters).

The models showed that 86 percent of Rio Grande cutthroat trout populations are at extreme or high risk of wildfire and catastrophic debris flows. In the Upper Rio Grande watershed, which contains 28% of all Rio Grande cutthroat trout water, all populations [including Frijoles and Capulin Creek] are either at extreme risk or the upper level of high risk of wildfire and debris flows. Only one population of the 118 total populations is at low risk. Such areas of low risk tended to occur at lower elevations, but most Rio Grande cutthroat populations occur at higher elevations.”

The impacts to BAND streams and their effects on fish populations dramatically support these predictions. Of relevance to the future fish management at BAND is the impact of the September 2011, Las Conchas Fire which burned much of the Monument. Specifically, the upper Frijoles and Capulin canyons were both severely burned causing catastrophic loss of the forest and ground cover. Subsequently, an intense seasonal rain event in September 2013 resulted in large debris flows and catastrophic flooding with subsequent geomorphic adjustment of both streams. As a result of the large floods and the almost complete loss of fish habitat, both creeks were empty in Rio Grande tributary streams within BAND, other than in the very lower section of Frijoles and Capulin Creeks, below natural barriers, where fish may move up a short distance from the mainstem Rio Grande. As of October 2018, there were no survey detections of any fish species in Frijoles or Capulin Creeks.



Upper Crossing, Frijoles Creek, prior to the Las Conchas Fire. (Credit: NPS).



Mainstem of Frijoles Creek adjacent to park headquarters showing effects of high flows and sediment loads subsequent to the Las Conchas Fire, 2014. (Credit: C. Nicolas Medley, NPS)

Waterbody Descriptions and Fish Presence

Historically, the Rio Grande contained a rich, diverse native fish community. Subsequent to extensive water development in the upper Rio Grande basin, many species formally present in the mainstem Rio Grande on the eastern boundary of the park are now rare (e.g. Rio Grande chub *Gila pandora*, flathead chub *Platygobio gracilis*), extirpated (e.g. blue sucker *Cycleptus elongatus*, shovelnose sturgeon *Scaphirhynchus platyrhynchus*, American eel *Anguilla rostrata*, Rio Grande silvery minnow *Hybognathus amarus*, Rio Grande shiner *Notropis jemezianus*), or extinct (e.g. Rio Grande bluntnose shiner *Notropis simus simus*).

To date, nineteen species of fishes have been documented in BAND (Table 1; Platania 1992, NPSpecies 2019). Fifteen species have been reported from the mainstem Rio Grande, eight of which are native to the basin, including Rio Grande chub (*Gila pandora*, (RGC) and longnose dace (*Rhinichthys cataractae*, LND). The only fish documented in tributary streams (Frijoles and Capulin Creeks) within BAND are four trout species. Of these, rainbow (*Oncorhynchus mykiss*), brown (*Salmo trutta*), and brook (*Salvelinus fontinalis*) trout are all non-natives and did not historically occur in the park. Only the RGCT is native to region, but its historic, natural presence in BAND, prior to stocking, is uncertain, though historically it was likely extant in the mainstem Rio Grande and perhaps some BAND tributary streams (see below for further explanation).

Table 1. Recently documented fish in BAND (NPSpecies 2019).

Common Names	Scientific Name	Family	Nativity
river carpsucker	<i>Carpionodes carpio</i>	Catostomidae	Native
Rio Grande chub	<i>Gila pandora</i>	Cyprinidae	Native
flathead chub	<i>Platygobio gracilis</i>	Cyprinidae	Native
longnose dace	<i>Rhinichthys cataractae</i>	Cyprinidae	Native
Rio Grande cutthroat trout	<i>Oncorhynchus clarkii virginalis</i>	Salmonidae	Native
red shiner	<i>Cyprinella lutrensis</i>	Cyprinidae	Native
fathead minnow	<i>Pimephales promelas</i>	Cyprinidae	Native
western mosquitofish	<i>Gambusia affinis</i>	Poeciliidae	Native
bluegill	<i>Lepomis macrochirus</i>	Centrarchidae	Native
white sucker	<i>Catostomus commersonii</i>	Catostomidae	Non-native
common carp	<i>Cyprinus carpio</i>	Cyprinidae	Non-native
green Sunfish	<i>Lepomis cyanellus</i>	Centrarchidae	Non-native
largemouth bass	<i>Micropterus salmoides</i>	Centrarchidae	Non-native
white crappie	<i>Pomoxis annularis</i>	Centrarchidae	Non-native
rainbow trout	<i>Oncorhynchus mykiss</i>	Salmonidae	Non-native
brown trout	<i>Salmo trutta</i>	Salmonidae	Non-native
brook trout	<i>Salvelinus fontinalis</i>	Salmonidae	Non-native
black bullhead	<i>Ameiurus melas</i>	Ictaluridae	Non-native
channel catfish	<i>Ictalurus punctatus</i>	Ictaluridae	Non-native

Of relevance to this fish management plan is the contemporary absence of Rio Grande sucker (*Catostomus plebeius*, RGS), which while native to the region, has not been documented in BAND. Its historic presence in BAND is unknown, though populations are extant nearby.

El Rito de los Frijoles (Frijoles Creek)

Frijoles Creek is a small, perennial creek that originates in the parks' northwest extension that abuts Valles Caldera National Preserve. The entire watershed, from its headwaters, to its confluence with the Rio Grande, is within the NPS administrative boundaries and under NPS management and regulatory authority. The upper stream reach, above Alcove House, is within the wilderness boundary of BAND. The lower reach of the stream is the site of two waterfalls; Upper and Lower Frijoles Falls. The falls are a short distance from each other, approximately 300 meters above the confluence of the Rio Grande, and both are complete barriers to fish movement from the mainstem Rio Grande.

Fish Community of Frijoles Creek

Mott (1999) summarized the historic information concerning fish presence in Frijoles Canyon. Prior to human habitation of the region, there were likely no fish in the stream due to the presence of the two waterfall barriers. This would have prevented the initial colonization of fish from the Rio Grande and the subsequent recolonization after fires and/or floods. Additionally, there is no archeological evidence from BAND that confirms the presence of fish in Frijoles Canyon subsequent to human occupancy, though there are records of fish bones in trash piles from the Rainbow House archeological site within BAND that confirm that blue sucker (*C. cyprinellus*) from the mainstem Rio Grande were likely used as a food source (Caywood 1966). However, the lack of any records does not preclude the possibility that native people introduced fish into the stream as a food supply at some time in the past.

The first documented reports of fish in Frijoles Creek are summarized by Henderson and Harrington (and references therein, 1914) who reported that Adolph Bandelier had observed trout in the stream as early as 1880 (Bandelier 1890), an observation that was confirmed by Dr. Charles F. Lummis in 1891 (Lummis 1892). The origin of these fish is unknown, but, without any supporting evidence, were presumed to be native Rio Grande cutthroat trout, though this cannot be confirmed. However, Henderson and Harrington, also reported that "The Rito de los Frijoles is at present a small stream, the waters of which sink entirely beneath the surface of the sand, leaving not even pools. The absence of deep pools in which fish could survive an extended drought seems sufficient to account for their absence...." They attributed the absence of fish to habitat degradation due to sediment accumulation in pools in response to a recent large flood.

The loss of trout prior to 1914, despite accounts that fish were present in 1891 provides further evidence that trout may not have naturally persisted in Frijoles Canyon and that the presence of fish documented in 1880 may have been the result of human action, either by a past introduction by native peoples, or by a more recent introduction by native peoples or those of modern European descent.

Mott (1999) also reports that fish stocking by the NMDGF commenced in 1912 and continued until 1955. (Note: while the absence of fish was reported in 1914, it is likely that it occurred before 1912, and can reasonably be presumed to be the reason that NMDGF stocked it in 1912). NMDGF records show that 36,750 brook trout, 82,740 rainbow trout, and 368,404 cutthroat trout of Yellowstone origin (species name not listed) were planted in Frijoles Creek during this time. Alamo Creek received 13,000 brook trout, 4,000 rainbow trout, and 6,000 Yellowstone cutthroat between 1919 and 1931, while Capulin Creek received 10,500 brook trout, 17,000 rainbow, and 1,500 Yellowstone cutthroat between 1922 and 1931. Undocumented introductions of brown trout have also occurred in these streams, some of which persisted until the 2011 Las Conchas Fire (Mott 1999).

More recently, fish surveys conducted in 1990-1991 (Platania 1992) documented the presence of brook trout and rainbow trout in Frijoles Creek below the falls, a short distance upstream with the confluence of the Rio Grande, and the presence of brown trout and rainbow trout in the vicinity of the Park Headquarters. No fish were found at the most upstream site in the very high, upper watershed. Rainbow trout were also observed downstream of the falls, and both brook and brown trout were observed in upper Frijoles Creek in the late 1990's (C. Nicolas Medley, NPS, pers. obs., see Mott 1999).

While it is uncertain as to the historical, natural presence of fish in Frijoles Canyon (except for the observations post-1880), sufficient fish habitat, the location of barrier falls in the lower reaches of the canyon, and the protected status of the watershed make it an ideal site to (re)introduce native fish. The possibility of establishing a population of pure RGCT in Frijoles Creek was first suggested over 50 years ago (Willis 1964). The proposal has been revisited several times (NPS 1978, Allen 1985), but the need to use a piscicide to remove extant non-native fish greatly complicated the project and it was not pursued.

However, in 2011, the Las Conchas Fire burned throughout the Frijoles Creek watershed, and subsequent floods (>9000 cfs estimated) and ash laden debris flows in response to an intense rainstorm in September 2013, killed all the fish in the drainage. A fish survey in Spring 2014 by NMDGF, NPS, and Trout Unlimited (Art Volmer) confirmed that the creek was fishless. While the high flows greatly impacted the fish habitat at the time, by Fall 2018, the stream had recovered enough to provide fish habitat sufficient to allow over-winter survival, and so presented an opportunity for establishment of a regionally native fish community.

In a first step towards this goal, on October 30, 2018, 306 pure RGCT were obtained by backpack electrofishing from an aboriginal population in El Rito Creek, NM. The following day, they were released into the upper Frijoles Canyon upstream of Upper Crossing. (SF Reporter 2018, <https://www.sfreporter.com/news/theenthusiast/2018/11/07/trout-rebound/>). Observations in April 2019 (Scott McFarland, NPS, pers. obs.) confirmed that trout had successfully overwintered in this reach. Following this release, on October 23, 2019, 114 RGCT were released into Frijoles Creek at Upper Crossing after being caught on October 22 from the same El Rito Creek (Figure 2).

2018 & 2019 RGCT Release Sites

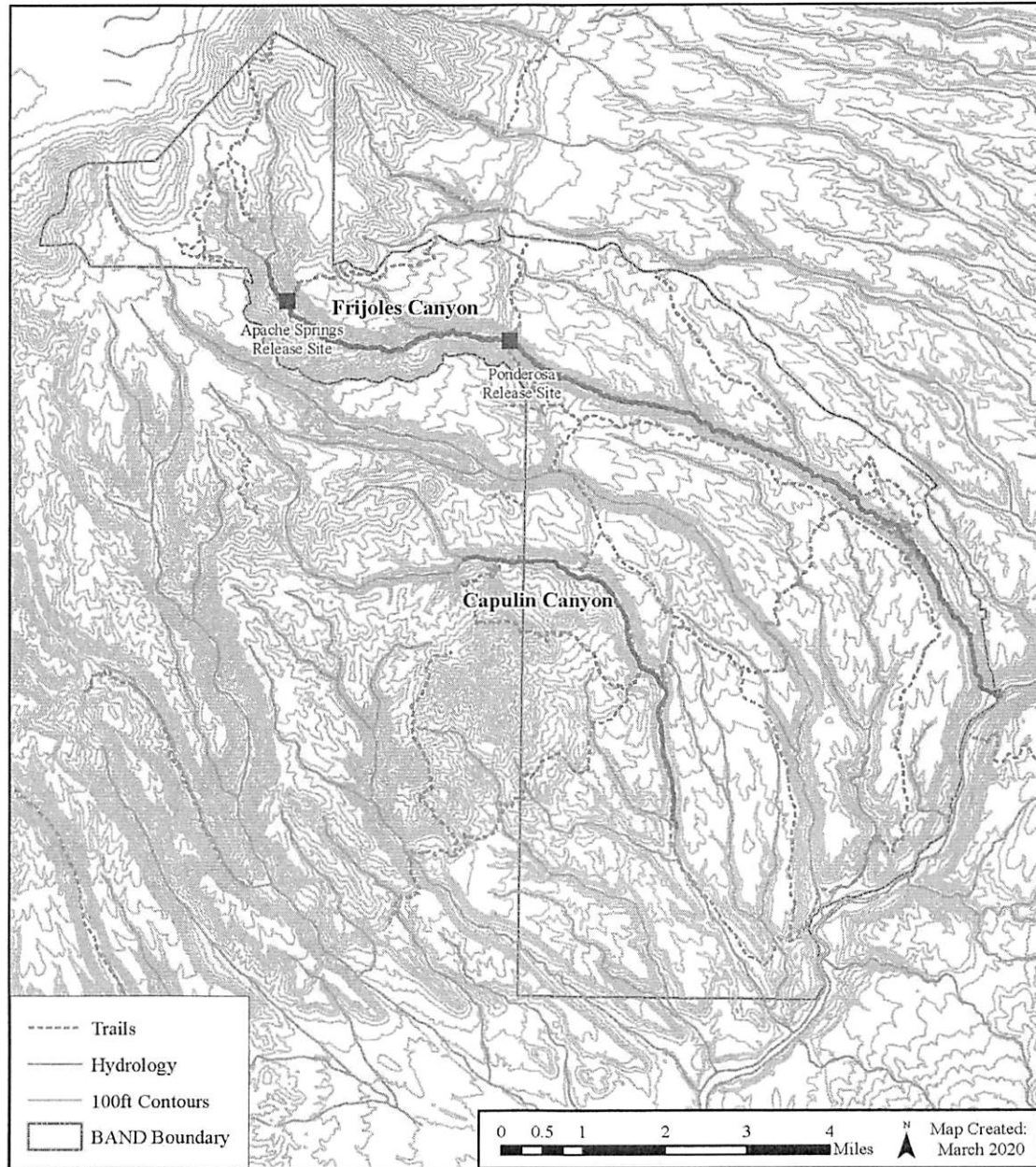


Figure 2. Map showing Capulin and Frijoles Creeks along with the 2018 and 2019 release sites.

Rio Capulin (Capulin Creek)

Capulin Creek is a very small tributary of the Rio Grande originating on the southwest slopes of the Jemez Mountains, New Mexico. Approximately six miles of stream channel is within the Dome Wilderness of the Santa Fe National Forest (SFNF) and an additional 6.5 miles within the wilderness area of BAND. Approximately 7.6 miles of perennial flow with potential trout habitat exist within Capulin Creek.

Throughout much of the year, Capulin Creek dries up before it reaches the Rio Grande and only connects during high flow events. When sufficient flow is available to connect the creek to the Rio Grande, the lower reaches are wide, shallow and exposed and it is believed to be too warm to support trout during much of the year. Therefore, the lower reach is believed to act as a barrier, that prevents reinvasion of the upper watershed by non-native salmonids derived from the Rio Grande.

Fish Community of Capulin Creek

The historic fish community within the Capulin Creek watershed is undocumented. However, with a seasonal connection to the mainstem Rio Grande, it is possible that the perennial reaches of Capulin Creek were occupied, at least intermittently, by regionally native fish, perhaps including Rio Grande cutthroat trout, Rio Grande chub, Rio Grande sucker, and longnose dace, and other species derived from the mainstem Rio Grande.

Non-native trout were introduced into the Rio Capulin beginning with brook trout (*Salvelinus fontinalis*) in 1920's (Mott 1999, SFNF 2006). Between 1922 and 1931, Capulin Creek received 10,500 brook trout, 17,000 rainbow, and 1,500 Yellowstone cutthroat in that time. A wild brook trout population was established in the watershed and apparently dominated the fish community until 1996 when the Dome Fire burned throughout the Capulin creek watershed, and a subsequent flood and ash-flow killed all fish within the drainage. Sampling by NMDGF in 2005 confirmed that the creek was fishless and so presented an opportunity for native fish restoration efforts.

On March 29, 2006, staff from SFNF, BAND, and NMDGF (SFNF 2006) collected 100 Rio Grande cutthroat trout ranging in size from 3 – 6 inches from Canones Creek on the north side of the Jemez Mountains, which were introduced into the Capulin Creek the following day. The restoration effort was considered successful and provided an angling opportunity for RGCT.

However, the population was subsequently lost again as a consequence of the 2011 Las Conchas Fire, and has remained fishless since September 2013 when high flows extirpated the extant RGCT population. With the continued recovery of the watershed, Capulin Creek again presents an opportunity to reintroduce native fish to the creek.

Regionally Native Species historically extant within BAND

Four fish species are regionally native to the upper Rio Grande basin, possibly native to BAND, and are proposed for (re)introduction to Rio Grande tributary streams within BAND.

Rio Grande cutthroat trout (*Oncorhynchus clarkii virginalis*, RGCT)

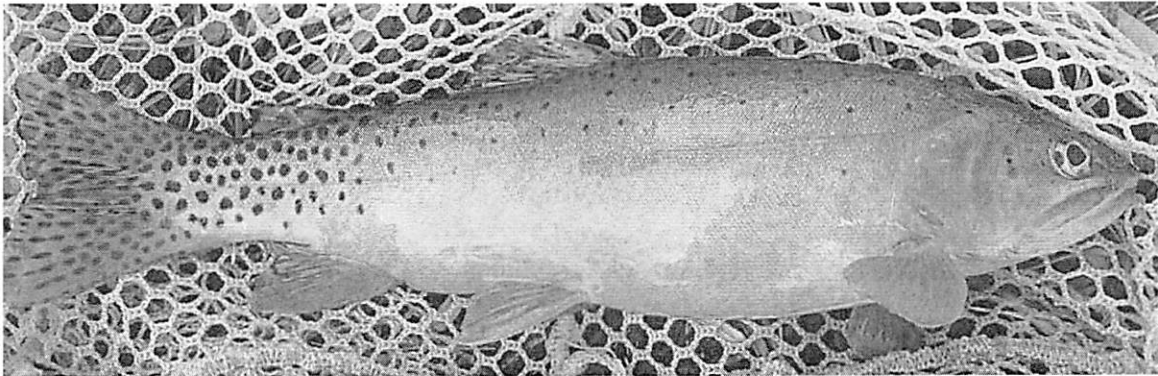


Figure 3. Rio Grande cutthroat trout. (Credit: New Mexico Department of Game and Fish).

- Native to Upper Rio Grande Basin and likely native to mainstem Rio Grande and some smaller tributary streams within BAND.
- Current Status: Uncommon and a conservation concern (Bakevich et al 2019, Pritchard and Cowley 2006, TNC 2016). Regulated species in NM with Range-wide Conservation Strategy and Agreement (RGCT Conservation Team 2013a, 2013b). In 2013, the US Fish and Wildlife Service (USFWS) determined that listing the RGCT was not warranted.
- Body form: Streamlined, robust body, with terminal mouth. Grows to 500 mm when conditions allow, but generally does not exceed 300 mm in small habitats.
- Feeding Strategy: Visual predator. Midwater, drift feeder. Feeds on aquatic and terrestrial insects, small fish, and opportunistically on a wide variety of prey.
- Temperature Tolerance: Coldwater species. Temperature tolerance to 80 °F.
- Habitat/Substrate Use: Variable, but generally cobble, gravel and pool/riffle/glide stream habitat in higher elevation rivers/streams, and cold lakes. Requires well-oxygenated water.
- Reproductive Strategy: Spring spawner, over large gravel. Deposits eggs in excavated nest in moving water, in highly oxygenated environment.

Rio Grande chub (*Gila pandora*, RGC)

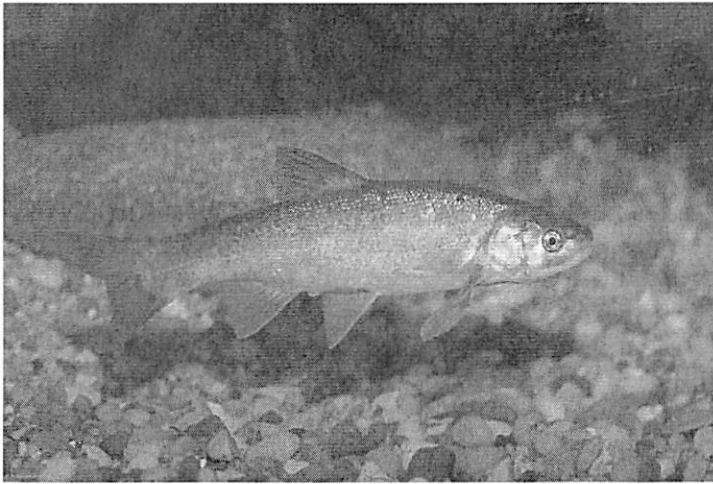


Figure 4. Rio Grande chub. (Credit: Jennifer Mack, Pajarito Environmental Education Center).

- Regionally native to the Rio Grande Basin, and native to mainstem Rio Grande and maybe some smaller tributary streams within BAND.
- Current Status: Rare, and a conservation concern (Rees et al. 2005. NMDGF SWAP SGCN Cat. 1 2016) with Range-wide Conservation Agreement (RGC and RGS Conservation Team 2018). USFWS was recently petitioned by Wild Earth Guardians to list the species under federal Endangered Species Act (Wild Earth Guardians 2013).
- Body Form: Streamlined, robust body, up to 250 mm, with terminal mouth.
- Feeding Strategy: Visual predator. Midwater, drift feeder. Feeds on aquatic and terrestrial insects, small fish, and opportunistically on a wide variety of prey (occupies similar ecological niche as trout species, but in more downstream habitats).
- Temperature Tolerance: Coolwater/warm water species. Temperature tolerance to 90 °F.
- Habitat/Substrate Use: Variable, but generally cobble, gravel/sand and pool/riffle/glide stream habitat. Co-exists with trout species in upper range, but range extends further downstream, and species is tolerant of wide range of water and habitat conditions.
- Reproductive Strategy: Early summer, communal, spawner, over gravel in well-oxygenated environment.

Rio Grande sucker (*Catostomus plebeius*, RGS)

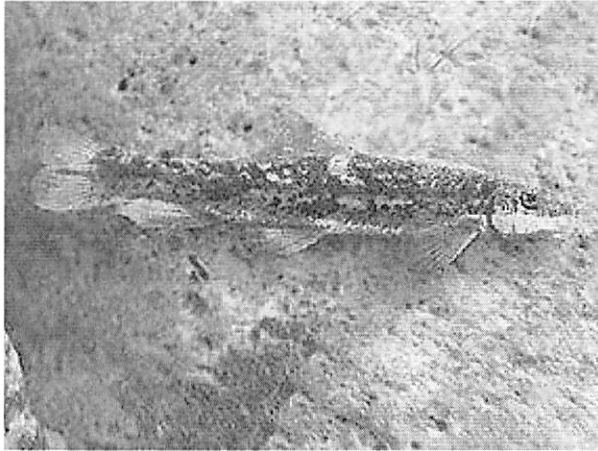


Figure 5. Rio Grande sucker. (Credit: Colorado Parks and Wildlife).

- Regionally native, with populations in the Upper Rio Grande and tributary stream of the Rio Grande, mostly north of the 35th parallel (Sublette et al 1990), but its native distribution in BAND is uncertain.
- Current Status: Rare and a conservation concern (Rees and Miller 2005, NM SWAP SGCN Cat. 1 Species 2016) with Range-wide Conservation Agreement (RGC and RGS Conservation Team 2018). USFWS was petitioned by Wild Earth Guardians to list the species under federal Endangered Species Act (Wild Earth Guardians 2014).
- Body Form: Small sucker species, with terete, moderately dorsoventrally compressed body, ventral mouth, rarely exceeding 200 mm.
- Feeding Strategy: Well-developed cartilaginous mouth ridge adapted for scraping rocks. Diet consists of periphyton, benthic insect larvae, and detritus and plant material.
- Temperature Tolerance: uncertain, but likely a wide temperature tolerance, up to 90 °F.
- Habitat/Substrate Preference: uncertain, but often found in mid-elevation, transitional, streams with moderate gradient, pool/glide habitat, over gravel substrate. Likely tolerant of low dissolved oxygen, high turbidity and high temperature.
- Reproductive Strategy: Uncertain, but likely early Summer (May to July), communal, spawner, over clean gravel, when water temperature 51 – 60 °F.

Longnose Dace (*Rhinichthys cataractae*, LND)

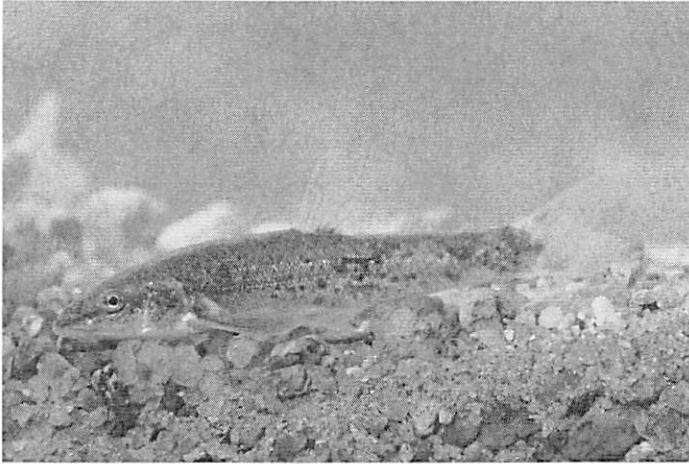


Figure 6. Longnose dace. (Credit: Colorado Parks and Wildlife).

- Native to Upper Rio Grande Basin and native to mainstem Rio Grande and maybe some smaller tributary streams within BAND.
- Current Status: Common. Most widely distributed fish in North America.
- Body Form: small minnow (< 100 mm). Body adapted for benthic living in rocky, fast flowing streams. Fusiform body, long nose, large reverse-aerofoil fins keep fish on bottom of stream.
- Feeding Strategy: Omnivore, generalist. Opportunistic. Eats algae, and aquatic and terrestrial insects.
- Temperature Tolerance: Prefers cool water streams in mid-elevation stream reaches, but wide temperature tolerance.
- Habitat/Substrate Use: Prefers shallow, fast moving riffles, with large rocky cobble/gravel substrate.
- Reproductive Strategy: Males create and defend territories to attract females. Typically spawn in rocky substrate, in early summer (May to August) when water temperatures reach 58 °F.

NPS Mission and Management Policies

NPS Mission

“The National Park Service preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.”

Natural Resource Management Mission (Chapter 4, NPS Management Policies 2006): Preserving park natural resources is one of the core responsibilities of NPS managers. The NPS has distilled this responsibility into a separate natural resources mission statement: “The National Park Service will preserve and protect the natural resources, processes, systems, and values of units of the national park system in an unimpaired condition to perpetuate their inherent integrity and to provide present and future generations with the opportunity to enjoy them.”

NPS Natural Resource Management Policies

To achieve the NPS Mission, the NPS creates laws to regulate the management and use of park resources, including fish and fishing. However, it is the NPS management policies that provide guidance on the appropriate standards and thresholds for protection. Such policies form the basis of park regulations that protect resources consistent with the NPS mission and ensure that all parks are managed and regulated in a consistent and proper manner in pursuit of NPS goals. Adherence to policy is mandatory for all NPS employees, unless specifically waived or modified by the Secretary, the Assistant Secretary [of Department of Interior], or the Director [of the NPS].

NPS policies that pertain to the management of native aquatic resources, and the management and regulation of fishing are located throughout the current version of NPS Management Policies (Appendix 1). Superintendents have the primary responsibility to ensure that fishing in parks is managed consistent with management policies and to direct their staffs to enforce federal fishing regulations, including adopted state regulations, and to review and amend regulations as necessary to fulfill the NPS mission and comply with the Organic Act.

The following is an abridged summary of the important management policies relevant to the management and regulation of aquatic species, fish and fishing in parks, including BAND. Apart from a few words used to preserve the context, the text is quoted directly from the NPS Management Policies. The most recent, complete service-wide policies may be found at:

<http://www.nps.gov/policy/mp/policies.html>

Chapter 1: The Foundation

The National Park Service must manage park resources and values in such manner and such means as will leave them unimpaired for the enjoyment of future generations.

The Laws Generally Governing Park Management

(M.P. 1.4.1) The most important statutory directive for the National Park Service is provided by interrelated provisions of the NPS Organic Act of 1916 and the NPS General Authorities Act of 1970, including amendments to the latter law enacted in 1978.

The key management-related provision of the Organic Act is as follows:

[The National Park Service] shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations hereinafter specified ... by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

The NPS Obligation to Conserve and Provide for Enjoyment of Park Resources and Values

(M.P. 1.4.3). The fundamental purpose of all parks also includes providing for the enjoyment of park resources and values by the people of the United States. Congress, recognizing that the enjoyment by future generations of the national parks can be ensured only if the superb quality of park resources and values is left unimpaired, has provided that when there is a conflict between conserving resources and values and providing for enjoyment of them, conservation is to be predominant.

What Constitutes Impairment of Park Resources and Values

(M.P. 1.4.5). The impairment that is prohibited by the Organic Act and the General Authorities Act, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values.

Unacceptable Impacts

The impact threshold at which impairment occurs is not always readily apparent. Therefore, the Service will apply a standard that offers greater assurance that impairment will not occur. The Service will do this by avoiding impacts that it determines to be unacceptable. These are impacts that fall short of impairment but are still not acceptable within a particular park's environment. (M.P. 1.4.7.1)

Chapter 4: Natural Resource Management

Management of Native Animals (Fish)

The NPS will maintain as parts of the natural ecosystems of parks, all fishes and other aquatic species native to park ecosystems by (1) preserving and restoring the natural abundances, diversities, dynamics, distributions, habitats and behaviors of native fish populations and the communities and ecosystems where they occur; and (2) minimizing human impacts on native fish populations, communities and ecosystems, and the processes that sustain them (NPS MP 4.4.1.).

Management of Threatened or Endangered Plants and Animals

(M.P. 4.4.2.3): The Service will undertake active management programs to inventory, monitor, restore, and maintain listed species' habitats; control detrimental nonnative species; manage detrimental visitor access; and reestablish extirpated populations as necessary to maintain the species and the habitats upon which they depend.

The National Park Service will inventory, monitor, and manage state and locally listed species in a manner similar to its treatment of federally listed species to the greatest extent possible. In addition, the Service will inventory other native species that are of special management concern to parks (such as rare, declining, sensitive, or unique species and their habitats) and will manage them to maintain their natural distribution and abundance.

Harvest of Plants and Animals by the Public

(M.P. 4.4.3). Habitat manipulation for harvested species will not include the artificial manipulation of habitat to increase the numbers of a harvested species above its natural range in population levels.

Management of Non-Native (Exotic) Species

(M.P. 4.4.4). Exotic [fish] species will not be allowed to displace native [fish] or other aquatic native species, if displacement can be prevented. All exotic fish species that are not maintained to meet an identified park purpose will be managed – up to and including eradication- if control is prudent and feasible (M.P. 4.4.4.2).

The NPS will manage exotic (nonnative or invasive) species by eradicating their populations if 1) control is prudent and feasible, and 2) the exotic species interferes with natural processes and the perpetuation of natural features, native species, or natural habitats (M.P. 4.4.4.2).

The NPS will manage fishing activities (see MP 8.2.2.5) and may encourage the intensive harvesting of exotic fish species in certain situations when needed to meet park management objectives (NPS MP 4.4.3).

Watershed and Stream Processes

(M.P. 4.6.6) The NPS will also manage watersheds as complete hydrologic systems and minimize human-caused disturbances. The NPS will protect watersheds and stream features primarily by avoiding impacts on watershed and riparian vegetation and by allowing natural fluvial processes to proceed unimpeded (NPS 2006).

Chapter 8: Use of the Parks

The Service will focus special attention on visitor enjoyment of the parks while recognizing that the NPS mission is to conserve unimpaired each park's natural and cultural resources and values for the enjoyment, education, and inspiration of present and future generations.

Fishing (M.P. 8.2.2.5)

Recreational fishing will be allowed in parks when it is authorized or not specifically prohibited by federal law provided that it has been determined to be an appropriate use per section 8.1 of these policies. When fishing is allowed, it will be conducted in accordance with applicable federal laws

and treaty rights, and non-conflicting state laws and regulations. The Service will manage fishing activities to achieve management objectives. Before the Service issues regulations or other restrictions, representatives of appropriate tribes and state and federal agencies will be consulted to ensure that all available scientific data are considered in the decision-making process. Any such regulations or other restrictions will be developed with public involvement and in consultation with fish and wildlife management agencies as appropriate, consistent with departmental policy at 43 CFR Part 24, and as described in section 4.4.3.

NPS Management of Fishing

The fundamental purpose of the National Park System begins with a mandate to conserve park resources and values for the benefit and inspiration of all people of the United States, and to regulate their use accordingly.

Native fish have biological, recreational and cultural heritage values and play critical roles in maintaining the ecological health of NPS area ecosystems. Fish are unique in the NPS; they are the only animal that may be caught and harvested in parks by general regulation (36CFR2.3). Fishing, and the management of fish resources (including non-native fish) to provide fishing opportunities, is an activity that has the potential to alter the abundance, size and age structure, and behavior of native fish populations with consequences for ecosystem function. The National Park Service allows fishing as a means of providing for public enjoyment and customary and traditional use but must ensure that it is managed and regulated in a manner that avoids unacceptable impacts and impairment of park resources.

Where fishing is allowed, it is recognized that there will be impacts to park resources. However, park Superintendents are responsible for ensuring that the impacts associated with fishing are not in conflict with the fundamental purpose of conserving native species and functioning ecosystems. As NPS Management Policies (2006) make clear, parks must determine when and where fishing is an appropriate use, determine the nature of that use, and develop monitoring and assessment tools, standards, and indicators to determine if fishing is causing impacts that may lead to impairment. It is the responsibility of parks to establish the level at which the impacts resulting from fishing become unacceptable, and if evidence indicates that such impacts are occurring, to take all measures within NPS authority to ensure that the threshold is not reached.

Any apparent conflict is resolved by adherence to the underlying principles that guide the development of all NPS management policies. In cases of uncertainty as to the impacts of activities on park natural resources, park managers must ensure that conservation will be predominant when there is a potential conflict between the protection of resources and their use. In doing so, a park must “employ a tone that leaves no room for misunderstanding the National Park Service’s commitment to the public’s appropriate use and enjoyment, including education and interpretation, of park resources, while preventing unacceptable impacts.”

Important Note: Fishing management in this context is concerned not only with the direct impacts of fishing on native fish populations, but also the impacts of past management activities on native species (e.g., stocking of non-native sports fish and the subsequent impacts to native fish).

NPS Regulation of Fishing

Fishing is allowed in all parks as a traditional activity unless specifically prohibited. Unless otherwise provided in law, fishing in national parks is managed and regulated by the National Park Service under the authority provided in the NPS Organic Act. Regulations within NPS units strive to permit reasonable use and enjoyment of fish resources without compromising the health and biological diversity of native species and aquatic ecosystems. Areas inside park boundaries may be closed to fishing to protect spawning and nursery areas, threatened and endangered fish species, or other resources that are at risk due to habitat loss or over-fishing.

By regulation (36CFR1), fish are defined as “any member of the subclasses *Agnatha*, *Chondrichthyes*, or *Osteichthyes*, or any mollusk or crustacean in saltwater.” Therefore, fishing regulations cover all fin-fish in both fresh and salt water. Other taxa (e.g. horseshoe crabs), and freshwater mollusks and crustaceans (freshwater crayfish) are considered “wildlife,” and cannot be fished for, or harvested unless specifically allowed by regulations addressing wildlife.

Fishing in national parks is conducted in accordance with the **NPS Service-wide general fishing regulations**, published in the Code of Federal Regulations at 36 CFR §2.3 (Appendix I). The NPS has determined that these regulations are widely applicable and provide for the proper use of fisheries resources in all NPS units. Unless otherwise provided for in statute (e.g. law that created the park), or subsequently modified by the park, the general fishing regulations apply in all park waters, at all times, unless modified by special park regulations.

State regulations are adopted as federal regulations under 36 CFR § 2.3(a) to the extent that they do not conflict with the NPS general regulations. Where there is a conflict between an adopted state regulation and the general federal regulations, the federal regulation applies. In order to reduce the opportunity for conflicts between federal and state regulations, NPS policy encourages NPS units to adopt fishing regulations that are at least, or more restrictive than state regulations.

For many parks, the federally adopted state regulations are the only ones that an angler needs to be aware of. However, 36 C.F.R. §§ 1.2, and 1.5 provides the authority for parks to further modify the general fishing regulations to meet park specific management goals or when the NPS general fishing regulations and state regulations, by themselves, are inadequate to protect park fish resources consistent with the NPS conservation mission. Permanent “**Special Park Regulations**” can be found in the Code of Federal Regulations at 36 CFR §7 and 36 CFR §13 (Alaska).

Sometimes, in order to protect important resources, it is necessary for a park to adopt temporary or emergency fishing regulations. These are published in the **Superintendents Compendium**; the annual compilation of designations, closures, permit requirements, and other restrictions made by the Superintendent, in addition to what is contained in the NPS General Fishing Regulations (36CFR§2.3) and Park Special Regulations (36 CFR §7 and §13). Regulations that may be changed from year to year to better protect fish resources, may also be published here.

Fishing Management and Regulation in BAND

Fishing in BAND is managed and regulated by the NPS under the authority of the National Park Service Organic Act (16 U.S.C. §1). While the ultimate management authority resides with the NPS, BAND manages fish and fishing resources in close cooperation with NMDGF to meet mutually agreeable goals consistent with numerous federal and state management plans to which both the park and state are signatories (see BAND Natural Resource Planning Priorities below). A New Mexico state fishing license is required to fish in BAND.

To date, the state has largely promulgated fishing regulations for park streams which are then adopted as federal regulations consistent with 36CFR§ 2.3(a) of the NPS general fishing regulations, to the extent that they did not conflict with other NPS general fishing regulations.

Fishing in BAND has historically occurred only in the wilderness portions of Frijoles and Capulin Creeks. Since the introduction of RGCT in 2006, the state has designated the Rio Capulin from the confluence with the Rio Grande to its headwaters, as a “Red Chile” Special Trout Water which allows only catch and release fishing using an artificial fly or lure with a single, barbless hook. Prior to the introduction of RGCT in 2018, fishing for non-native fish in the wilderness reaches of Frijoles Canyon was allowed consistent with NMDGF statewide harvest regulations.

However, when need arises, BAND has at times promulgated temporary regulations under the authority of the Superintendents Compendium, for example, the long-standing fishing closure of the Frijoles Creek in the high visitor use area below Alcove House, outside the wilderness boundary.

At this time (March 2020), Rito de los Frijoles north of the wilderness boundary near Alcove House and Capulin Creek are open to fishing; catch and release only with artificial fly or lure with a single barbless hook. Rito de los Frijoles south of the wilderness boundary near Alcove house is closed to all fishing due to legacy DDT contamination and resource protection. Fishing in the Rio Grande is open and is regulated as per NMDGF current published rules and regulations. No bait is allowed anywhere within the park.

“36 CFR §2.3 – FISHING ♣ All fishing in Bandelier National Monument is prohibited.

Determinations: In general, the Monument follows state law on fishing but may issue closures of areas when the Superintendent determines it is in the best interest of the resource or the public. Rito de los Frijoles north of the wilderness boundary near Alcove House and Capulin Creek are open to fishing; catch and release only with artificial fly or lure with a single barbless hook. Rito de los Frijoles south of the wilderness boundary near Alcove house is closed to all fishing due to legacy DDT contamination and resource protection. Fishing in the Rio Grande is open and is regulated as per NMDGF current published rules and regulations. No bait is allowed anywhere within the park.”
(2020 Superintendents Compendium)

It is anticipated that fishing regulations for BAND will continue to be developed in close cooperation between NPS and the NMDGF to achieve mutually agreeable management goals consistent with NPS regulation and policy, promulgated by the State, and adopted by the NPS consistent with 36CFR2.3(a).

Enforcement of Fishing Regulations

BAND is a concurrent jurisdiction park. Concurrent jurisdiction exists when both the state and federal governments have authority over a particular area. Usually this occurs when a state has ceded land to the United States but has reserved to itself the right to exercise its state authority, so that both federal and non-conflicting state laws apply. In parks with concurrent jurisdiction, both the state and federal governments may prosecute those who violate their respective laws.

At BAND, the NPS generally enforces the fishing regulations, but the state may enforce violations of state regulations to the extent that they do not conflict with federal regulations.

Standards and Thresholds to Prevent Unacceptable Impacts

NPS Management Policies (2006) make clear that the primary statutory responsibility of the NPS is to leave park resources unimpaired. The impact threshold at which impairment occurs is not always apparent. Therefore, the NPS ensures that impairment does not occur by managing to avoid “unacceptable impacts” that may lead to impairment and identifies management standards and thresholds as benchmarks that must be attained.

NPS policy requires that recreational fishing should not cause unacceptable impacts to natural resources, including the BAND native fish community. By identifying and staying within carrying capacities, Superintendents can manage park uses that may unacceptably impact the resources and values for which the parks were established (NPS MP 2006 8.2.1). Narrative qualitative standards have been identified in NPS and include:

- Preservation of the natural abundances, diversities, dynamics, distributions, habitats and behaviors of native fish populations, and minimize human impacts on native fish populations (see NPS MP 4.4.1).
- Management of visitor carrying capacity; the type and level of visitor use that can be accommodated, while sustaining the desired resource and visitor experience conditions in the park.

Management Plan

Purpose of Management Plan

The BAND Native Fish Management Plan provides a programmatic foundation for the future long-term management of native fish populations within BAND. The purpose of the Plan is to implement a management approach that will ensure the restoration, conservation, and protection, of a fish community native to the upper Rio Grande, while providing opportunities for visitor enjoyment and recreational fishing, consistent with the NPS Mission and NPS Management Policies (NPS MP 2006).

Need for Management Plan

The need for the Plan is for BAND to manage the extant fish community and fishing consistent with the Range-wide Conservation Agreements for RGCT, RGC, and RGS, NPS missions, goals, and current NPS management policies to; protect native and rare and at-risk species; restore such populations to preclude listing under the Endangered Species Act, and; provide opportunities for the public to enjoy the resources, such as recreational fishing and wildlife viewing.

BAND Natural Resource Planning Priorities

The BAND Foundation Document (NPS 2017) provides a basis for future planning and management decisions and is the park's most important planning document. The core components include a description of the park's purpose, significance, fundamental resources and values, other important resources and values, and interpretive themes. The Foundation Document also includes special mandates and administrative commitments, an assessment of planning and data needs identifies planning issues, planning products to be developed, and the associated studies and data required for park planning.

Fundamental Resources and Values (FRVs)

BAND has identified **Natural Landscapes** and **Wilderness** as FRVs associated with the presence of native fish. FRVs are those features, systems, processes, experiences, stories, scenes, sounds, smells, or other attributes determined to warrant primary consideration during planning and management processes because they are essential to achieving the purpose of the park and maintaining its significance. FRVs are closely related to a park's legislative purpose and are more specific than significance statements. FRVs help focus planning and management efforts on what is truly significant about the park. One of the most important responsibilities of NPS managers is to ensure the conservation and public enjoyment of those qualities that are essential (fundamental) to achieving the purpose of the park and maintaining its significance. If FRVs are allowed to deteriorate, the park purpose and/or significance could be jeopardized.

Other Important Resources and Values (OIRV)

BAND has identified **Recreational Values/Visitor Experiences** associated with fishing as an OIRV. An OIRV is a resource and value that is not fundamental to the purpose of the park and may be unrelated to its significance but is important to consider in planning processes. These resources and values have been selected because they are important in the operation and management of the park and warrant special consideration in park planning.

Interpretative Themes

BAND has identified **Ecosystems, Recreational Opportunities, and Visitor Impacts on Monument Resources** as Interpretative Themes associated with the presence of native fish as an important component of a naturally functioning ecosystem, and the impacts to stream riparian vegetation that may occur during recreational fishing, if not managed properly.

BAND has contemplated the establishment of a native fish community in Rio Grande tributary streams within BAND since the 1960's (Willis 1964, Allen 1985), but the loss of all fish populations subsequent to the 2011 Las Conchas Fire rekindled interest in the proposal. To address the proper management of fish resources, BAND has identified the development of a comprehensive, long-term fisheries management plan for the fisheries and aquatic resources within the monument as a "Medium Priority" planning need. Among other topics, this plan should address the conservation and management of native Rio Grande cutthroat trout (including the reintroduction of the species), and the introduction of Rio Grande chub, longnose dace, and possibly Rio Grande suckers into Capulin and Frijoles Creeks within the park. The plan would also address the management and regulation of recreational fishing opportunities within the park, including the designated Wilderness.

State of New Mexico Planning Priorities

Rio Grande Cutthroat Trout

The most recent NMDGF Statewide Fisheries Management Plan (NMDGF 2016) identifies the restoration of native Rio Grande cutthroat trout within BAND as a state restoration priority.

The management direction identified for Frijoles Creek states:

"Entirely within Bandelier National Monument. Heavily impacted by Las Conchas wildfire and subsequent flooding and non-native salmonids believed to have been extirpated. Considered for repatriation of Rio Grande cutthroat trout in collaboration with the National Park Service."

The management direction identified for Capulin Creek states:

"Severely impacted by Dome and Las Conchas wildfires. Contained Core Conservation Population of Rio Grande cutthroat trout prior to the Las Conchas wildfire. Will be restocked with Rio Grande cutthroat trout. Special Trout Water regulation (catch and release, artificial fly or lure, single, barbless hook) through entire watershed."

In New Mexico, Rio Grande cutthroat trout is managed as a protected species under Chapter 17 NMSA. It was previously considered a SGCN (NMDGF SWAP 2006), but progress towards recovering the species, and the USFWS decision (Southwest Center for Biological Diversity 1998 2016, USFWS 2014) to not list the species under the federal Endangered Species Act, precluded its state listing as a SGCN in 2016. All trout with the characteristic red slash on its throat are subject to a reduced bag limit of two fish per day for recreational angling compared to 5 for other trout species. Several populations are subject to special trout water regulations, which include catch-and-release, artificial fly or lure only, single barbless hook, and reduced bag limits. Waters in or near Rio Grande cutthroat trout conservation populations are not stocked with non-native trout species. If a conservation population is secured with a functional migration barrier, sterile, triploid rainbow trout

(*Oncorhynchus mykiss*) may be stocked in appropriate downstream areas. NMDGF does not allow private stocking of nonnative trout within areas that could jeopardize existing conservation populations. NMAC 19.35.7.15 requires disease free certification for all private and public hatcheries who wish to import fish for release into waters of the State. In addition, NMDGF does not stock any salmonid that is positive for a pathogen described in NMAC 19.35.7.15. (RGCT Conservation Team 2013b)

Rio Grande Sucker and Rio Grande Chub

The New Mexico State Wildlife Action Plan (NMDGF SWAP 2016) was written in fulfillment of the requirements of the State Wildlife Grants program (Title IX, Public Law 106-553 and Title 1, Public Law 107-63). The SWAP is the State's blueprint for improving the knowledge about native wildlife and plants, the threats they face, and strategies to conserve them. The purpose of this federal law is to provide federal financial assistance to states to assist them in their efforts to improve and secure the status of Species of Greatest Conservation Need (SGCN) so that they do not require protection via federal or state listing regulations. These species are typically listed or proposed as threatened or endangered at the federal or state level, face urgent threats, have high ecological and conservation value.

The NM State Wildlife Action Plan (NMDGF SWAP 2016) identifies the Rio Grande chub and Rio Grande sucker, as SGCN, Cat. I "Immediate Priority Species (I); species for which the Department has identified conservation needs and/or projects to be implemented as soon as resources are available. This category may include species with conservation efforts that have already been initiated, or that are currently undergoing planning and scheduling for out-year implementation. Considerations include species status and trends in New Mexico, complimentary management efforts that have been initiated or funded, and opportunities to improve the overall status of the species. This category includes species that have completed a 12-month review for listing under the federal Endangered Species Act (ESA) and are Proposed or Candidate species for listing under ESA, and thus may be subject to state conservation actions attempting to preclude the need for federal listing." (NMDGF SWAP 2016). Despite this designation, the RGC and RGS have no state regulatory protection within New Mexico and are considered non-game fish open to unlimited harvest, by whatever means that are not specifically prohibited by general state fishing regulations.

Other Planning Considerations

All species, except LND, are listed as "sensitive" by the U.S. Forest Service and Bureau of Land Management. The USFWS considers the RGCT, to be of conservation need, but at this time, in response to a federal Endangered Species Act listing petition, has determined that the listing of the species under the federal ESA is "not warranted" (USFWS 2014) in part due to the development and implementation of a regional, multi-stakeholder conservation agreement in lieu of listing (RGCT Conservation Team 2013a, 2013b), to which both NPS and NMDGF are signatories.

Both RGS and RGC have also been the subject of petitions to the USFWS to list the fish under the ESA, which determined that "there was substantial information that the petitioned action may be warranted," but to date, no final decision has been made (Wild Earth Guardians 2013, 2014). Both species are currently managed under a range-wide conservation agreement (RGC and RGS