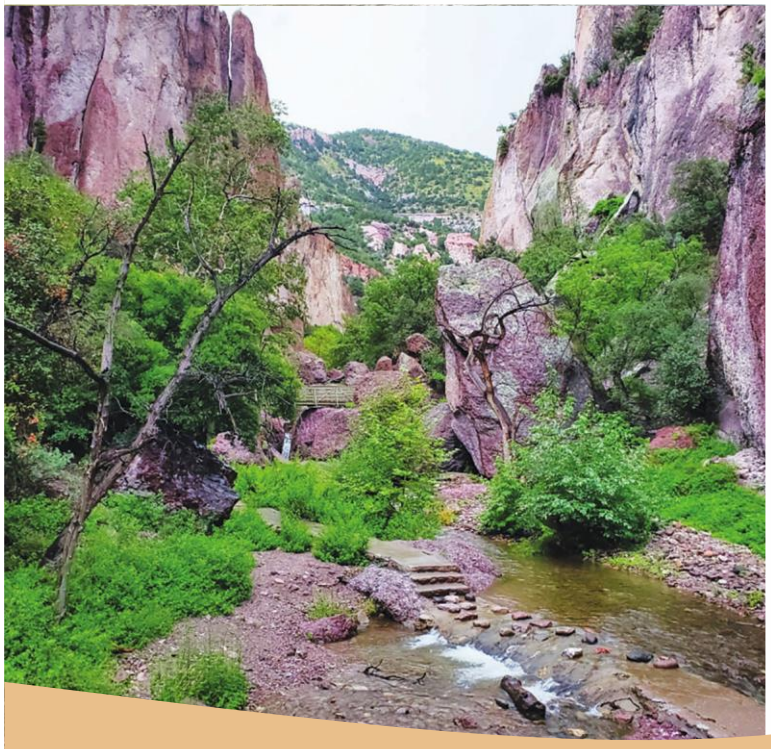

New Mexico Department of Game and Fish

Conserving New Mexico's Wildlife for Future Generations

2022 Statewide Fisheries Management Plan

Approved by the New Mexico State Game Commission on June 17, 2022

This plan is supported by

Welcome to the Fisheries of New Mexico!

In 2016 the Department published its first comprehensive Statewide Fisheries Management Plan. The intent of the Plan was to provide the public and our partner agencies with a clear roadmap for our plans to manage fisheries across the state. It established population management parameters for a number of sportfish species and laid out a management approach for nearly all of the waters in the state. At the time of its publication, the Department described it as "as summary of the conventional knowledge, vision, and decades of work by the Department and its partners who work to conserve our aquatic resources." As with any plan, the Statewide Fisheries Management Plan requires occasional updates in order to continue to reflect contemporary knowledge and vision for the management of our extraordinarily diverse fisheries. With this update our aim is to highlight accomplishments since 2016, refine species management parameters, identify changes in management approaches to specific waters, describe regulatory and administrative updates, and lay out new ideas for fisheries and their management. We have also added an index of waterbodies to the end of this update that will help readers find information about specific waters within the Plan.

The years since publication of the 2016 Plan have brought plenty of challenges to New Mexico's diverse angling opportunities. Some of these challenges, like drought, are familiar while others are completely novel. The global pandemic that resulted from the spread of Covid-19 touched all aspects of life in New Mexico and fishing was no exception. The Department saw a modest increase in fishing license sales from 2019 to 2020 but with access to popular angling locations undergoing an array of ever-changing closures and many people engaging in outdoor recreation, our anglers perceived substantial changes in use at many of their favorite fishing spots. It is simply too early to tell if the increased engagement in angling is an anomaly or a "new normal" but we are committed to continuing to track both fishing and fish populations to ensure the sustainability of our fisheries.

We hope that our anglers, partners, and the public find this updated plan useful in understanding the Department's evolving approaches to managing our diverse native fish communities and world-class sport fisheries.

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Glossary of Terms

Adult fish: Fish that have reached a sufficient size and age to be sexually mature.

Aquatic invasive species: Any non-native plant, animal, or pathogen that can harm our economy, environment, human, animal, or plant health.

Angler catch rates: Number of fish caught by anglers over a specified period of time (e.g., one fish per hour).

Angler day: One visit to a waterbody by an angler generally fishing for about four hours.

Angler harvest rates: Number of fish harvested by anglers over a specified period of time (e.g., one fish harvested per angler day).

Augmentation: Stocking fish into an existing population to increase abundance. Synonymous with supplemental stocking.

Basin: An entire river system or an area drained by a river and its tributaries. Synonymous with drainage.

Black bass: A group of popular sportfish in the family Centrarchidae which in New Mexico includes Largemouth, Smallmouth, and Spotted bass.

Catchables: Size category of fish that are at harvestable size. Length categories for catchables include: trout ≥9 inches, Channel Catfish ≥14 inches, and Largemouth Bass ≥14 inches.

Conservation Population (Rio Grande Cutthroat Trout): Those populations with 10 percent or less introgression (hybridization) from non-native trout.

Core Conservation Population (Rio Grande Cutthroat Trout): Those populations with 1 percent or less introgression (hybridization) from nonnative trout.

Cutthroat Trout: Any trout which has orange or red slash marks below the jaw, other than Rio Grande Cutthroat Trout. This includes Snake River Cutthroat Trout and any hybrid cutthroat trout that are less than 90 percent Rio Grande Cutthroat Trout.

Delisting: The removal of a species from the federal Endangered Species Act or the New Mexico Wildlife Conservation Act. Delisting is a result of successful recovery efforts or species extinction.

Downlisting: The reclassification of a species from endangered to threatened under the Endangered Species Act or New Mexico Wildlife Conservation Act. Downlisting is the result of progress towards delisting.

Drainage: An entire river system or an area drained by a river and its tributaries. Synonymous with basin.

Fingerling: Size category of fish in early life stages, also known as juveniles. Length categories for fingerling include: trout 2 to 6 inches, Channel Catfish 2 to 6 inches, and Largemouth Bass 1.5 to 5 inches.

Fry: Size category of fish in the earliest life stages from after hatching to fingerling size. Length categories for fry include: trout ≤2 inches, Channel Catfish ≤2 inches, and Largemouth Bass ≤1.5 inches.

Game or sportfish: Include black bass, catfish, perch, pike, sunfish, temperate bass, tiger muskie, trout, and Walleye as defined by 17-2-3 NMSA 1978.

Green Chile Water: A type of Special Trout Water with a reduced bag limit of two trout per day and tackle restricted to artificial fly and lure with a single barbless hook.

Hybridization: Mating between two individuals of different species resulting in offspring of an intermediate form. In New Mexico, this is most common between native trout and Rainbow Trout.

Low Density Bass Waters: Waters that may maintain a population of bass, however this population is often limited by extreme environmental conditions. Often these populations experience a boom or bust progression driven by environmental conditions.

Native Fish Waters: Waters where the primary management goal is conservation or recovery of native fish species.

Native species: A species living within its historical range and habitat.

Native Trout Conservation Waters: Waters managed to conserve native trout by allowing unlimited harvest of non-native trout to suppress these species and reduce competition while maintaining catch-and-release regulations for native trout.

Proportional Stock Density: A commonly used index to describe a “balanced” population of fish composed of young and adult fish. A measurement of fish population size structure. A high Proportional Stock Density (80 to 100) is a population skewed toward larger individuals. A low Proportional Stock Density (0 to 40) is a population skewed toward smaller individuals.

Protected species: All animals defined as protected wildlife species and game fish under Section 17-2-3 NMSA 1978; all animals listed as endangered or threatened species or subspecies as stated in 19.33.6 NMAC: and all animals listed under Sections 17-2-13, 17-2-14 or 17-2-4.2 NMSA 1978.

Put, Grow, and Take Catfish Waters: Consist of medium size reservoirs stocked with subcatchable Channel Catfish that grow in the waterbody to catchable size. Most Put, Grow, and Take waters have insufficient natural reproduction rates to support existing angler harvest.

Put, Grow, and Take Trout Waters: Waters stocked with subcatchable, fingerling or fry trout with the expectation that the fish will grow to larger sizes within the receiving water.

Put and Take Catfish Waters: Waters stocked with catchable size Channel Catfish to be immediately harvested by anglers especially where angler demand significantly exceeds natural production.

Put and Take Trout Waters: Waters stocked with catchable trout to be immediately harvested by anglers especially where angler demand significantly exceeds natural production.

Quality Trout Waters: Waters managed to provide higher trout densities and five percent of the population is greater than 12 inches or larger.

Recreational Bass Waters: Waters that exhibit conditions for producing fish that reach legal length limits. In most instances these waters maintain self-sustaining populations but may receive supplemental stocking.

Recreational Trout Waters: Waters that contain self-sustaining trout populations of moderate density (> 80/acre) and multiple year classes present.

Recovery populations/waters: Recovery populations and recovery waters are those that contribute toward recovery goals as identified in federal or state species recovery plans.

Red Chile Water: A type of Special Trout Water with catch-and-release and tackle restricted to artificial fly and lure with a single barbless hook.

Red Chile Native Trout Conservation: A type of Special Trout Water with catch-and-release on native trout and unlimited harvest on non-native trout and tackle restricted to artificial fly and lure with a single barbless hook.

Relative weight: An index of fish condition (length to weight relationship) compared to expected weight for a fish at a certain length. For most species, fish with a relative weight 80% or higher are considered in healthy condition.

Self-sustaining population: A population that naturally reproduces at levels sufficient to support long-term population persistence. If a population is self-sustaining, it is generally not stocked.

Special Summer Catfish Waters: Small lakes, ponds, and stream reaches, generally in urban areas, stocked with large, catchable Channel Catfish (approximately 17 inches or greater) multiple times per year (May to September) with reduced harvest limit of two fish per day.

Special Trout Waters: Waters where harvest of trout is prohibited or limited and terminal tackle type may be restricted (e.g., artificial lure or fly only, single barbless hook).

Stocking schedule: A plan that specifies the dates, species of fish, numbers of fish, sizes of fish, and waters to be stocked throughout the state over a calendar year.

Subcatchables or sub-adults: Size category of fish that are smaller than catchable length but larger than fingerlings. Length categories for subcatchables include: trout 6 to 9 inches, Channel Catfish 6 to 14 inches, and Largemouth Bass 5 to 14 inches.

Suppression: Actively removing unwanted fish via angling regulations or mechanical means such as electrofishing or nets.

Trophy Bass Waters: Adopted in 2018, these are waters with a reduced harvest limit of two fish per day. The minimum length limit for Largemouth Bass and Spotted Bass is 14 inches statewide. Trophy Bass Waters provide ideal conditions for producing fish larger than 5 pounds and provide opportunities to catch fish exceeding 8 pounds. These waters are highly productive, have high growth rates, and excellent habitat for all life stages of bass. These waters often produce fish at or near state records.

Triploid: Fish with three sets of chromosomes, unlike fertile fish that have two sets of chromosomes (a diploid fish). A triploid fish is sterile.

Trophy Trout Waters: Waters managed to produce large size trout where five percent of the population or angler catches are 20 inches or larger.

Urban Bass Waters: Bass may occur in these waters or may be stocked as a tool to manage other fish species. While bass in these waters may provide angling opportunities, they are not the focal species and population parameters have not been set for Urban Bass Waters. Retired brood bass are occasionally stocked into Urban Bass Waters to provide additional angling opportunity and/or manage sunfish populations.

Watershed: A land area that channels rainfall and snowmelt to creeks, streams, and rivers, and eventually to outflow points such as reservoirs, bays, and the ocean.

Wild Catfish Waters: Waters consisting of self-sustaining Channel Catfish, Blue Catfish, or Flathead Catfish. Some wild populations receive supplemental stocking of Channel Catfish.

Wild Trout Waters: Waters with self-sustaining trout populations.

Winter Trout Waters: Subset of Put and Take Trout Waters where the Department stocks trout during cooler months when water temperatures are suitable for trout (November through March).

X-mas Chile Water: A type of Special Trout Water with a reduced bag limit of two trout per day and no additional tackle restrictions.

Introduction and Purpose of Plan

Despite our arid landscape, New Mexico is home to dozens of fish species that provide quality and unique angling opportunities. Our state also hosts a high diversity of native fish, some of which are only found within our borders. Ranging from world-class Rainbow Trout angling, to high mountain Rio Grande Cutthroat Trout, to pupfish tolerant of salt levels greater than seawater, our fisheries truly fit New Mexico's landscape. Such diversity also presents ever-growing challenges to fisheries management and conservation. Each year, approximately 249,000 anglers spend nearly 3.8 million days fishing in New Mexico and contribute approximately $266 million to our state's economy. The New Mexico Department of Game and Fish (Department) is a primary steward of these fisheries resources within the state and is charged with managing fish in New Mexico. In close collaboration with local, state, federal, tribal, and non-governmental organizations, the Department actively engages in various management programs and activities at statewide and regional levels to invest in the long-term conservation and management of our fisheries.

Management of fisheries in New Mexico is a complex and challenging venture. Climate change, population growth, resource development, habitat alteration, competing resource interests, cyclical drought, and conflicting management directions all create programmatic challenges at a statewide level. In addition, competing species, hybridization, aquatic invasive species (AIS), illegal fish introductions, and the occurrence of threatened or endangered species present challenges for management of individual waters and at the watershed scale. Faced with these challenges, the Department and its partners must consider dozens of factors when implementing current actions and planning for the future. Demands placed upon our fisheries resources require a clear definition and communication of current and future management expectations for a waterbody to ensure continued angling opportunities, appropriate conservation actions, consistent planning expectations, and pursuit of the Department's mission.

The purpose of this Statewide Fisheries Management Plan is to express the Department's vision for the fishery resources of the State. At the core of this vision is a balance between providing angling opportunity and conserving native fishes. This balance will ensure the economic and cultural vitality of the State by maintaining angling opportunities, recovering or stabilizing state or federally protected species, and preventing the need for new listings under state or federal law. This plan identifies broad management classifications and, in some cases, specific actions for individual waters to clearly define priorities, actions, and possible changes to current management. The Department first adopted this comprehensive fisheries management plan in 2016 as a means to consider nearly all native and non-native fishes in New Mexico. The Department's prior operational plan for aquatic management and non-game management had

lapsed in 1995 and was limited to sportfishing. With approval from the New Mexico State Game Commission in April 2016, this plan began to provide a clearer picture of what to expect in particular waters to secure New Mexico's fishery resources now and into the future.

This document is an update to the 2016 Plan that will reflect contemporary information for waters across the state, report progress made towards priorities and projects identified by the original plan, identify new and ongoing priorities, refine management parameters for sport fisheries which were first adopted in 2016, and provide an index to more easily locate individual waters within the plan.

Scope and Organization of Plan

This plan is intended to identify the priority species for a water, the general management type used to support a species or community, and designate general management direction for all waters within the jurisdiction of the Department. The general management direction also identifies areas which have been or may be considered for expanding sportfishing opportunities or to implement federal or state recovery plans. This plan is not intended to identify a comprehensive list of activities or research needs at the individual water or species scale. The Department has and will continue to develop water or species-specific management or recovery plans to provide fine-scale detail, where warranted, and potentially adopt or coordinate with federal recovery plans. The Department recognizes the myriad threats posed to the state's fisheries by the additive and compounding effects of climate change, drought, wildfire, increasing demand for water, and invasive species. However, this update does not present a detailed threats analysis for these or other factors, instead maintaining a focus on the near-term management approach for virtually every fishery in the state. Regardless, many of the accomplishments and priorities identified in this update are in response to threats. For example, stream habitat improvement projects aim to narrow and deepen channels and restore vegetative cover to streambanks in order to maintain cooler stream temperatures and thereby build resilience to climate change and other factors. Further, many of the species' conservation and recovery plans listed on pages 30 and 31 below specifically contemplate climate change and other threats. This plan does not override previously adopted plans unless otherwise noted.

Several waters within New Mexico, in whole or part, fall within the jurisdiction of Native American tribes, nations, or pueblos. This plan is not intended to set any management direction for those waters under their sole jurisdiction. The Department will, however, work cooperatively to seek common management direction and coordinate joint activities for all waters, especially those which cross jurisdictional boundaries. The Department has successfully

planned and implemented fisheries management actions with multiple tribes, nations, and pueblos in recent years and hopes to continue and expand this coordination into the future.

This plan is divided into two major sections. The first section includes a description of the fisheries management and conservation program within the Department's Fisheries Management Division, angler survey information, and a summary of funding sources. This information provides a background on the organizational structure and funding available for Department activities and contributions in the state. This section also describes the Department's ongoing management efforts for specific taxa or groups of fishes. Objective parameters were first developed in 2016 for some species to demonstrate desired population abundance or angler catch rates for some fisheries, where appropriate. The Department has since identified needs to refine existing and adopt additional parameters based upon contemporary fisheries research projects and data analysis (e.g., Channel Catfish stocking analysis and minimum relative weight for Walleye). The Department will continue to use these parameters to assess the status of particular taxa and guide potential management actions such as stocking or angling regulation changes.

The second section includes delineations of specific waters with focal species identified, a management type associated with each species, as well as brief descriptions of management directions for each water. These directions may include current and future management such as stocking strategies, special regulation potential, restoration needs, among others. In some cases, the management direction is a departure from past management or clarifies past inconsistencies between Department activities. This section is a collection of most recent fisheries data, environmental and social realities, and future possibilities for fisheries in New Mexico. This information was developed through extensive discussions among Department staff, partner agencies, researchers, anglers, and the general public and has continually evolved over the past several decades into its current form. Overall, this section defines the Department's long-range planning and management within a particular water or water segment.

Overview of Department Fisheries Program

Statutory Authority

Enabling legislation for the New Mexico State Game Commission and the Department is found in Chapter 17 of New Mexico Statutes Annotated. This chapter empowers the State Game Commission to set regulations for open or closed seasons, establish bag or possession limits, authorize or prohibit the killing or taking of game fish, and prescribe the manner and method for taking game fish (17-2-1 NMSA 1978 *et seq.*). Protected species are generally limited to sportfish and state or federally listed threatened and endangered species. Specific fishing rules

adopted by the State Game Commission include Fisheries (19.31.4 NMAC), Hunting and Fishing – Manner and Method of Taking (19.31.10 NMAC), Commercial Use of Fish (19.31.9 NMAC), and Importation of Live Non-domesticated Animals, Birds, and Fish (19.35.7 NMAC). The Department typically seeks renewal of the Fisheries rule by the State Game Commission on a four-year cycle. The most recent changes were adopted in November 2021 and went into effect on April 1, 2022.

The New Mexico Wildlife Conservation Act (17-2-37 NMSA 1978) empowers the State Game Commission to adopt a list of species of wildlife indigenous to the state that are determined to be threatened or endangered within the state. Once listed as threatened or endangered by the State Game Commission, it is unlawful for any person to possess, transport, export, process, sell or offer for sale any species of listed wildlife. The New Mexico Wildlife Conservation Act (NMWCA) also prescribes a listing or delisting process, a biennial review process to evaluate species status, and drafting of state recovery plans.

Department Fisheries Program

The Fisheries Management Division is divided into a Hatchery Section and a Research and Management Section. Six state hatcheries rear fish to support ongoing fisheries management activities in New Mexico. These hatcheries focus on both warm and coldwater fishes as well as native and non-native sportfish. They largely exist in rural communities and many offer youth angling opportunities on their properties. Four of the six facilities culture Rainbow Trout to support the extensive network of fisheries for that species across the state. Beginning in 2008, the Department switched to rearing only all-female, triploid Rainbow Trout. These fish are sterile and minimize hybridization concerns with native trout. In total, the Department's hatcheries produce nearly 4.0 million Rainbow Trout per year. The Hatchery Section also coordinates acquisitions of fish and fish eggs from external sources, such as private vendors, other states, and federal facilities. These acquisitions support fisheries management programs by providing species traditionally not reared at New Mexico state hatcheries, diversifying genetic integrity of existing populations, and meeting demands that exceed internal production capacity.

The Lisboa Springs State Fish Hatchery near Pecos, NM primarily focuses on rearing of Rainbow Trout for supporting regional put and take fisheries. The facility also occasionally raises Pecos River Strain Rio Grande Cutthroat Trout for stocking into recreational fisheries.

The Seven Springs State Fish Hatchery is located in the Jemez Mountains near Jemez Springs, NM. The hatchery is the Department's facility for spawning, hatching, rearing, and stocking Rio Grande Strain Rio Grande Cutthroat Trout. The hatchery maintains a broodstock for the fish and has also routinely integrated eggs from wild Rio Grande Cutthroat Trout populations into the

brood. The Rio Grande Cutthroat Trout produced at Seven Springs have been integral to species restoration efforts in places like the Rio Costilla. The hatchery also provides Rio Grande Cutthroat Trout for recreational purposes, mostly into put, grow, and take fisheries although some catchable fish are produced. In the near-future the Department intends to develop a Pecos Strain Rio Grande Cutthroat Trout broodstock at the hatchery to support restoration efforts in that basin.

Red River State Fish Hatchery near Questa, NM raises Rainbow Trout for regional put and take and put, grow, and take fisheries. The facility also recently began receiving fingerling Rio Grande Strain Rio Grande Cutthroat Trout from Seven Springs State Fish Hatchery. The intent of this effort is to grow additional Rio Grande Cutthroat Trout to catchable size for increased recreational opportunities for the species.

The Los Ojos State Fish Hatchery near Chama, NM also focuses on producing recreational Rainbow Trout, including put and take and put, grow, and take fisheries. Los Ojos is also the state's sole Kokanee rearing facility. Kokanee eggs are collected and fertilized from Heron Reservoir, and sometime other locations, before being hatched, reared, and stocked into put, grow, and take fisheries. Additionally, since 2018 the hatchery has annually received YY Brook Trout eggs, hatched, reared, and then provided them for research purposes.

Glenwood State Fish Hatchery in Glenwood, NM is currently being renovated to facilitate the propagation of native Gila Trout to support conservation for this unique trout species. Initially, the facility will produce Gila Trout for recreational fisheries. Ultimately, the Department hopes to expand operations in the future to include assisting with recovery stocking efforts for the species.

The Rock Lake State Fish Hatchery in Santa Rosa, NM is the Department's only warmwater facility. The hatchery hosts a broodstock of Largemouth Bass which are spawned and reared on station before being stocked into large and small impoundments across the state. The hatchery also and rears Walleye that are spawned in the wild each year. Walleye eggs are then brought to the facility, hatched, and stocked into reservoirs as fry. In addition to warmwater operations, Rock Lake has coldwater facilities and rears Rainbow Trout for put and take fisheries across the region.

The Research and Management Section is organized into teams of sportfish biologists, native fish biologists, and AIS staff, as well as a fish health specialist and an environmental compliance specialist. The Sportfish Program is charged with managing fisheries that provide recreational angling opportunities for warmwater species such as bass and catfish and coldwater species such as trout and salmon. The Native Fish Program is charged with managing New Mexico's native fisheries and aquatic invertebrates such as Arkansas River Shiner, Rio Grande Cutthroat

Trout, Roundtail Chub, and Texas hornshell (a freshwater mussel). The Sportfish and Native Fish Programs are each currently composed of ten full-time permanent employees. Biologists are typically assigned a watershed or suite of species though coordination among biologists is necessary to consider all aspects of the Department's management efforts.

Current AIS intervention efforts include education and outreach, coordination of intervention efforts, and seasonal watercraft inspection and decontamination. Coordination of AIS intervention at the state and regional levels helps to protect New Mexico fisheries as well as significant water resources infrastructure, and public boating access. The Department, along with state, federal and private partners, work diligently to stop the introduction and spread of AIS. Of particular concern is invasion of our lakes by zebra and quagga mussels. Introduction of these mussels pose a risk to our native aquatic wildlife, water-based recreation including boating and fishing, and surface water delivery systems. For more information on AIS please visit the Department's AIS webpage at www.wildlife.state.nm.us/ais.

Annual fish health testing is completed at all hatcheries to ensure they are free of significant fish pathogens such as whirling disease. Fish health testing for wild fish is completed on select waters when fish or eggs are moved within or among watersheds or to a hatchery facility. Fish health testing for wild salmonids is also completed to document presence or absence of whirling disease. Importation permits and associated fish health certifications are reviewed to ensure fish and eggs imported into New Mexico are free of significant pathogens, comply with New Mexico state regulations, and comply with interagency fish health agreements.

Environmental compliance is required when conducting many activities, including but not limited to rearing fish at hatcheries, fish monitoring and surveys, habitat projects, and stocking fish. The Department is required to comply with all state and federal laws and obtain permits or authorization when necessary. Compliance includes meeting the requirements of the Clean Water Act, Endangered Species Act (ESA), National Historic Preservation Act, and the National Environmental Policy Act.

Nearly all divisional activities are implemented in close coordination with local, state, or federal agencies as well as non-governmental organizations who own land, water or are actively engaged in aquatic conservation efforts in New Mexico. Together, these programs provide a comprehensive management approach for New Mexico's aquatic resources.

Fisheries Management Division Programmatic Priorities

Priorities for the entire Department are identified in the Department's Strategic Plan (NMDGF 2020). Identified Objectives and Strategies specifically relevant to the Fisheries Management Division include:

- That by 2023, the Department develops appropriate population objectives based on sustainable wildlife management practices (Objective 2, pg. 8)
    - Collaborate with sportsmen, land management agencies, landowners and other affected interests to establish broadly supported resource-based management objectives for game animals and game fish (Strategy 2.1)
- Maintain an overall angler satisfaction rate of 80% regarding angler opportunity, fishing experiences, and the Department's management of sport fishing issues through 2023 (Objective 4, pg. 10)
    - Monitor angler issues, interests, and satisfaction and employ findings to inform and evaluate management decisions (Strategy 4.1)
    - Maintain a hatchery system and associated facilities to culture fish and supplement fish populations through stocking in accordance with fisheries management plans (Strategy 4.2)
    - Construct, operate, and maintain a warmwater fish hatchery and associated Watershed Education and Training (WET) Center (Strategy 4.3)
    - Continue to promulgate rules that protect fish stocks from overexploitation and equitably distribute fishing opportunity (Strategy 4.4)
    - Minimize losses of fish populations and hatchery stocks due to diseases (Strategy 4.5)
    - Increase opportunities for anglers to pursue native game fish (Strategy 4.6)
- By 2023 realize a level of public opportunity for recreational hunting and fishing as indicated by 110,000 and 200,000 certified annual licensees, respectively (Objective 5, pg. 11)
    - Identify and implement methods by which hunting and fishing opportunity and participation might be increased (Strategy 5.1)
- Restore up to 70 user-days of public hunting and up to 200 user-days of fishing opportunity for selected diminished game species and furbearers by 2023 (Objective 6, pg. 12)
    - Develop and implement long-range and operational plans for the restoration, management, and use of selected diminished game species and furbearers for which limited sport fishing, hunting, or trapping opportunity may be restored without compromising species conservation (Strategy 6.1)
- That through 2023 hunting and fishing opportunities are maintained through prevention and control of wildlife disease and invasive species (Objective 7, pg. 12)

    - Detect, monitor, manage, and prevent the spread of wildlife diseases and invasive species through coordination with the New Mexico Department of Health, the New Mexico Livestock Board, the New Mexico Department of Agriculture, USDA Animal Plant and Health Inspection Service, USDA Wildlife Services, and USDA Veterinary Services and other appropriate agencies (Strategy 7.1)
- Conserve, enhance, or positively affect an additional 500,000 acres of wildlife habitat statewide by 2023 (Objective 8, pg. 13)
    - Collaborate with federal, state, and local agencies, tribal governments, non-governmental organizations, and private interests that manage significant land and water areas in New Mexico to plan and implement habitat improvement projects consistent with the habitat enhancement prescriptions in the State Wildlife Action Plan (Strategy 8.1)
- By 2023, attain measurable progress toward the restoration of wildlife identified as being at risk of depletion or extinction (Objective 10, pg. 16)
    - Pursuant to the Wildlife Conservation Act (WCA), conduct biennial reviews of all indigenous wildlife currently listed as threatened or endangered by the state, investigate and assess the status of species the Department suspects to be threatened or endangered, and recommend changes to the status if warranted (Strategy 10.1)
    - Develop and implement plans for the management and recovery of state listed threatened or endangered species (Strategy 10.2)
    - Provide public, state, and private entities with guidance for conserving and improving populations of threatened or endangered wildlife (Strategy 10.3)
    - Collaborate with state, federal, and tribal governments in the recovery of federally listed species occurring in, or extirpated from, New Mexico (Strategy 10.4)

In furtherance of the Department's Strategic Plan, the Fisheries Management Division developed a set of divisional priorities to focus management and conservation efforts for division staff and resources:

1. Rearing and Stocking Fish – This priority includes all efforts at the six Department hatcheries to meet developed stocking schedules for Channel Catfish, Gila Trout, Largemouth Bass, Rainbow Trout, Rio Grande Cutthroat Trout, Striped Bass, and tiger muskie. Stocking schedules are routinely modified to reflect changing environmental conditions, altered angler use, changing priority areas, and addition or loss of angler access. This priority specifically addressed Department Strategies 4.2 and 4.3.

2. Evaluation of Hatchery Stocking – This priority includes investigating and altering the use of hatchery produced resources to more efficiently stock waters, maximize angler catch rates, and ensure equitable distribution of fish. Examples of such investigations include Largemouth Bass or Rainbow Trout stocking strategies, appropriate stocking rates for tiger muskie, and put, grow, and take opportunities for Rio Grande Cutthroat Trout. This priority specifically addressed Department Strategies 2.1, 4.1, 4.4, 4.6, 5.1, and 6.1.
3. Species Recovery Efforts – This priority includes development and implementation of various aquatic species recovery efforts to improve or stabilize the status of federal or state protected species. Specifically, priority actions will include augmentation programs, habitat restoration, removal or exclusion of competing or hybridizing species, and restoring habitat connectivity. In addition, significant efforts are directed towards addressing or preventing the further decline of other species that could need state or federal protection in the future. This priority specifically addressed Department Strategies 4.6, 6.1, 10.1, 10.2, 10.3, and 10.4.
4. Aquatic Invasive Species – This priority seeks to galvanize support by state, federal, and non-governmental entities to collaboratively protect the states waters from AIS and prevent the spread or negative effects from previously established fish pathogens. The introduction or spread of species such as zebra mussel or quagga mussel, rock snot, or whirling disease could produce devastating effects on individual fisheries, local or state economies, and/or water resource infrastructure. This priority specifically addresses Department Strategy 4.5 and 7.1.
5. Habitat Restoration – The Department expends significant resources restoring and augmenting riparian habitats for the benefit of fish and wildlife. Future habitat enhancements are anticipated in the Cimarron River, Costilla Creek, Whitewater Creek, Willow Creek (Gila) and lakes in the Carlsbad area. This priority specifically addresses Department Strategy 5.1, 8.3 and 10.4.
6. Statewide Fisheries Management – This priority refers to ongoing efforts to constantly adapt to changes in environmental conditions and provide the best possible angling opportunities to New Mexico anglers. This priority specifically addresses Department Strategies 4.1 and 4.3.

Angler Survey Data

Dating to the 1970s, the Fisheries Management Division has assessed angler days, catch rates, species preference, and/or angler satisfaction via mail, phone, or web-based surveys. From 2000 to 2016, annual phone surveys of resident and non-resident anglers were completed. Since 2017 surveys have been completed via a web-based method. The purpose of these surveys is to assess annual angler satisfaction, seek input on emerging issues, and refine

existing management programs. For example, individualized surveys could be conducted for topics such as bait fishing, Gila Trout angling, or fish importation.

New Mexico anglers consistently prefer to fish for coldwater species such as trout and salmon with approximately 11% preferring solely warmwater species in 2021 (Figure 1). A significant percentage of anglers prefer both warmwater and coldwater species. Of the coldwater species in New Mexico, Rainbow Trout and Brown Trout are consistently preferred over other coldwater species (www.wildlife.state.nm.us/fishing/fisheries-management/). Black bass, catfish, and Walleye are the most preferred species of warmwater fish. Since 1997, an average of 60% of anglers release most of the fish they catch compared to 40% who prefer to harvest most of their catch with an increasing trend of anglers that practice catch-and-release (Figure 2). About half of anglers prefer to pursue stocked fish compared to wild fish (Figure 3). These data are essential to proactively address the desires and preferences of New Mexico anglers within the environmental and sociopolitical context of our state.

In late 2019 and early 2020 the world became aware of the emerging SARS-COV-2 virus and the Covid-19 disease that could occur from its transmission. The resulting global pandemic has affected nearly every aspect of life in New Mexico since 2020, including angling. While most of the information that we have regarding the precise effects of the pandemic on angling is anecdotal, there is little doubt that during the summer and fall of 2020 patterns of use in New Mexico's fisheries differed from normal. The Department's license sales and angler use data yield insight into these changes and suggest how this change may carry forward. Surprisingly, despite the increase in angling pressure observed by Department staff, partners, and the public in locations that remained open to angling, overall license sales increased by only 1% from the 2019-20 to 2020-21 license years and the average number of days each angler fished declined slightly from 2019 levels (Figure 4). The closures of normally popular waters at State Parks, Department-owned properties, municipal waterbodies, and many other locations likely shifted angling pressure to waters that remained open. Changes in patterns of work, school, and child care also likely led to increased angling pressure at dates and times outside of normal. Based on available statewide data, which show a modest increase in licenses sold and little change in overall angler days, we expect that as closures lift and normalcy returns to other aspects of life that angling pressure is also likely to return to pre-pandemic levels. Of course, the future is impossible to predict with certainty and the Department is committed to managing the state's fisheries and their use in a sustainable manner.

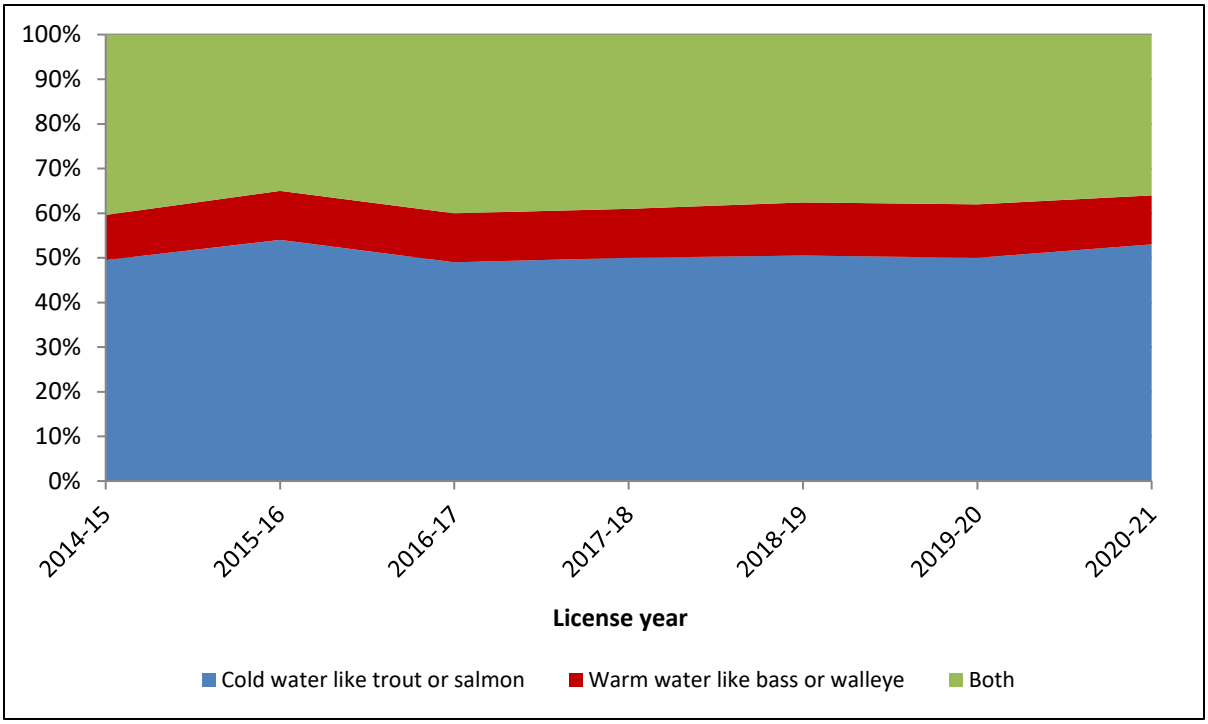

Figure 1. Summary of New Mexico angler preferences for coldwater (e.g., trout and salmon) or warmwater (e.g., bass and catfish) angling in the state. Percentages are derived from annual angler surveys, 2014-15 to 2020-21 license years. Note, 2014-15 to 2015-16 license years data from phone survey and 2016-17 to 2020-21 license years data from web-based survey.

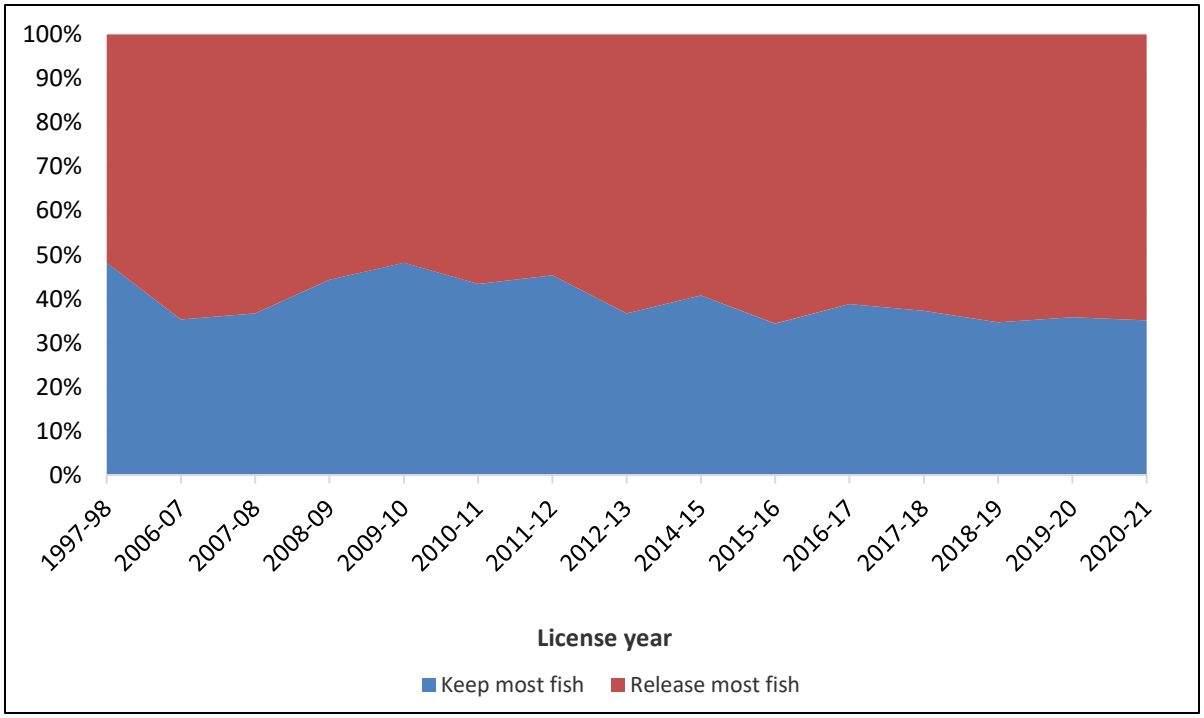

Figure 2. Summary of New Mexico angler preference for harvesting game species derived from annual angler surveys, 1997-98 to 2020-21 license years. Note, 1997-98 to 2015-16 license years data from phone survey and 2016-17 to 2020-21 license years data from web-based survey.

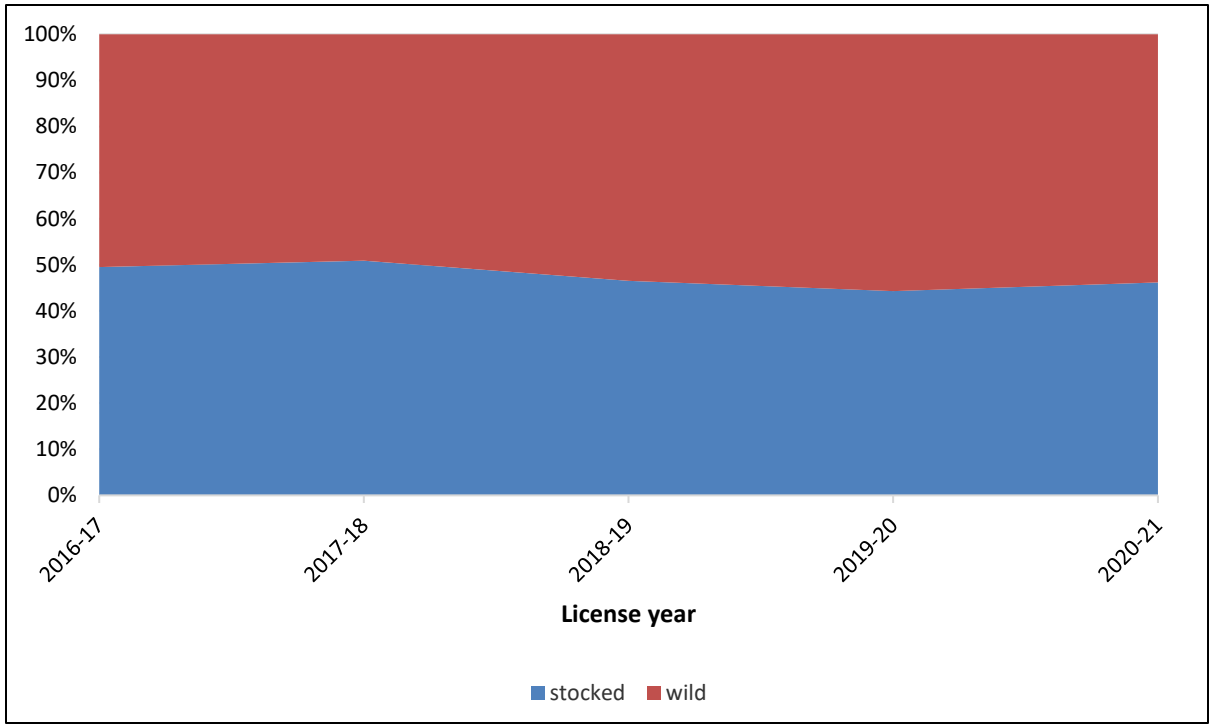

Figure 3. Summary of New Mexico angler preference for fishing in areas they expect to find stocked fish or wild fish 2016-17 to 2020-21 license years.

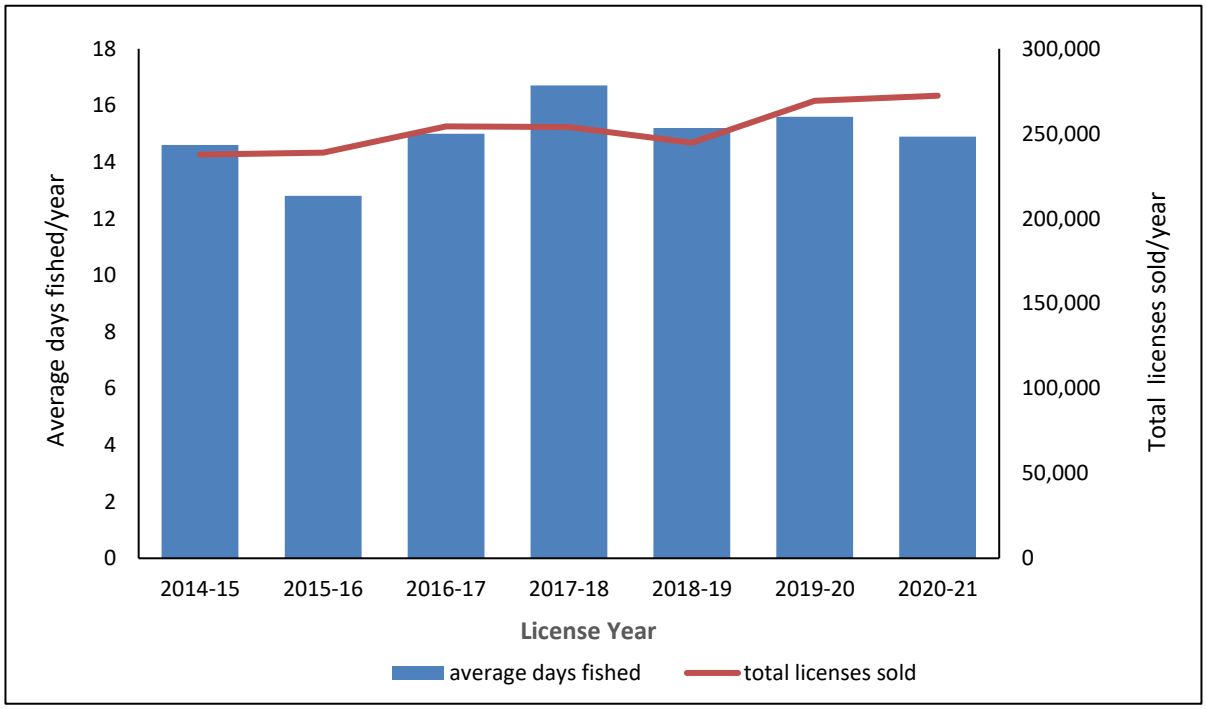

Figure 4. Total number of New Mexico fishing licenses, including combo licenses (e.g., Game Hunting and Fishing), and average days fished by each angler from 2014-15 to 2020-21 license years.

Funding

The Fisheries Management Division receives a portion of the Department's annual budget which is primarily funded by legislative appropriations from the Game Protection Fund. The Game Protection Fund is funded entirely through the sale of hunting and fishing licenses. The Fisheries Management Division leverages expenditures from the Game Protection Fund for reimbursement from various federal grant programs. The primary source of federal funds is the Sportfish Restoration Act program administered by the Wildlife and Sportfish Restoration program of the U.S. Fish and Wildlife Service (FWS). This federal grant program is funded via federal excise taxes on fishing tackle and motorboat fuel. For every dollar of Game Protection Fund spent, the Department is reimbursed $0.75 through the Sportfish Restoration Act program. This program is the primary funding source for the Department's hatchery operations, sportfish research and management, AIS outreach and education, Rio Grande Cutthroat Trout conservation efforts, habitat restoration, and fish health investigations.

Various federal grant programs also provide cost share opportunities for imperiled fish and aquatic invertebrate species. In all cases, the Game Protection Fund provides the base funding until reimbursement is obtained from the federal program. The Department receives an annual allocation of ESA Section 6 funding from the FWS to implement conservation activities for threatened or endangered species with the same reimbursement requirements as the Sportfish Restoration Act program discussed above. The Department also receives an annual allocation of State Wildlife Grant funding from FWS to support conservation programs for Species of Greatest Conservation Need as identified in the Department's State Wildlife Action Plan. The total amount of State Wildlife Grant funds used by the Fisheries Management Division varies annually. The Department supports several ongoing research efforts either through State Wildlife Grant or Section 6 funds. The Department also receives funding through different Bureau of Reclamation (BOR) project mitigation programs such as Central Arizona Project mitigation funds and San Juan River Basin Recovery Implementation Program funds. Species that benefit from these state and federal funding sources include Colorado Pikeminnow, Gila Trout, Loach Minnow, Pecos Pupfish, Rio Grande Chub, Rio Grande Sucker, Socorro isopod, Spikedace, Texas hornshell, and dozens of others throughout the state. The FWS also provides funding for AIS prevention through Sportfish Restoration Grants and other sources.

In Fiscal Year 2021, funding for the Fisheries Management Division was primarily derived from Sportfish Restoration Act and the unreimbursed Department costs (Figure 5). State Wildlife Grants provided 10% and Section 6 and BOR program funding each provided 2% of the Fisheries Management Division's budget. Lastly, 1% of the budget came from various FWS programs for AIS prevention.

In addition to the direct funding discussed here, the Department's many partner agencies, NGO's, and private individuals contribute immeasurably to fish and aquatic habitat in New Mexico through direct expenditures and volunteerism.

In 2021 the State Game Commission updated the Department's Habitat Stamp Program in a manner that will increase funding and dedicate a portion of the program to fish habitat projects. This funding source is not reflected in the Fiscal Year 2021 information included here but it is anticipated to be a substantial source of additional funding for fish habitat projects beginning in Fiscal Year 2022.

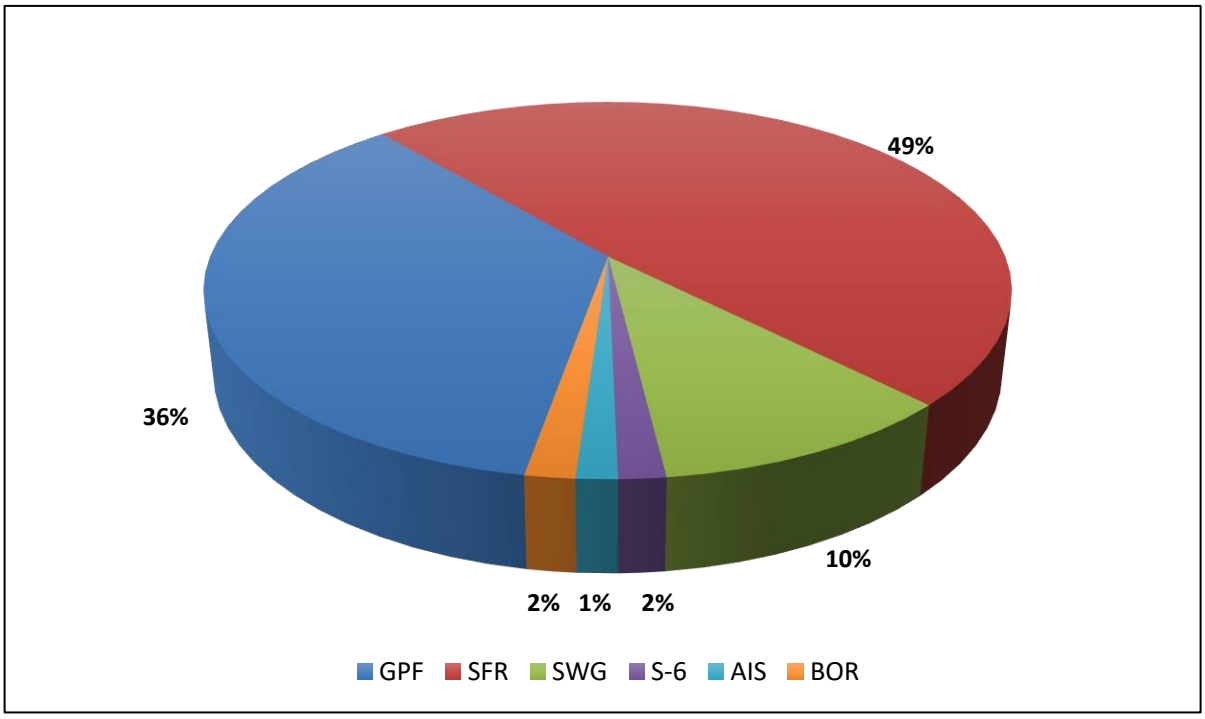

Figure 5. Summary of Fiscal Year 2021 funding sources for the $8.8 million Fisheries Management Division budget. Game Protection Fund (GPF) are unreimbursed state funds. The remaining sources are reimbursed federal funding sources including Sportfish Restoration (SFR), State Wildlife Grants (SWG), Endangered Species Act Section 6 (S-6), Aquatic Invasive Species (AIS) Grants, and Bureau of Reclamation (BOR) Programs.

Specific Information for Fish Species, Taxa, or Communities

The individual characteristics of a particular water in New Mexico along with active management such as stocking or regulation development help determine community composition and available management actions to sustain, suppress, or expand a particular fishery. Below are descriptions of individual species or groups of fish which are popular sportfish species for a water, a focal species for management at a particular water, or the focus of a significant recovery program in which the Department participates. Individual abundance or density indices, growth rates, angler catch rates, and other metrics are identified for some species to provide objective parameters for measuring management success and possible

indicators of challenges within a fishery. Parameters were amended for some species in this plan update to more accurately reflect species potential, refine management goals, and as part of adaptive management (Appendix A). For some sportfish, individual demographic parameters are not available or the species is too rare to effectively monitor. For others, state or federal recovery plans are better suited for identifying such criteria.

Catfish

Three species of catfish provide recreational angling opportunities in New Mexico. Channel Catfish are native to the central United States, south central Canada, portions of the Atlantic Coast of the United States, and have been widely introduced throughout the United States and northern Mexico. In New Mexico, Channel Catfish are native to the Canadian drainage and widely introduced to all other drainages in the state. Blue Catfish are native to the Mississippi, Missouri, and Ohio drainages of the central and southern United States and along the Texas Gulf Coast. In New Mexico, it is considered native to the Rio Grande downstream of Bernalillo County and in the Pecos River downstream of Puerto de Luna. In the Rio Grande drainage, Blue Catfish is currently known to occur in Elephant Butte and Caballo reservoirs. Flathead Catfish are found in the central United States south into eastern Mexico. Flathead Catfish are native to the Rio Grande and Pecos River drainages and were introduced to the Gila River prior to 1950. Flathead Catfish were also introduced into Clayton Lake by the Department in 2017 as a management tool to reduce and control the Black Bullhead population.

The Department has four management classes for catfish in New Mexico. These management classes are primarily focused on Channel Catfish though Blue and Flathead catfish provide quality angling opportunities in select waters. Management classes for catfish in New Mexico are: Wild, Put and Take, Special Summer Catfish Waters, and Put, Grow, and Take waters. The definition of each management type can be found in the Glossary of Terms. Channel Catfish are acquired for stocking from other state and federal agencies or purchased from private producers. Blue and Flathead catfish are not stocked by the Department at this time, but Flathead Catfish have been transplanted to other waters as a management tool.

A long-term analysis of Put, Grow, and Take stocking proved this strategy unsuccessful in providing a Channel Catfish fishery in most waters tested. The Put, Grow, and Take stocking strategy will likely only be used on a limited or experimental basis in the future.

In some waters, Channel Catfish populations are purposefully suppressed to facilitate native species recovery, like in the San Juan River downstream of Shiprock, NM. Current suppression efforts are implemented using mechanical means (e.g., electrofishing) by the San Juan River Basin Recovery Implementation Program.

Management strategies for Put and Take Catfish Waters and Special Summer Catfish Waters are focused on maximizing stocked fish return to the angler and equitable distribution of angling opportunity, predominantly in an urban environment. Alternatively, strategies for Wild Waters are focused on maintaining viable populations through time especially those that are entirely dependent upon natural reproduction. As a result, the objective parameters established for Put and Take and Special Summer Catfish waters relate to angler catch rates compared to population statistics documented during Department monitoring efforts for Wild Waters.

Channel Catfish Parameters:

Put and Take and Special Summer Catfish Waters

- Average harvest rate: 1 fish/angler day during stocking season (late May to early September)

Wild

- Multiple size-classes of adults present exhibiting a balanced population and consistent natural reproduction

Black Bass

Black bass in New Mexico include Largemouth Bass, Smallmouth Bass and Spotted Bass. The native range of Smallmouth Bass includes southern Canada, south to the Tennessee River and Alabama and west to eastern Oklahoma and western Arkansas. In New Mexico, Smallmouth Bass were first stocked into Throttle Reservoir (Colfax County) in 1914 and since that time have been stocked throughout the state. Smallmouth Bass now occur in every major basin in New Mexico including river systems such as the lower Gila River and upper Rio Grande. Two subspecies of Largemouth Bass exist or have been stocked in New Mexico: Northern Largemouth Bass and the Florida Largemouth Bass. Florida Largemouth Bass were stocked into reservoirs within the southern part of the state in the 1980s with limited long-term success in terms of contributing to the fishery. Northern Largemouth Bass are native to New Mexico's Pecos Drainage and possibly the Rio Grande Drainage but have been introduced to all other basins in the state. Spotted Bass were stocked into Cochiti Lake and Lake Sumner in the 1980s and currently exist in Bataan Lake, Brantley Lake, Lake Carlsbad, and Lake Sumner. Largemouth Bass are the most popular warmwater species in the state followed consistently by Smallmouth Bass.

Most populations of black bass are self-sustaining in the state though many Largemouth Bass fisheries receive supplemental stockings from Rock Lake State Fish Hatchery. Local conditions of a particular water, however, can limit or inhibit consistent reproduction. For example, sudden reservoir level decreases that negatively affect nests built in shallow areas can reduce or

eliminate fish spawning and recruitment. Stocking rates and schedules have been developed for multiple Largemouth Bass waters. A consistent brood population of Largemouth Bass is raised at Rock Lake State Fish Hatchery to meet stocking needs. Smallmouth and Spotted bass are not routinely stocked by the Department at this time.

Statewide regulations vary for black bass among species and management direction. Harvest in most waters is limited to five fish per day. Trophy Bass Waters were adopted in 2018 and feature a reduced harvest limit of two fish per day. The minimum length limit for Largemouth Bass and Spotted Bass is 14 inches statewide. The statewide minimum length limit for Smallmouth Bass is 12 inches with the exception of 14 inches at Conchas and Ute lakes. The purpose of this regulation is to protect fish from harvest until reaching a more desirable length. Effective April 1, 2022, the minimum length limit for Smallmouth Bass was removed on the Rio Grande near Pilar, NM to reduce population densities and competition to address potential stunting.

The Department has four black bass management types: Trophy, Recreational, Low Density, and Urban. The definition of each fish type can be found in the Glossary of Terms. These management types were developed to help set or maintain realistic expectations for black bass populations in the state. Once set, the Department may seek to manipulate physical, biological, or social variables to attain the desired outcomes via habitat improvement, forage or other species management, or harvest regulations. Each parameter is used as an indicator for different aspects of overall population health. For example, the abundance parameter (Catch Per Unit Effort) is different for Trophy Waters (where overall abundance of larger fish is desired) compared to Recreational Bass Waters (where an abundance of multiple size classes is desired). Alternatively, parameters for recruitment are based upon the survey catch rate of Age-2 bass whereas Catch Per Unit Effort is based upon catch rates of fish greater than a particular length. Proportional Stock Density is a commonly used index to describe a “balanced” population of fish composed of young and adult fish. Low or high Proportional Stock Density indicates a skewing of the population towards small or large fish, respectively. All of these parameters are used to measure different elements of the population. Below are specific descriptions of black bass management types and objective parameters for each management type. All Smallmouth Bass waters are designated as Recreational Bass Waters with no specific parameters developed for stream systems. Several waters contain multiple species of black bass; however, parameters are compared independently for the focal management species designated for a particular water.

Black Bass Parameters:

Trophy Bass Waters (Largemouth Bass only)

- Catch Per Unit Effort: > 5 fish/hour of electrofishing that are > than 20 inches in length

- Recruitment: > 10 Age-2 bass/hour of electrofishing
- Size Structure: Proportional Stock Density between 50 and 70
- Growth: Mean length of Age-4 bass > 14 inches
- Body Condition: Average relative weight of at least 90

Recreational Bass Waters

- Catch Per Unit Effort: 20 to 40 fish/hour of electrofishing
- Recruitment: > 5 Age-2 bass/hour of electrofishing
- Size Structure: Proportional Stock Density between 40 and 60
- Body Condition: Average relative weight of at least 80

Low Density Bass Waters

- Catch Per Unit Effort: 0 to 20 fish/hour of electrofishing
- Body Condition: Average relative weight of at least 80

Temperate Basses

The temperate basses include Striped Bass, White Bass, and hybrid striped bass. Striped Bass are native to the Atlantic Coast and the eastern part of the Gulf of Mexico (Sublette et al. 1990). Striped Bass have been stocked in Elephant Butte Reservoir intermittently depending on availability. Striped Bass also inhabit Lake Powell, AZ/UT and could potentially swim upstream into the San Juan River. There is no evidence that Striped Bass have successfully reproduced in New Mexico and the population in Elephant Butte Reservoir is maintained by stocking fry or fingerlings obtained from other states or private hatcheries. White Bass are native to the central Mississippi Drainage down to the Gulf of Mexico and a few watersheds in Texas. They were first introduced into New Mexico in 1969 into Willow Lake and can be found in many lakes and reservoirs throughout the state, excluding the Gila Basin. White Bass successfully reproduce in New Mexico reservoirs and are not stocked by the Department.

Management strategies for Striped and White bass are different due to differences in life history and “trophy” fish potential. The Department manages the Striped Bass fishery at Elephant Butte Reservoir to increase the likelihood of fish growing to trophy size. Such a size structure is slightly biased towards a greater proportion of adults in the population compared to juveniles as measured by Proportional Stock Density. Regulations for Striped Bass at Elephant Butte Reservoir are currently set as one fish per day and no length limit. There is no harvest, possession or length limit for any Striped Bass in the San Juan River to support endangered fish recovery efforts in that basin. Because White Bass populations are highly cyclical, current regulations limit harvest to 25 fish per day with no length limit. This management approach is intended to support liberal harvest of White Bass when abundant. Considering the cyclical nature of White Bass, no specific management parameters have been developed.

Hybrid striped bass, an artificial cross between Striped Bass and White Bass, are being considered as a new management species in New Mexico to expand angling opportunity. Hybrid striped bass, also known as wipers, Palmetto bass, or sunshine bass, are a popular recreational species in other states due to their rapid growth potential, adaptability to various water quality parameters, and availability from state and private hatcheries. A pilot project to establish a hybrid striped bass fishery in Caballo Lake has been proposed and is anticipated for implementation in 2022.

Striped Bass Parameters at Elephant Butte Reservoir

- Catch Per Unit Effort: 1 fish/net night
- Size Structure: Proportional Stock Density between 50 and 70
- Body Condition: Average relative weight of at least 85

Walleye

Native to the upper midwestern United States and Canada, Walleye were first introduced into New Mexico in 1959 to expand angling opportunity in the State's reservoirs. Walleye are highly piscivorous (i.e., fish eating) with Gizzard Shad and Yellow Perch as their dominant prey. In New Mexico, natural spawning success is typically low to nonexistent and most populations are dependent upon annual stocking. The Department has conducted Walleye field spawns (i.e., egg collection) from various reservoirs since the 1970's. In the spring, eggs are collected, fertilized, and transported to the Rock Lake State Fish Hatchery for incubation and hatching. When local spawns provide inadequate egg collection, eggs are obtained from other state or federal hatcheries. Walleye are then stocked into reservoirs as fry, typically at a rate of 500 per surface acre. All Walleye populations are currently managed with statewide regulations of five fish per day. Effective April 1, 2022 there is no length limit for Walleye statewide.

Walleye Parameters

- Catch Per Unit Effort: ≥ 4 fish/net night
- Body Condition: Average relative weight of at least 80

Tiger Muskellunge and Northern Pike

Tiger muskellunge or "tiger muskie" are a sterile hybrid between Northern Pike and Muskellunge. Both Northern Pike and Muskellunge are native to the upper midwest and northeast United States. Northern Pike were first introduced into New Mexico in the 1960s and tiger muskie were first introduced in the early 2000s. Several self-sustaining populations of Northern Pike exist in the state and the Department does not stock them. The Department stocked tiger muskie in Bluewater and Quemado reservoirs in the early 2000s to control Goldfish and White Sucker. These are still the only waters the Department manages with this

hybrid species and a popular sport fishery has grown around the opportunity. The Department must continually stock tiger muskie to maintain a population. Challenges with tiger muskie management include maintaining enough tiger muskie to control unwanted fish at low abundances, providing a unique angling experience for tiger muskie, and maintaining or expanding angling for other species including trout.

Statewide regulations for Northern Pike are 10 fish per day with no length limit. No specific population parameters have been developed for Northern Pike. Regulations at Eagle Nest Lake for Northern Pike are mandatory harvest with unlimited take. These regulations are intended to suppress the illegally introduced species at Eagle Nest Lake and minimize potential deleterious effects on the popular trout and salmon fisheries.

Current regulations for tiger muskie are one fish over 40 inches per day at Bluewater and Quemado reservoirs. The Department conducts routine surveys of tiger muskie at each lake to estimate the density of fish (number of fish/surface acre of lake habitat) and evaluate population size structure. Coupled with carefully developed stocking rates, the Department has refined the balance between tiger muskie density, potential harvest, trophy fishing opportunities, and other recreational angling opportunities.

Tiger Muskie Parameters

- Density: 4 fish/surface acre (10-year average of surface area)
- Unwanted Fish Catch Per Unit Effort: <20 fish/hour electrofishing of Goldfish and White Sucker in target waters
- Body Condition: Average relative weight of at least 90 for fish ≥30 inches

Other Warmwater Species

Several additional sportfish species inhabit New Mexico waters which provide alternative yet less popular fisheries. They also provide important forage sources for larger predatory fishes. These species include Black and White crappie, Yellow Perch, and several species within the sunfish family such as Bluegill and Green Sunfish. Active management specifically for these species is not common, and the Department does not typically rear them, although some waters have one or more of these species identified as a focal species. Some urban fishing ponds provide excellent habitat for sunfish species and provide exciting opportunities for young anglers. Sunfish can overpopulate small ponds so, where warranted, Largemouth Bass are occasionally stocked to reduce sunfish density and increase growth rates. Currently, Yellow Perch are managed as self-sustaining populations and by statewide regulation of 30 fish per day with no length limit. The Department occasionally transplants Yellow Perch within the state to establish or supplement prey base and could do this for other species. Sunfish in New Mexico are not actively managed other than by a statewide limit of 20 fish per day with no size limit

and occasional supplemental stocking. Crappie are managed by a statewide regulation of 20 fish per day with no length limit. No specific parameters have been developed for these fish species.

Trout and Salmon

Several salmonid species inhabit New Mexico waters. Trout native to New Mexico include Gila Trout, historically found in coldwater reaches within the Gila River basin, and Rio Grande Cutthroat Trout, historically found in coldwater reaches of the Canadian, Pecos, and Rio Grande River basins. Both species have declined considerably from their historical distribution and Gila Trout are currently listed as "Threatened" under the ESA and the NMWCA.

Introduced species include Brook Trout, Brown Trout, kokanee, Lake Trout, Rainbow Trout, and other subspecies of Cutthroat Trout. Rainbow Trout are native to Pacific slope drainages in North America and were first introduced to New Mexico in 1896. Due primarily to stocking, Rainbow Trout are the most widely distributed and sought-after trout in the state. Brown Trout were transplanted from Europe, while Brook Trout are native to lakes and streams in eastern North America. Other subspecies of Cutthroat Trout which have been stocked in New Mexico include Snake River and Yellowstone cutthroat trout which have hybridized with our native trout and Rainbow Trout. Lake Trout have been introduced to several lakes in New Mexico but currently only inhabit Heron and El Vado reservoirs. Kokanee are inland Sockeye Salmon and have been stocked into several large coldwater reservoirs in the state. The Department conducts annual field spawns for kokanee to maintain these populations. While wild populations of Rainbow Trout exist in the state, the majority of Rainbow Trout angling opportunities are maintained via stocking. The Department currently stocks Rainbow Trout in approximately 150 waters statewide (https://www.wildlife.state.nm.us/fishing/weekly-report/).

The Department employs three management strategies for trout and salmon fisheries. Management strategies include: Put and Take, Put, Grow, and Take, and Wild waters; see the Glossary of Terms for a definition of each fishery type. In some cases, different management strategies may be employed for different species within the same water. Put and Take Trout Waters range from popular mountain streams with high angler use to large reservoirs and urban ponds. In nearly all cases, Put and Take Trout Waters are stocked consistently throughout a stocking season with catchable Rainbow Trout.

In limited cases, surplus catchable Gila Trout and Rio Grande Cutthroat Trout are stocked to increase recreational angling opportunities. A Framework for Management of Gila Trout Angling was approved by both the Department and the FWS which includes waters which will be stocked with Gila Trout for recreational purposes as well as recovery waters which are open

to angling. Different regulations are in place for Put and Take Trout Waters though the daily bag limit is generally 5 fish per day for Rainbow Trout and 2 fish per day for Cutthroat Trout. In some cases, Special Trout Water regulations are in place to equitably distribute angling opportunities and increase the retention time of stocked catchable trout within a waterbody.

Put, Grow, and Take Trout Waters may have limited habitat to support natural reproduction or angler harvest exceeds the number of fish produced via natural reproduction. In other cases, the Department stocks native trout with hopes of increasing the opportunity for anglers to catch a native trout within historical habitats. Waters managed as Put, Grow, and Take Trout Waters range from high mountain lakes, large coldwater reservoirs, to small streams. All kokanee fisheries and some triploid Rainbow Trout, recreational Rio Grande Cutthroat Trout, and recreational Gila Trout are managed as Put, Grow, and Take Waters. Rio Grande Cutthroat Trout that are surplus to restoration needs, discussed below, are stocked with hopes of contributing 5 to 15% of the overall trout abundance in select reaches. Harvest regulations are similar for Put and Take Waters and Put, Grow, and Take Waters. Daily bag limit for kokanee during the non-snagging season is 5 fish per day. During the annual snagging seasons at select waters, the daily bag limit is 12 fish per day. Snagging of kokanee is permitted because these fish will die after reaching spawning condition. In some cases, Special Trout Water regulations are in place to increase growth potential of stocked fish to larger sizes (e.g., San Juan River tailwater).

Wild Trout Waters include populations of trout that are maintained entirely via natural reproduction. Fisheries may be composed of a single species or include several species. Wild Trout Waters include Brook, Brown, Cutthroat, Gila, Lake, and Rainbow trout. The recovery populations of Gila Trout that are open to angling and Conservation Populations of Rio Grande Cutthroat Trout are included in Wild Trout Waters. At this time, five wild populations of Gila Trout are open to angling in New Mexico along with dozens open for Rio Grande Cutthroat Trout. Considering the conservation status of these species, these waters are formally designated as Native Fish Waters and are discussed further below. Specific criteria for both Conservation Populations of Rio Grande Cutthroat Trout and Gila Trout populations which are open to angling are discussed in the relevant conservation and recovery planning documents for each species. Since Wild Trout Waters are entirely supported by natural reproduction, avoiding overfishing via harvest regulations is of significant importance. The wild Lake Trout population in Heron Reservoir is managed to limit harvest and promote a stable population with a limited daily bag limit of 2 fish per day. Most Wild Trout Waters are subject to the statewide daily bag limit of 5 fish per day while others have Special Trout Water regulations.

Special Trout Waters have unique regulations intended to manipulate or protect the population through reduced bag limits and/or restrictions of allowable terminal tackle. In 2018, Special

Trout Water regulations were restructured with a New Mexico chile theme. Red Chile Waters prohibit harvest and limit terminal tackle (e.g., artificial lure or fly only, single barbless hook) and are geared toward producing trophy size trout (e.g., San Juan River tailwater), conserving native trout species, or protecting waters with special angling interest. Green Chile Waters allow daily harvest of two trout while still limiting terminal tackle. Green Chile Waters allow opportunity to harvest fish while still providing a unique experience of a quality fishery. X-mas Chile Waters allow daily harvest of two trout with any legal terminal tackle and are focused on providing quality fisheries without limiting any one angler group. In addition, a subset of Red Chile Waters, known as Native Trout Conservation Waters, were adopted to conserve native trout by allowing unlimited harvest of non-native trout to suppress these species and reduce competition.

Management strategies for Put and Take Trout Waters are focused on maximizing stocked fish return to the angler and spreading angling opportunity throughout an entire season and among anglers. Conversely, Put, Grow, and Take Trout Waters and Wild Trout Waters seek to provide angling opportunity yet ensure populations are maintained through time. As a result, objective parameters for Put and Take Trout Waters are focused on angler harvest rates and stocking rates. These parameters measure how effectively the Department allocates catchable Rainbow Trout and how those fish return to anglers. Objective parameters for Put, Grow, and Take Trout Waters are intended to establish desired population density and growth rates of stocked fish. Considering the diversity of Wild Trout Waters in the state, no single population parameters will fit all populations. In this case, general indicators of desired population status were developed for Wild Trout Waters.

Trout Parameters

Put and Take:

- Angler Harvest Rate: 1 fish/angler day during stocking season
- Stocking Rate: Stock at least 1 fish/angler day

Put, Grow, and Take:

Rainbow Trout

- Catch Per Unit Effort: 10 fish/hour of electrofishing
- Size Structure: 50% of Rainbow Trout surveyed > 10 inches in length

Rio Grande Cutthroat Trout

- Trout Community: > 5% of trout abundance composed of Rio Grande Cutthroat Trout

Kokanee

- Catch Per Unit Effort: 20 fish/net night with pelagic set nets

- Age structure: Equal contribution of Age-3 and Age-4 fish in annual spawning population

Wild:

Recreational Trout Waters

- Size Structure: Multiple year classes of trout including young of year
- Density: > 80 adult trout/acre of habitat

Quality Trout Waters

- Quality Potential: 5% of trout ≥ 12 inches
- Density: ≥ 400 adult trout/acre of habitat

Trophy Trout Waters

- Trophy Potential: 5% of trout ≥ 20 inches
- Angler Catch Rate: ≥ 1 fish/hour
- Density: ≥ 1,250 adult trout/acre of habitat

Native Species

New Mexico waters historically supported at least 66 native fish species. Several species or subspecies have been extirpated though over 50 still exist in the state. Many of these native species have declined from historical levels due to a variety of factors and are protected under the NMWCA or the ESA. Some native species such as Gila Trout and Rio Grande Cutthroat Trout are better known to the public compared to rare endemic fishes such as Loach Minnow or White Sands Pupfish. In some areas, conservation efforts and angling opportunity are complementary. The purpose of Departmental conservation efforts for native fishes is to address or mitigate existing threats to species to preclude the need to list a species under federal or state law, increase the distribution of species to warrant downlisting or removal from listing status, and maintain the ecological roles that many of these species play in our landscape. Improving the status of these taxa also benefit New Mexico anglers by minimizing potential restrictions imposed on sportfish activities where conflicts exist with listed species. The Department allocates significant resources to native fish conservation efforts in every river basin in the state.

Native fish management in New Mexico varies by species, drainage, and available resources to improve species status. They are also part of a fish assemblage that could include native, non-native, and sportfish species. In many cases, some native fish coexist with other species or can thrive in a modified environment. In those cases, native fish are managed in conjunction with typical management activities such as monitoring, regulation of sportfish take, alteration of species stocking or location, or species importation evaluations. In areas with no known direct conflict between sportfish and native fish management, the Department does not specifically

take actions to the detriment of native fish, though species management is typically focused on sportfish. In others, the aquatic environment has been altered to a degree where certain native fish do not persist in any significant manner. Sportfish management can be in direct conflict with native fish or communities due to predation, interbreeding, or competition. How Department management is focused on instances of altered waters and species hinges upon the feasibility of certain management actions to benefit a species or community, competing resource development (e.g., dams and water withdrawals), and existing programs currently addressing a particular species. All of this must be carefully balanced with existing or potential angler use within all watersheds in the state. To facilitate species recovery for some native fishes, sport fisheries have been targeted for suppression or complete removal.

Gila Trout is listed as threatened under the ESA and the NMWCA. The FWS downlisted Gila Trout from endangered to threatened in 2006 and issued a special rule, also known as a "4d" rule. This special rule permits take of Gila Trout when conducted in accordance with applicable state fish and wildlife conservation laws including fishing activities under state laws and regulations, educational and scientific purposes, the enhancement of propagation, and other conservation actions consistent with the ESA. The Department has been engaged in Gila Trout recovery efforts for decades. Downlisting and delisting criteria for Gila Trout are defined in the Gila Trout Recovery Plan (2003) and a revision of this plan is drafted and expected to be finalized in 2022. The Department plans to continue to conduct restoration efforts including piscicide treatments to remove competing or hybridizing non-native trout species, habitat protection via fish migration barriers, and development of angling regulations, in accordance with the recovery plan and future revisions. The Framework for Management of Gila Trout Angling (2015) provides additional guidance for recreational stocking efforts as well as monitoring of streams open to angling.

Warmwater reaches of the Gila River Basin support several endemic and imperiled native species including Loach Minnow, Roundtail Chub, and Spikedace. These species are negatively affected by non-native predators and their distribution has declined significantly from historical levels. While non-native predators are a threat to some Gila River fishes, other activities have altered habitats that negatively affect native fisheries. Active conservation efforts in the Gila River basin for native fish include active suppression of non-native fishes in certain reaches and repatriating rare fishes to historically occupied habitats. Future activities to benefit native species could include angling regulations to encourage removal of non-native predators from priority reaches, non-native fish removal via piscicide treatments, and habitat protection via fish barriers. The Department participates in various recovery activities for fish as described below.

Federal listing of Rio Grande Cutthroat Trout was determined to be not warranted in 2014 and it was removed from the candidate species list under the ESA. In 2019, as a result of ongoing litigation, a Federal Court for the District of Colorado vacated the previous decision and Rio Grande Cutthroat Trout were returned to Candidate status. The Department has been a signatory to the Rangewide Conservation Agreement for Rio Grande Cutthroat Trout since 2002 and a complementary Conservation Strategy since 2013. The purpose of these documents is to memorialize formal commitments by the Department and other federal, state, and tribal cooperators to Rio Grande Cutthroat Trout conservation efforts including desired population numbers within certain watersheds. The Department will continue ongoing restoration efforts that benefit Rio Grande Cutthroat Trout similar to those described for Gila Trout above. This will include mechanical suppression efforts and angling regulations intended to suppress non-native trout in designated reaches. The Department has also included Rio Grande Sucker and Rio Grande Chub into restoration planning efforts to restore the entire native fish community when appropriate.

Warmwater reaches of the San Juan River and tributaries currently support Colorado Pikeminnow, Razorback Sucker, and, to a lesser extent, Roundtail Chub. Both Colorado Pikeminnow and Razorback Sucker are federally protected and their recovery is the primary purpose for the San Juan River Basin Recovery Implementation Program (SJRBRIP) in which the Department participates. Management activities conducted as part of that program include annual monitoring, non-native fish suppression (Channel Catfish removal), and participation in the SJRBRIP Biology Committee meetings. The Department plans to continue participation in these efforts, craft new approaches to recovery, as well as develop other potential conservation efforts that could benefit Roundtail Chub.

Multiple conservation plans, agreements, and state and federal recovery plans also guide Department actions for native fish management and conservation. Many of these plans and agreements summarize threats to each species and include approaches to address those threats. Below is a list of conservation planning documents organized by the primary basin to which they are relevant. Some plans are applicable to multiple drainages. Copies of these plans can be found on the Department website at https://www.wildlife.state.nm.us/fishing/fisheries-management/.

Gila River Basin

- Colorado River Basin Chubs Recovery Plan, 2006 (State)
- Framework for Management of Gila Trout Angling, 2015
- Gila Trout Recovery Plan, 2003 (Federal)
- Loach Minnow Recovery Plan, 1991 (Federal)
- Spikedace Recovery Plan, 1991 (Federal)

Mimbres River Basin

- Chihuahua Chub Recovery Plan, 1986 (Federal)
- Fishes of the Rio Yaqui Recovery Plan, 1995 (Federal)

Rio Grande and Pecos River Basins

- Conservation Agreement for Pecos Pupfish, 2013
- Conservation Agreement for Rio Grande Chub and Rio Grande Sucker, 2018
- Conservation Agreement for Rio Grande Cutthroat Trout in the States of Colorado and New Mexico, 2013
- Pecos Bluntnose Shiner Recovery Plan, 1992 (Federal)
- Pecos Gambusia Recovery Plan, 1983 (Federal)
- Recovery and Conservation Plan for Four Invertebrate Species: Noel's Amphipod, Pecos Assiminea, Koster's Springsnail, and Roswell Springsnail, 2005 (State)
- Recovery Plan for Four Invertebrates of the Pecos River Valley: Noel's Amphipod, Pecos Assiminea, Koster's Springsnail, and Roswell Springsnail, 2019 (Federal)
- Rio Grande Chub Conservation Strategy, 2021
- Rio Grande Cutthroat Trout Conservation Strategy, 2013
- Rio Grande Silvery Minnow Recovery Plan, 2010 (Federal)
- Rio Grande Sucker Conservation Strategy for, 2021
- Texas Hornshell Recovery Plan (State), 2007
- Texas Hornshell Draft Recovery Plan, 2020 (Federal)

San Juan River Basin

- Colorado Pikeminnow Recovery Plan, 2002 (Federal)
- Colorado River Basin Chubs Recovery Plan, 2006 (State)
- Range-wide Conservation Agreement and Strategy for Roundtail Chub, Bluehead Sucker, and Flannelmouth Sucker, 2006
- Razorback Sucker Recovery Plan, 2002 (Federal)

Zuni Basin

- Zuni Bluehead Sucker Recovery Plan, 2004 (State)

Tularosa River Basin

- Cooperative Agreement for Protection and Maintenance of White Sands Pupfish, 2020
- White Sands Pupfish Conservation Plan, 2015 (State)

Major Accomplishments since 2016

Since adoption of the Statewide Fisheries Management Plan in 2016, major accomplishments by the Department and our partners include:

- Gila Trout have been restored to 24 miles of habitat in Whitewater Creek. Removal of nonnative trout was completed in 2019 and stocking of Gila Trout began in 2020 and will continue through at least 2022
- The Glenwood State Fish Hatchery is currently undergoing a major renovation to become the Department's Gila Trout facility. When complete, the facility will house a broodstock to propagate Gila Trout for species recovery and expanded angling opportunities
- In 2021, the Department purchased the property adjacent to the Glenwood State Fish Hatchery including water rights significant to the hatchery's operations. The purchase included portions of Whitewater Creek and the San Francisco River that are occupied habitat for endangered Loach Minnow and Spikedace, thus securing an important refuge for both species
- From 2016 to 2020 the proportion of stocked catchable Rainbow Trout over 10 inches increased from 61% to 73%
- Rio Grande Cutthroat Trout have been restored to 90 miles of stream and Costilla Reservoir. The Department anticipates completing removal of nonnative fishes from the final areas of the project in 2022 and for stocking to begin in 2023
- Five fish migration barriers were constructed since 2016. Barriers were completed in Willow Creek (Gila Drainage), Willow Creek (Pecos Drainage), the BLM Overflow Wetlands on the Pecos River, and Costilla Creek. Each barrier protects a population of Gila Trout, Pecos Pupfish, or Rio Grande Cutthroat Trout and provides benefits for other native fish like Rio Grande Chub and Rio Grande Sucker
- In 2017, the Department transitioned angler surveys to a web-based survey method from traditional methods (e.g., phone and mail). The surveys provide insight on annual angler satisfaction, seek input on current topics, refine existing management programs, and monitor trends in angler use and harvest. Gila Trout were also added to the survey to explore increased angler interest for this species
- Since 2016, the Department has improved fish habitat on seven streams and rivers, totaling 14.5 miles, and one 60-acre lake
- In 2018, warmwater fish production at Rock Lake State Fish Hatchery converted to primarily Largemouth Bass. Since that conversion, the hatchery has refined spawning practices, increased annual stocking by an average of 8700%, and stocked 1,017,697 Largemouth Bass in 25 waters statewide

- The Department expanded youth angling opportunities by opening Rock Lake State Fish Hatchery settling ponds to anglers 11 years old and younger, providing Rainbow Trout and Largemouth Bass to support multiple fishing derbies, and expanded Rio Grande Cutthroat Trout stocking at the Seven Springs Kids Pond. In addition, age-restricted waters were simplified to four basic types and daily harvest limits were aligned with statewide regulations at multiple waters to reduce confusion and increase opportunity
- In 2021, the Department provided two new tools to the state's anglers: Fishing Conditions and Trip Planner that synthesizes fishing report data to help anglers find the best times and places to fish for certain species and a new Fishing Waters Map that is a wealth of information about fishing locations throughout New Mexico. Both can be found at www.wildlife.state.nm.us/fishing/fishing-conditions-trip-planner/
- In July 2017, the State Game Commission amended 19.30.14 NMAC to increase protection of New Mexico's waters from AIS by requiring inspections for out of state watercraft, advanced notice for watercraft 26 feet or larger being transported into the state, and hull plug to be removed during transport. The new rule also implements a watercraft inspection seal program. The amended rule along with the Department's ongoing AIS inspection and decontaminations have thus far succeeded in preventing zebra and quagga mussels from becoming established in the state
- In February 2021, the State Game Commission amended 19.35.7 NMAC to update and clarify importation rules associated with fish health
- The Special Trout Water system was simplified to four basic regulation packages with a New Mexico chile theme. These regulations were tailored to improve angler understanding, facilitate native trout restoration, and maximize biotic potential in these trout fisheries
- The State Game Commission designated three waters as Trophy Bass Waters that included a regulatory change and focused stocking strategy to protect and enhance angling opportunities for trophy sized Largemouth Bass

Identified Priority Projects and Needs for Further Investigation and Research

The 2016 Plan identified a number of programmatic fisheries priorities including evaluation of hatchery stocking, habitat restoration, AIS monitoring and prevention, species recovery efforts, and statewide fisheries management. The 2016 priorities and details regarding progress made toward them can be found in Appendix B. Below are the ongoing and new priorities, in many cases these priorities are direct responses to challenges and threats, like climate change and reduced water availability.

Evaluation of Hatchery Stocking

Trout

- Investigate potential for reducing or eliminating stocking of catchable trout from five waters or reaches which support wild trout and reallocate to higher use systems including lakes and ponds
- Continue to evaluate allocation of catchable and subcatchable trout
- Continue to investigate areas where native trout, surplus to recovery efforts, can be used to increase angling opportunities for native trout including high mountain lakes
- Investigate opportunities for additional native trout production to expand angling opportunities for Gila and Rio Grande Cutthroat trout
- Monitor and adjust kokanee stocking strategies in accordance with varying reservoir levels and differing spawning success

Catfish

- Refine Channel Catfish stocking strategies to best allocate private-sourced catfish

Walleye

- Monitor and adjust Walleye stocking strategies in accordance with varying reservoir levels and differing spawning success

Black Bass

- Establish long-term stocking goals for Largemouth Bass produced at Rock Lake State Fish Hatchery
- Investigate success of stocked Largemouth Bass
- Investigate genetic composition of wild bass in New Mexico's reservoirs to identify potential of diversifying hatchery brood and stocking strategies

Temperate Bass

- Investigate potential of hybrid striped bass as a management species and identify candidate reservoirs for stocking
- Stock hybrid striped bass into Caballo Lake and monitor for success

Habitat Restoration

- Work with partners and volunteers, design and implement instream, riparian, and reservoir habitat restoration efforts on Commission owned Wildlife Management Areas including monitoring and maintenance of existing projects
- Work with partners and volunteers, design and implement instream, riparian, and reservoir habitat restoration efforts on non-Commission owned properties

- Implement fish habitat improvement projects under the Department's 2021 updated Habitat Stamp Program

Aquatic Invasive Species

- Maintain prevention efforts including watercraft inspection stations
- Review and update the 2008 New Mexico Aquatic Invasive Species Management Plan

Fish Health

- Maintain hatchery and wild fish health program to mitigate risk from known fish pathogens
- Provide recommendations for fish health risk assessments, management practices, and hatchery improvements
- Develop and test a Fish Quality and Health Assessment tool for stocked Rainbow Trout that aligns with angler expectation for fish quality and appearance

Environmental Compliance

- Complete a comprehensive, statewide Biological Assessment for ESA Section 7 compliance for all Departmental fish monitoring and surveys in New Mexico
- Maintain all environmental compliance for Fisheries Management Division activities

Species Recovery Efforts

Native Trout Restoration

- Continue Rio Grande Cutthroat Trout restoration in the Costilla Creek watershed as well as identify restoration waters in the Pecos River and Canadian River watersheds
- Continue Gila Trout restoration in the Gila River Basin
- Install, enhance, and maintain fish migration barriers used to protect restored and existing populations of native trout
- Assess and act on opportunities for restoration created by wildfire or other disturbances as they occur, as done in Mineral, Willow, and Whitewater creeks (Gila Basin), and Rito de los Frijoles and Las Animas Creek (Rio Grande Basin)
- Continue investigating use and effects of YY trout to aid in native trout restoration efforts
- Incorporate other native fishes into restoration efforts including warmwater reaches, where possible. Examples include Rio Grande Sucker, Rio Grande Chub, Spikedace, and Loach Minnow.

Rio Grande Basin Warmwater Fishes

- Investigate distribution and genetic status of Rio Grande Chub and Rio Grande Sucker throughout the state
- Implement restoration activities for Rio Grande Chub and Rio Grande Sucker as described each species Conservation Strategies

Gila River Basin Warmwater Fishes

- Identify potential restoration and repatriation opportunities for Spikedace, Loach Minnow, and Roundtail Chub in the Middle Fork Gila River, San Francisco River drainage, and other locations
- Incorporate native trout into restoration efforts to complement coldwater reaches and other sensitive or listed taxa recovery efforts, where possible

San Juan River Basin Fishes

- Investigate opportunities to increase passage for native fish
- Identify potential restoration and repatriation opportunities for Roundtail Chub
- Investigate potential use and effects of YY fish to aid non-native fish suppression efforts

Lower Pecos River Basin Fishes

- Investigate genetic status of Pecos Pupfish populations

Statewide Fisheries Management

- Work to encourage expanded youth angling opportunities
- Investigate regulatory structure to manage potential hybrid striped bass fisheries in Caballo Lake and other waters
- Investigate potential regulatory structure to allow expanded use of set lines including ice fishing tip-ups and jug-lines for catfish
- Update, refine, and improve angler information sources including but not limited to the Fishing Conditions and Trip Planner and Fishing Waters Map
- Investigate angler use and harvest in native trout populations
- Refine an approach for resolving sportfish/native fish conflicts
- Work with NGO's to develop and implement conservation projects with direct volunteer involvement such as habitat improvement for sport and native fish, fish stocking, and nonnative fish control

Watershed Descriptions and Fisheries Management

To initiate the management reach delineations below, the National Hydrography Dataset (NHD) flowline and waterbody files for New Mexico were imported into existing Department geodatabases. Department staff identified management reaches based upon available fish distribution datasets and management activities. Management reaches were based upon individual waters, in some cases, but also grouped into watersheds or sub-watersheds where feasible. Once identified, corresponding features from the NHD datasets were exported into a new dataset. Additional spatial information, including hydrologic unit codes and geographic names information system (GNIS) codes, were appended into the new dataset. Non-spatial information including priority fish species, management type, and management direction for each were then incorporated. Some reservoirs were not included in the NHD and were digitized using the National Agriculture Imagery Program (U.S. Department of Agriculture) aerial photography from 2011 to 2014.

The term "Fish Species" in the tables below refers to individual species that are a management focus for the water identified. The management reaches that are identified for a species or suite of species does not necessarily mean that the entire reach is occupied by those species due to variation in water quality, flow regime, and habitat availability. Some of the mapped reaches could be dry or wet depending upon an individual water year. In many cases, the species identified are not a comprehensive list of species present within the water or could identify a species that does not yet inhabit a water. Activities such as monitoring or restoration will be focused on the focal species identified with potential community benefits for others when possible. Failure to mention a species does not imply that the Department intends to actively remove a species from a water. The maps included are intended for management direction only and do not reflect absolute distribution. Individual species accounts, datasets, and distributions are available from the Department, other state or federal agencies, and the BISON-M database maintained by the Department.

"Management Type" refers to general categories of activities such as stocking strategy, self-sustaining populations, or population suppression. The Native Fish designation includes all activities which could help to monitor, support, or restore the identified species as well as other members of the community.

"Management Direction" includes a brief synopsis of the Department's expected management for a water or species in that water. Stocking rates will generally follow the Department's stocking schedule (www.wildlife.state.nm.us/fishing/weekly-report/) which may be modified over time. Stocking rates that vary by year or water levels are specifically noted in the tables below.

Canadian Watershed and Clovis Area Waters

The Canadian Watershed, in northeast New Mexico, encompasses about one-sixth of the land area of the state or about 10.9 million acres (New Mexico Water Quality Control Commission 2002). Canadian River tributaries flow east and southeast from their origins on the east slopes of the Sangre de Cristo cordillera of northern New Mexico and southern Colorado. As it traverses the Great Plains in a southerly and then easterly direction several perennial tributaries, including the Cimarron, Conchas, Mora, and Vermejo rivers, join the South Canadian River before it exits New Mexico near the town of Logan. The Upper Canadian, Middle Canadian, Upper Beaver, and the Dry Cimarron are the only perennial sub-basins.

Settlement and irrigation withdrawal along high mountain valleys in the Mora River dates to the 1700's. Numerous impoundments and diversions have been built throughout the upper drainage for irrigation and municipal water. Livestock grazing continues to be the primary land use throughout the drainage. Two large dams on the Canadian River, Conchas Dam (constructed 1938) and Ute Dam (constructed 1962), impound reservoirs and modify natural flows as the river approaches the New Mexico-Texas border. These reservoirs provide suitable habitat for sportfish such as Largemouth Bass, Smallmouth Bass, and Walleye.

Historical fisheries management in the Canadian River Watershed has focused primarily on trout management in the headwaters with warmwater species in lower elevation habitats. Popular trout populations open to the general public include the Cimarron River, Eagle Nest Lake, Lake Maloya, and Morphy Lake. Popular warmwater fisheries within the drainage occur in Conchas and Ute lakes. Significant portions of the Canadian Watershed are privately owned which limits general public access to these areas without landowner permission. The Department also leases several waters from landowners to expand angling opportunities either through long-term leases or the Department's Open Gate Program. For example, the Department pays the Interstate Stream Commission $100,000 annually to obtain access to Ute Lake for the general public. Other examples of the Department leasing fishing access include Morphy and Springer lakes.

Several imperiled fish inhabit the New Mexico reaches of the Canadian River watershed. Arkansas River Shiner, federally threatened, inhabits the Canadian River below Ute Dam to the stateline. Peppered Chub, state threatened and currently proposed for federal listing as endangered, also inhabits the Canadian River below Ute Dam to the stateline. The state endangered Southern Redbelly Dace inhabits a small reach of Coyote Creek and is a disjunct population from other populations in the Mississippi River drainage. In addition, state threatened Suckermouth Minnow occur in the Canadian Basin. There is currently limited conflict among non-native sportfish and native fish management. Where some overlap exists, introduced species such as Brown Trout and Southern Redbelly Dace seem to co-exist.

Nevertheless, the Department has identified reaches to monitor and proactively manage the fish communities.

HUC 11080001 Canadian Headwaters, HUC 11080002 Cimarron

Management Direction for HUC 11080001 Canadian Headwaters

Water	Fish Species	Management Type	Management Direction
Canadian River and Tributaries (headwaters downstream to Cimarron River confluence)	Central Stoneroller	Native Fish	Maintain distribution
	Creek Chub	Native Fish	Maintain distribution
Lake Maloya (Sugarite Canyon)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
Lake Alice	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
Vermejo River and Tributaries (headwaters downstream to Canadian River confluence)	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout in Ricardo, Leandro, and Little Vermejo drainages. Conservation Population of Rio Grande Cutthroat Trout in the Vermejo River down to approximately Vermejo Park Ranch headquarters. Most of the watershed is privately owned. Leandro Creek portions located on Valle Vidal with Special Trout Water regulation (Red Chile Native Trout Conservation Water)
	Central Stoneroller	Native Fish	Maintain distribution
	Creek Chub	Native Fish	Maintain distribution
	Brook Trout	Suppression	Periodically remove Brook Trout in collaboration with private landowner to maintain the Rio Grande Cutthroat Trout population. Leandro Creek portions located on Vermejo Park Ranch have an ongoing YY Brook Trout stocking study. Unlimited angler harvest
Stubblefield Reservoir	Walleye	Put, Grow, and Take	Stock Walleye at 500 fry/surface acre. Actual stocking varies with reservoir elevation. Prone to drying during drought necessitating supplemental stocking of all species such as Bluegill, Crappie, Green Sunfish, Fathead Minnow, and Yellow Perch
	Channel Catfish	Put and Take	Stock catchable Channel Catfish as available

Management Direction for HUC 11080001 Canadian Headwaters			
Water	**Fish Species**	**Management Type**	**Management Direction**
	Yellow Perch	Wild	Supplement Yellow Perch from other sources as necessary during drought periods
	Largemouth Bass	Wild/ Supplemental stocking	Manage as Low-Density Bass Water and maintain statewide bass regulations. Supplement Largemouth Bass as necessary during drought periods
Maxwell Lake 13	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout during spring and fall. Fishing season is March 1 through October 31. Lake closed during winter for waterfowl resting. Prone to drying during drought necessitating supplemental stocking of all species such as Bluegill, Crappie, Green Sunfish, Fathead Minnow, and Yellow Perch
	Channel Catfish	Put and Take	Stock catchable Channel Catfish as available
	Yellow Perch	Wild	Supplement Yellow Perch from other sources as necessary during drought periods
	Largemouth Bass	Wild/ Supplemental stocking	Manage as Low-Density Bass Water and maintain statewide bass regulations. Supplement Largemouth Bass as necessary during drought periods
	Walleye	Put, Grow, and Take	Stock Walleye at 500 fry/surface acre. Actual stocking varies with reservoir elevation, low priority water
Maxwell Lake 14	Channel Catfish	Put and Take	Stock catchable Channel Catfish as available. Fishing season is March 1 through October 31. Lake closed during winter for waterfowl resting. Prone to drying during drought necessitating supplemental stocking of all species such as Bluegill, Crappie, Green Sunfish, Fathead Minnow, and Yellow Perch
	Yellow Perch	Wild/ Supplemental stocking	Supplement Yellow Perch from other sources as necessary during drought periods
	Largemouth Bass	Wild/ Supplemental stocking	Manage as Low Density Bass Water and maintain statewide bass regulations. Supplement Largemouth Bass as necessary during drought periods
	Walleye	Put, Grow, and Take	Stock Walleye at 500 fry/surface acre. Actual stocking varies with reservoir elevation, low priority water
Laguna Madre	Channel Catfish	Put and Take	Stock catchable Channel Catfish as available. Prone to drying during drought necessitating supplemental stocking of all species such as Bluegill, Crappie, Green Sunfish, Fathead Minnow, and Yellow Perch
	Yellow Perch	Wild	Supplement Yellow Perch from other sources as necessary during drought periods

Management Direction for HUC 11080001 Canadian Headwaters			
Water	**Fish Species**	**Management Type**	**Management Direction**
	Largemouth Bass	Wild/ Supplemental stocking	Manage as Low Density Bass Water and maintain statewide bass regulations. Supplement Largemouth Bass as necessary during drought periods
	Walleye	Put, Grow, and Take	Stock Walleye at 500 fry/surface acre. Actual stocking varies with reservoir elevation, low priority water

Management Direction for HUC 11080002 Cimarron			
Water	**Fish Species**	**Management Type**	**Management Direction**
Cimarron River and Tributaries (Eagle Nest Dam downstream to Cimarron, NM)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Brown Trout	Wild	Special Trout Water regulation (Red Chile Water), from east end of Tolby Campground downstream 1.4 miles to the first Highway 64 bridge. Manage as a Quality Trout Water within the Special Trout Water reach
Gravel Pit Lakes	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
Clear Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout
Cimarron River and Tributaries (Cimarron, NM downstream to confluence with Canadian River)	Central Stoneroller	Native Fish	Maintain distribution. Significant portions of this area are on private land
	Creek Chub	Native Fish	Maintain distribution
Eagle Nest Lake	Triploid Rainbow Trout	Put, Grow, and Take	Stock subadult and catchable triploid Rainbow Trout. Consistently monitor to document effects of Northern Pike
	Kokanee	Put, Grow, and Take	Stock kokanee fry. Consistently monitor to document effects of Northern Pike
	Yellow Perch	Wild	Yellow Perch source for transplants to other waters
	Northern Pike	Suppression	Unlimited and mandatory harvest on Northern Pike to manage as unwanted species. Illegally introduced into the lake and are negatively affecting trout and salmon fishery
Springer Lake	Channel Catfish	Put and Take	Stock catchable Channel Catfish as available
	Northern Pike	Wild	Maintain regulations to support northern pike fishery

Management Direction for HUC 11080002 Cimarron			
Water	**Fish Species**	**Management Type**	**Management Direction**
	Largemouth Bass	Wild/ Supplemental stocking	Manage as Low Density Bass Water and maintain statewide bass regulations. Supplement Largemouth Bass as necessary during drought periods
Ponil Creek and Tributaries	Trout	Wild	Maintain regulations to support angling for wild trout
	Creek Chub	Native Fish	Maintain distribution
South Ponil Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout on Philmont Scout Ranch
McCrystal Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout. Special Trout Water regulation (Red Chile Water)
	Creek Chub	Native Fish	Maintain distribution
Rayado Creek	Creek Chub	Native Fish	Maintain distribution
Shuree Ponds	Triploid Rainbow Trout	Put and Take	Stock triploid Rainbow Trout annually. Size at stocking is typically > 15 inches in length. Special Trout Water regulation (Green Chile Water). One pond reserved for anglers 11 years of age or younger
Middle Ponil Creek (Headwaters downstream to Shuree Creek)	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout. Special Trout Water regulation (Red Chile Water). Investigate potential to restore area to support Core Conservation Population
North Ponil Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout present from McCrystal Creek downstream to FS Road 1950. Thermal barrier present at Seally Canyon confluence
	Creek Chub	Native Fish	Maintain distribution

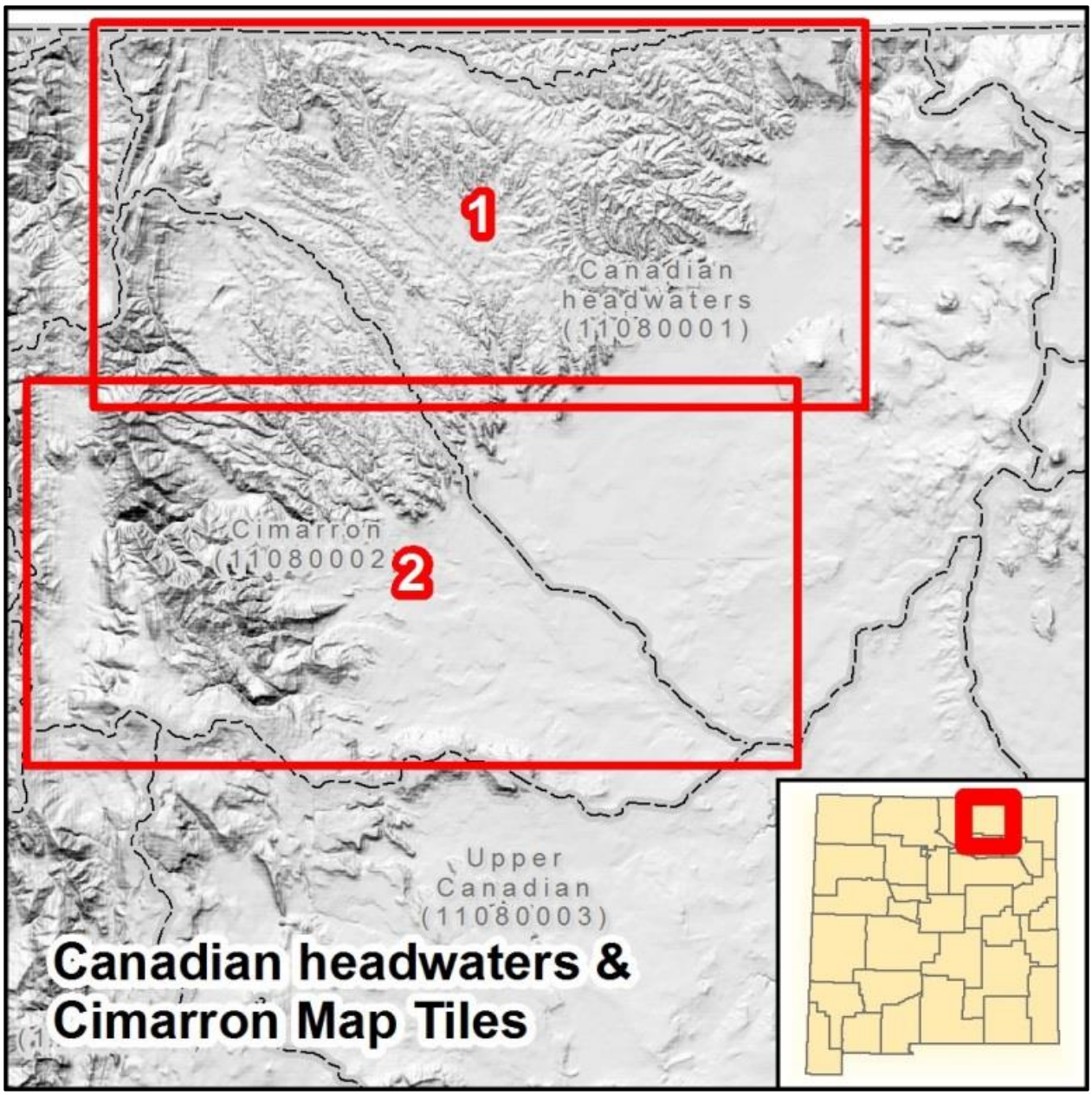

Figure 6. Canadian Headwaters and Cimarron Map Tiles

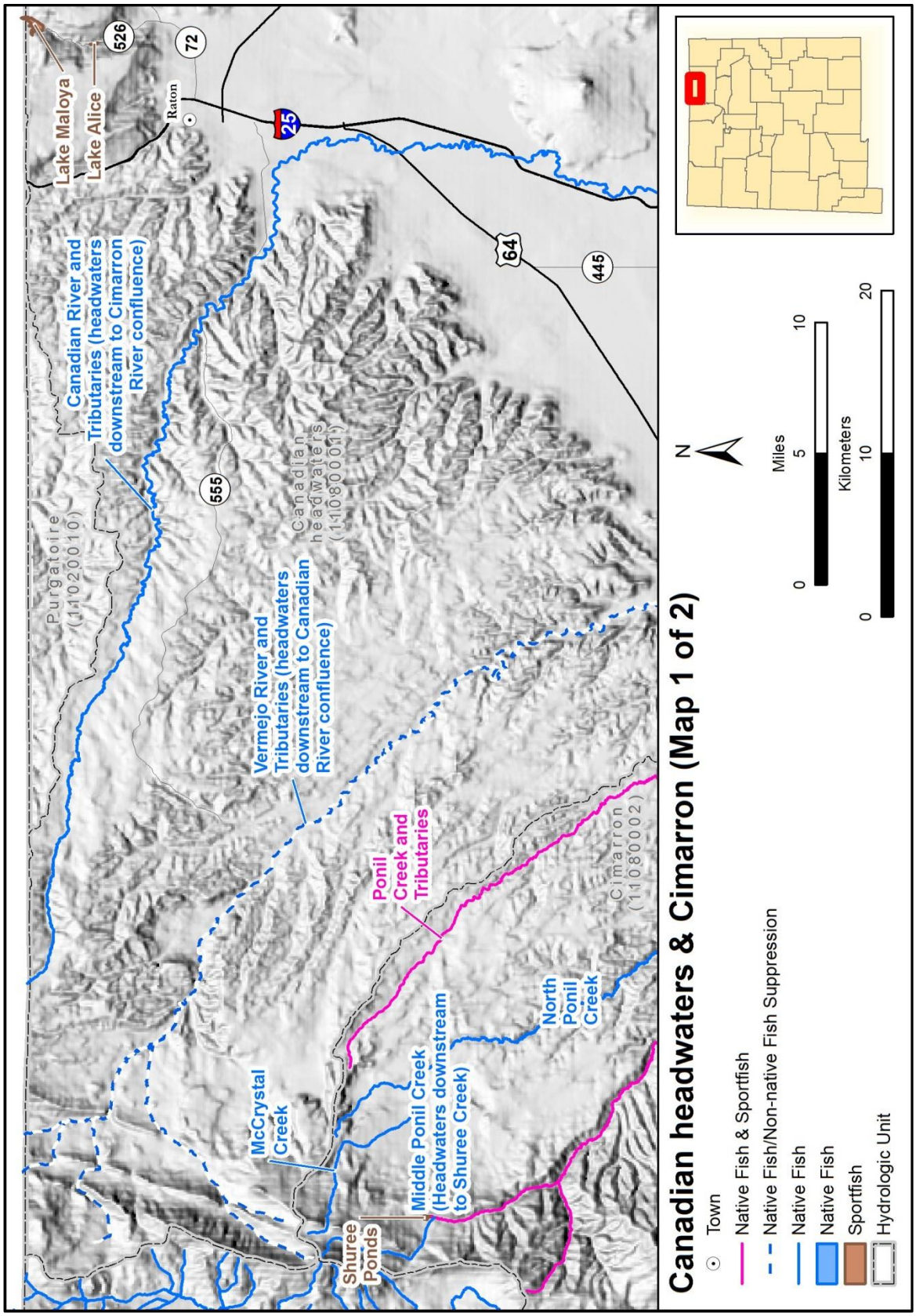

Figure 7. Canadian headwaters and Cimarron (Map 1 of 2)

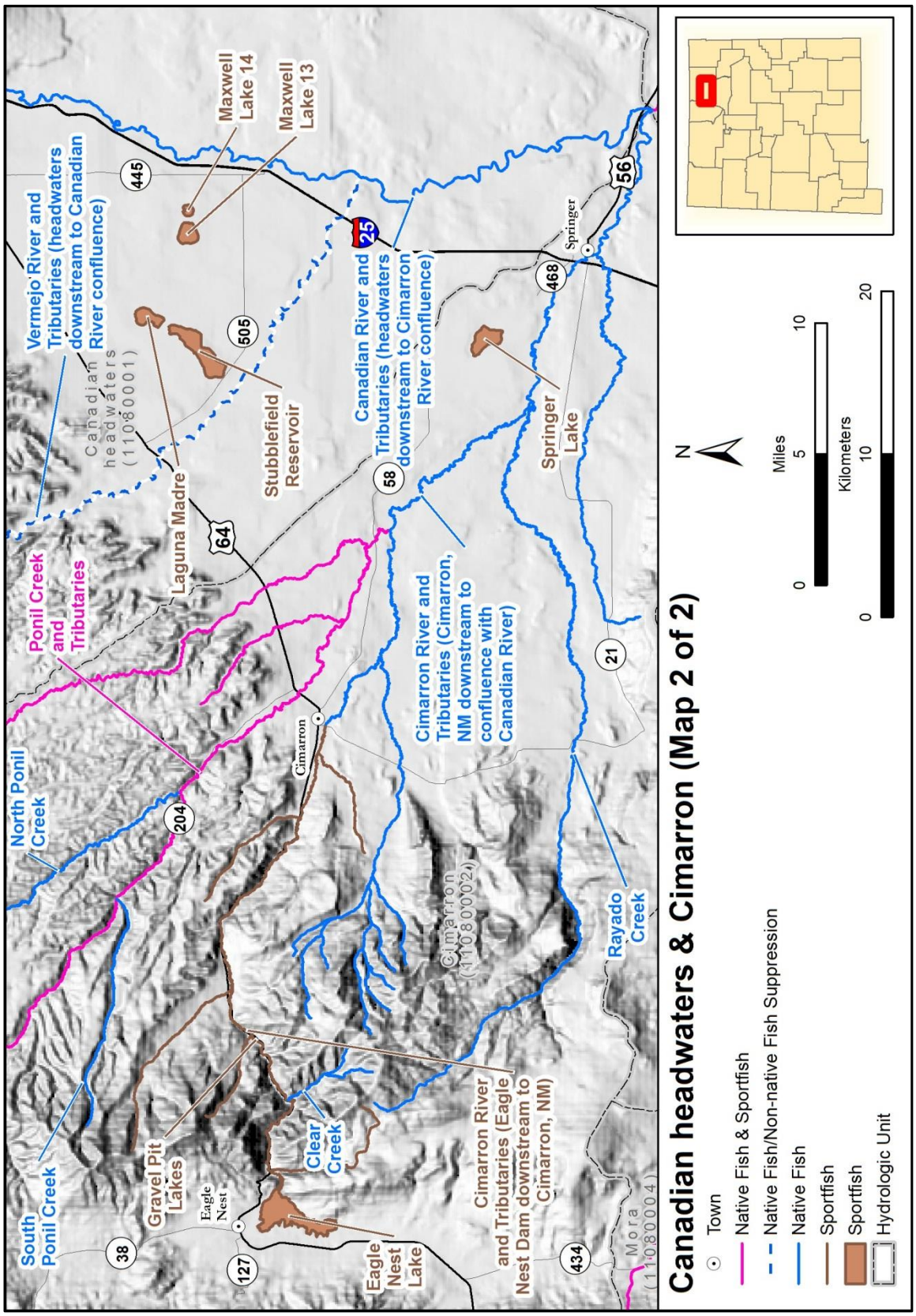

Figure 8. Canadian headwaters and Cimarron (Map 2 of 2)

HUC 11080003 Upper Canadian, 11080005 Conchas

Management Direction for HUC 11080003 Upper Canadian, 11080005 Conchas

Water	Fish Species	Management Type	Management Direction
Canadian River and Tributaries (Cimarron River confluence downstream to Conchas Lake)	Channel Catfish	Wild	Maintain regulations to support angling for Channel Catfish
	Sand Shiner	Native Fish	Maintain distribution
	Suckermouth Minnow	Native Fish	Maintain distribution
Ocate Creek and headwaters	Brown Trout	Wild	Almost entirely on private land. Maintain regulations to support angling for wild trout
	Creek Chub	Native Fish	Maintain distribution
	Central Stoneroller	Native Fish	Maintain distribution
Lower Charette Lake	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Yellow Perch	Wild	Yellow Perch source for transplants to other waters
	Walleye	Put, Grow, and Take	Initiate Walleye stocking to establish a fishery
Conchas Lake	Largemouth Bass	Wild/Supplemental stocking	Manage as a Recreational Bass Water. Supplement with Largemouth Bass fingerlings as available
	Smallmouth Bass	Wild	Manage as a Recreational Bass Water. Special regulation for Smallmouth Bass (14-inch minimum size limit)
	White Bass	Wild	Maintain regulations to support White Bass fishery
	Walleye	Put, Grow, and Take	Stock Walleye at 500 fry/surface acre. Actual stocking varies with reservoir elevation. Maintain as a brood population as primary Walleye egg source

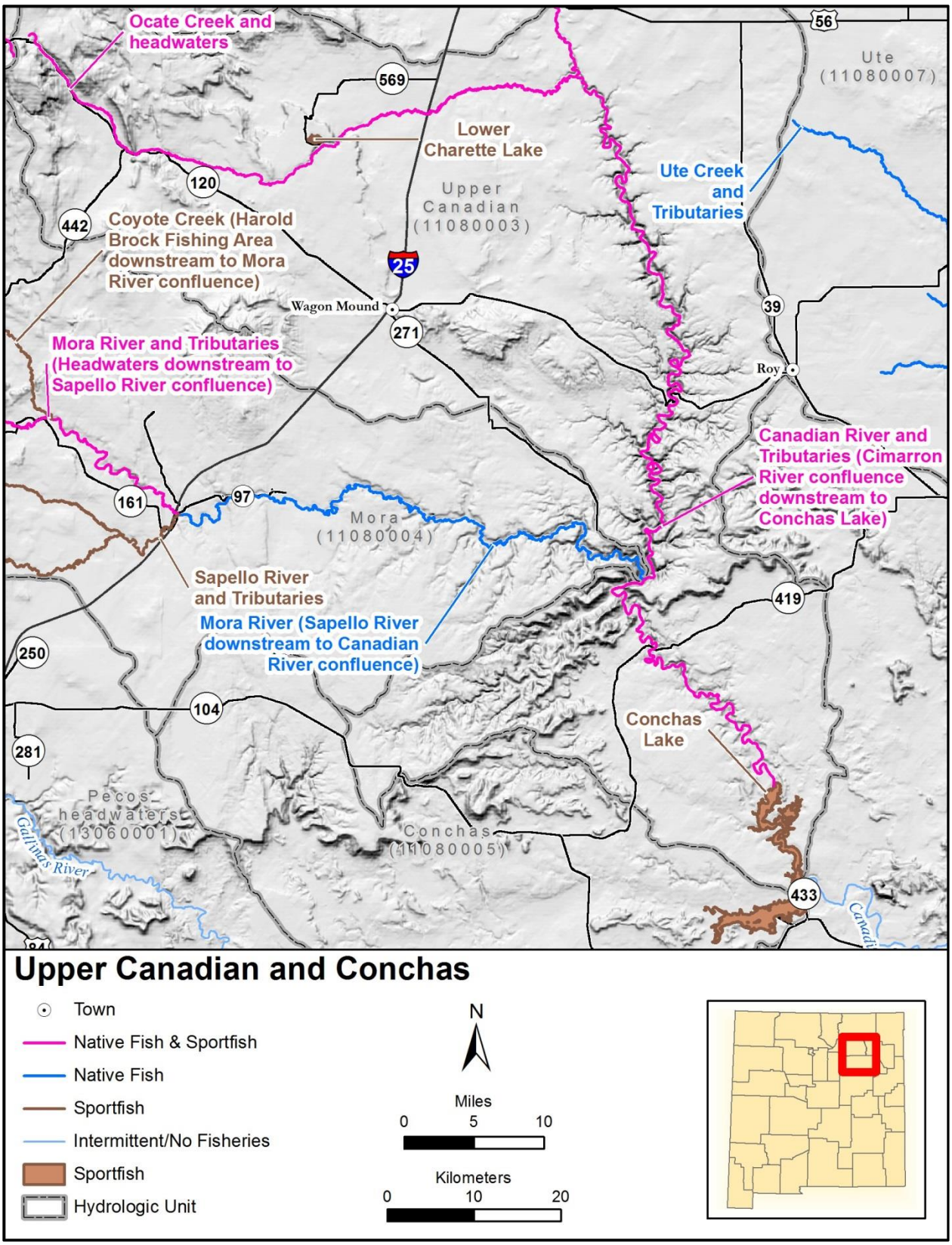

Figure 9. Upper Canadian and Conchas

HUC 11080004 Mora

Management Direction for HUC 11080004 Mora

Water	Fish Species	Management Type	Management Direction
Luna Creek and Tributaries	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout. Special Trout Water regulation on West Luna Creek (Red Chile Native Trout Conservation Water)
	Brown Trout	Suppression	Periodically remove Brown Trout to maintain the Rio Grande Cutthroat Trout population. Unlimited angler harvest
Mora River and Tributaries (Headwaters downstream to Sapello River confluence)	Brown Trout	Wild	Predominantly on private land except for extreme headwaters. Maintain regulations to support angling for wild trout
	Central Stoneroller	Native Fish	Maintain distribution
	Creek Chub	Native Fish	Maintain distribution
	Sand Shiner	Native Fish	Maintain distribution
Sapello River and Tributaries	Brown Trout	Wild	Maintain regulations to support angling for wild trout
Mora River and Tributaries (Headwaters downstream to Sapello River confluence)	Sand Shiner	Native Fish	Maintain distribution
	Green Sunfish	Native Fish	Maintain distribution
	White Sucker	Native Fish	Maintain distribution
Santiago Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout
Rito Morphy	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout
Morphy Lake	Triploid Rainbow Trout	Put and Take	Stock triploid Rainbow Trout annually. Investigate methods to control nuisance goldfish population
Pacheco Lake	Trout	Put, Grow, and Take	Investigate suitability for stocking trout
Santiago Lake	Trout	Put, Grow, and Take	Investigate suitability for stocking trout
Enchanted Lake	Trout	Put, Grow, and Take	Investigate suitability for stocking trout

Management Direction for HUC 11080004 Mora			
Water	**Fish Species**	**Management Type**	**Management Direction**
North Fork Lake	Trout	Put, Grow, and Take	Investigate suitability for stocking trout
Middle Fork Lake	Trout	Put, Grow, and Take	Investigate suitability for stocking trout
Coyote Creek and Tributaries (Headwaters downstream to Harold Brock Fishing Area)	Brown Trout	Wild	Entirely on private land. Maintain regulations to support angling for wild trout
	Southern Redbelly Dace	Native Fish	Maintain distribution. Only known distribution of Southern Redbelly Dace in New Mexico
Coyote Creek (Harold Brock Fishing Area downstream to Mora River confluence)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout including Coyote Creek Ponds
	Brown Trout	Wild	Maintain regulations to support angling for wild trout

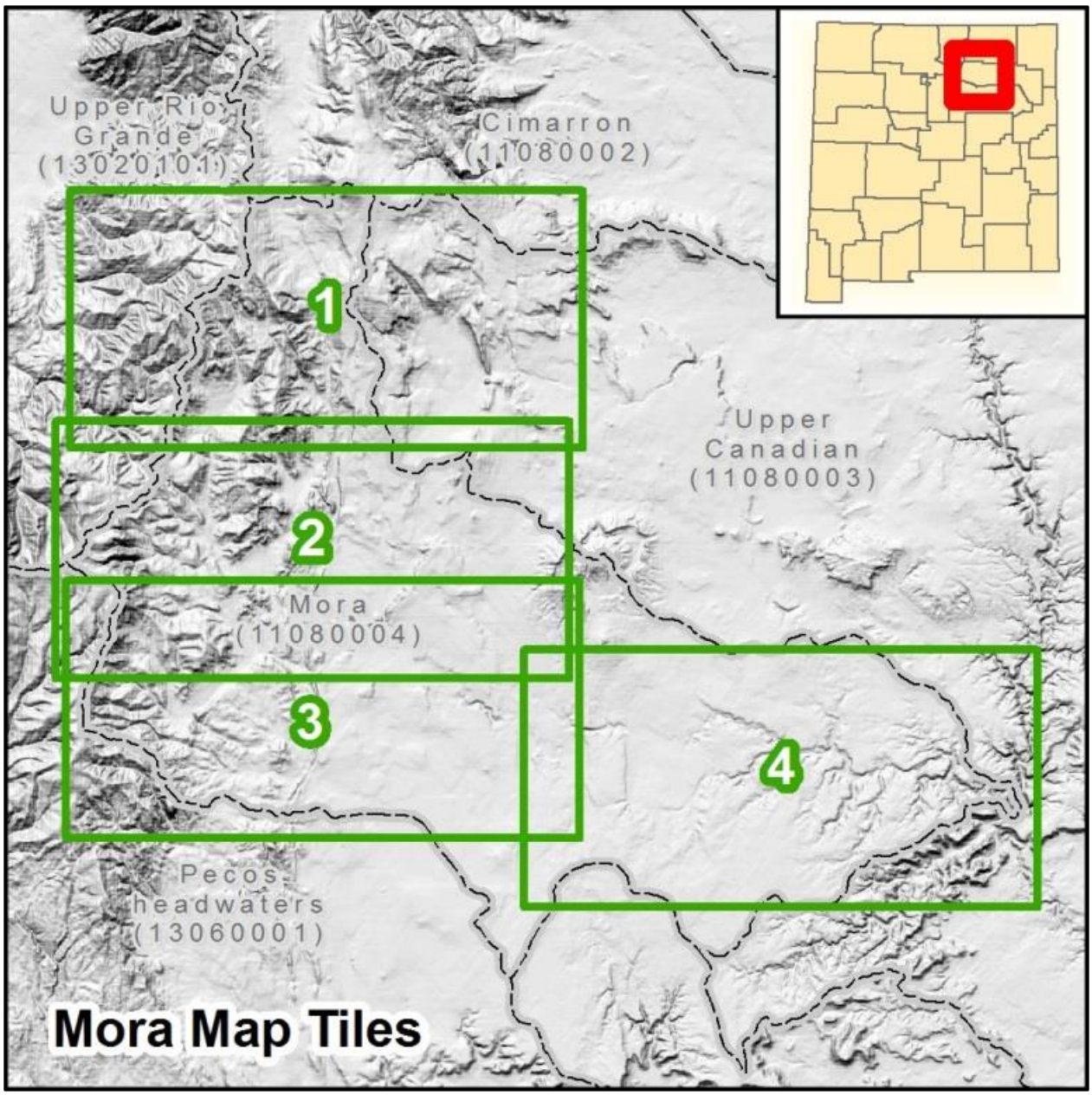

Figure 10. Mora Map Tiles

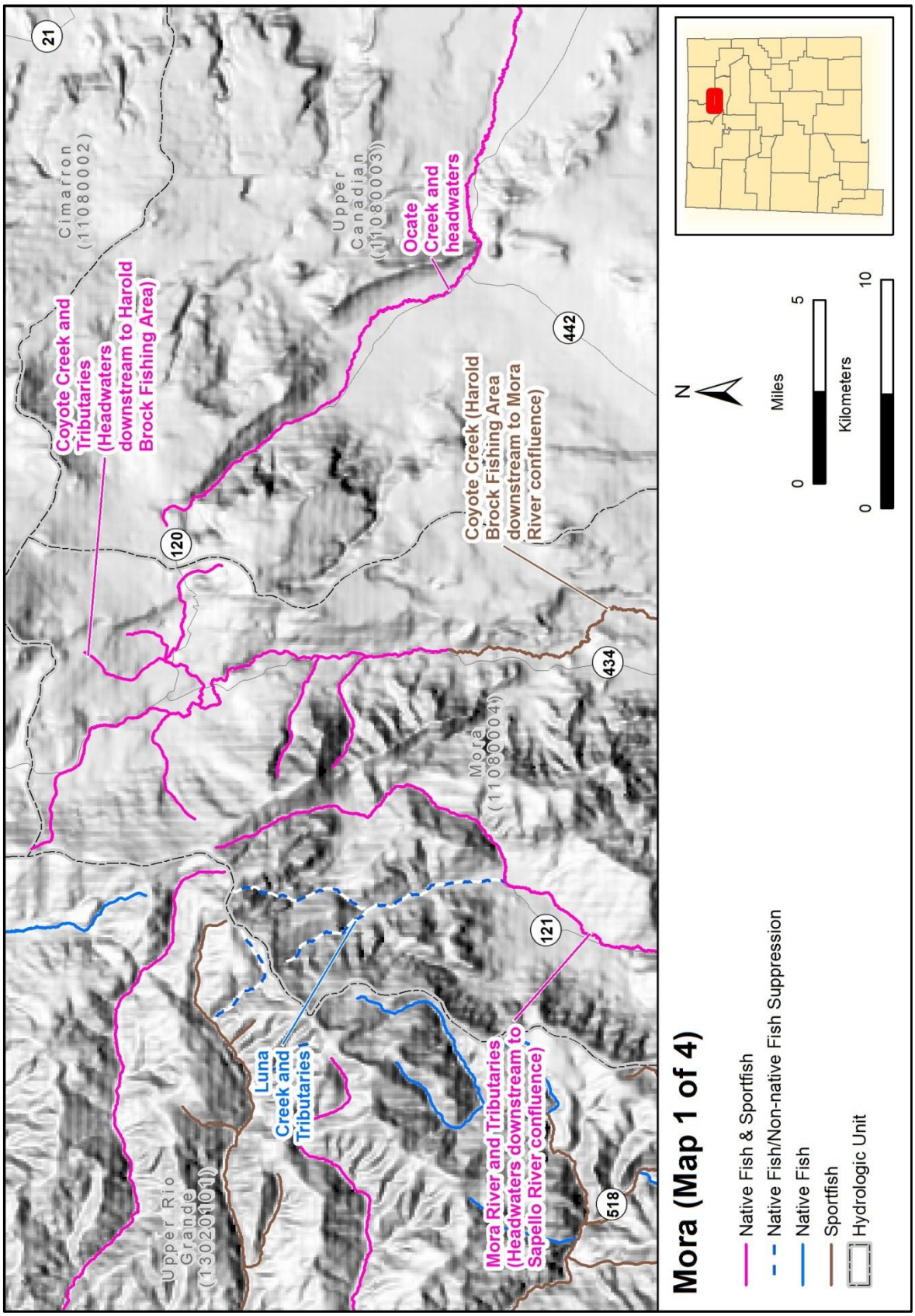

Figure 11. Mora (Map 1 of 4)

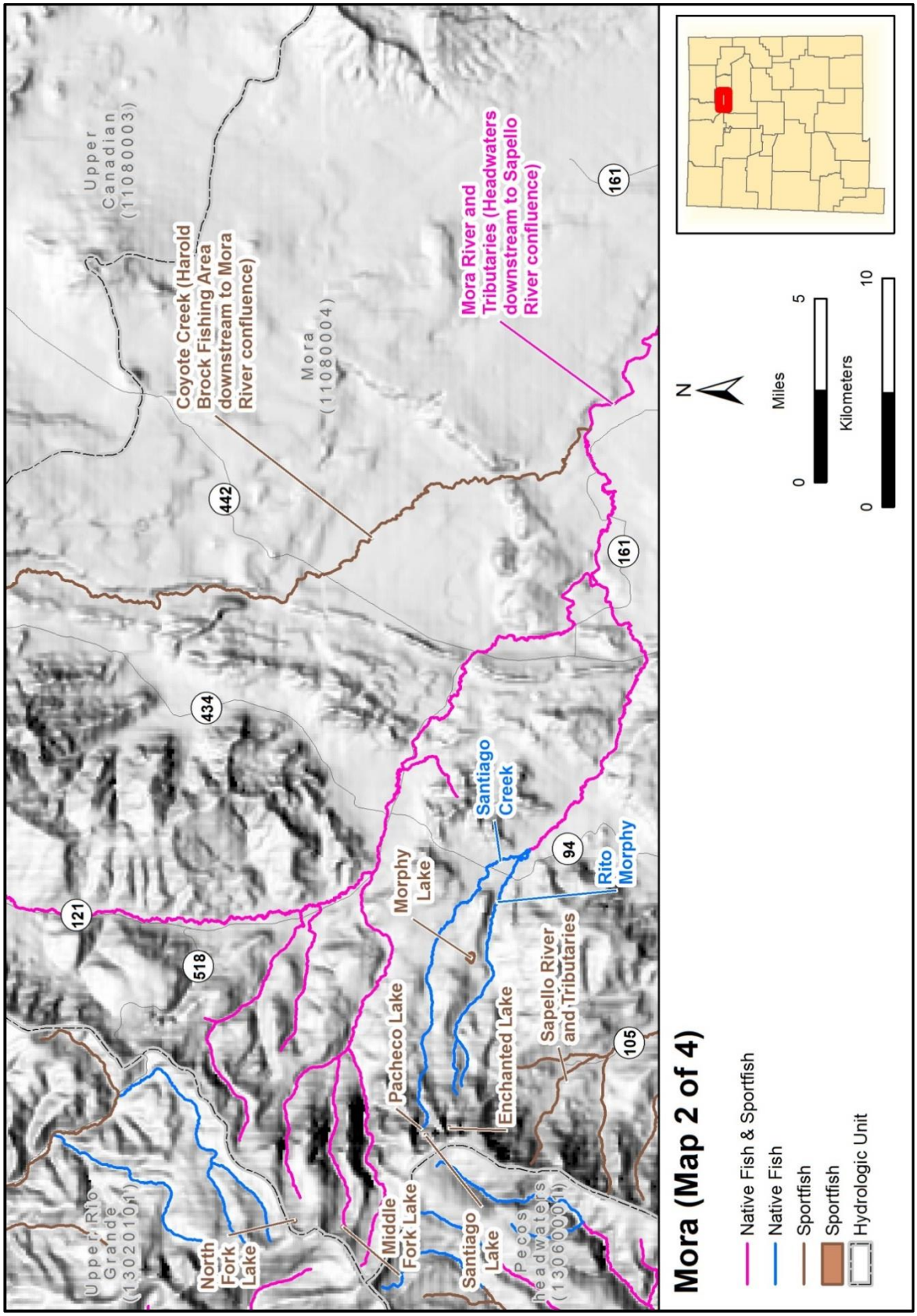

Figure 12. Mora (Map 2 of 4)

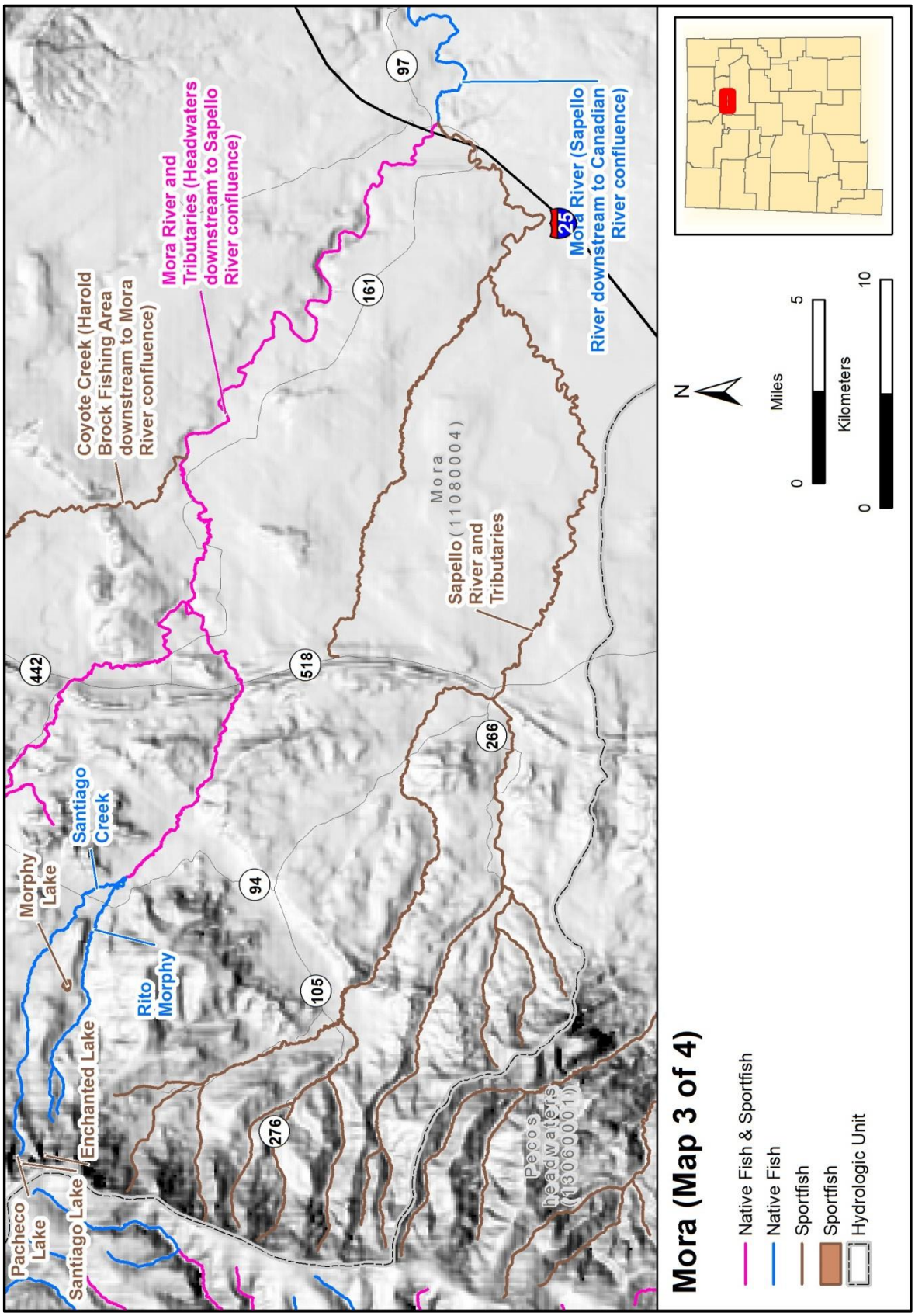

Figure 13. Mora (Map 3 of 4)

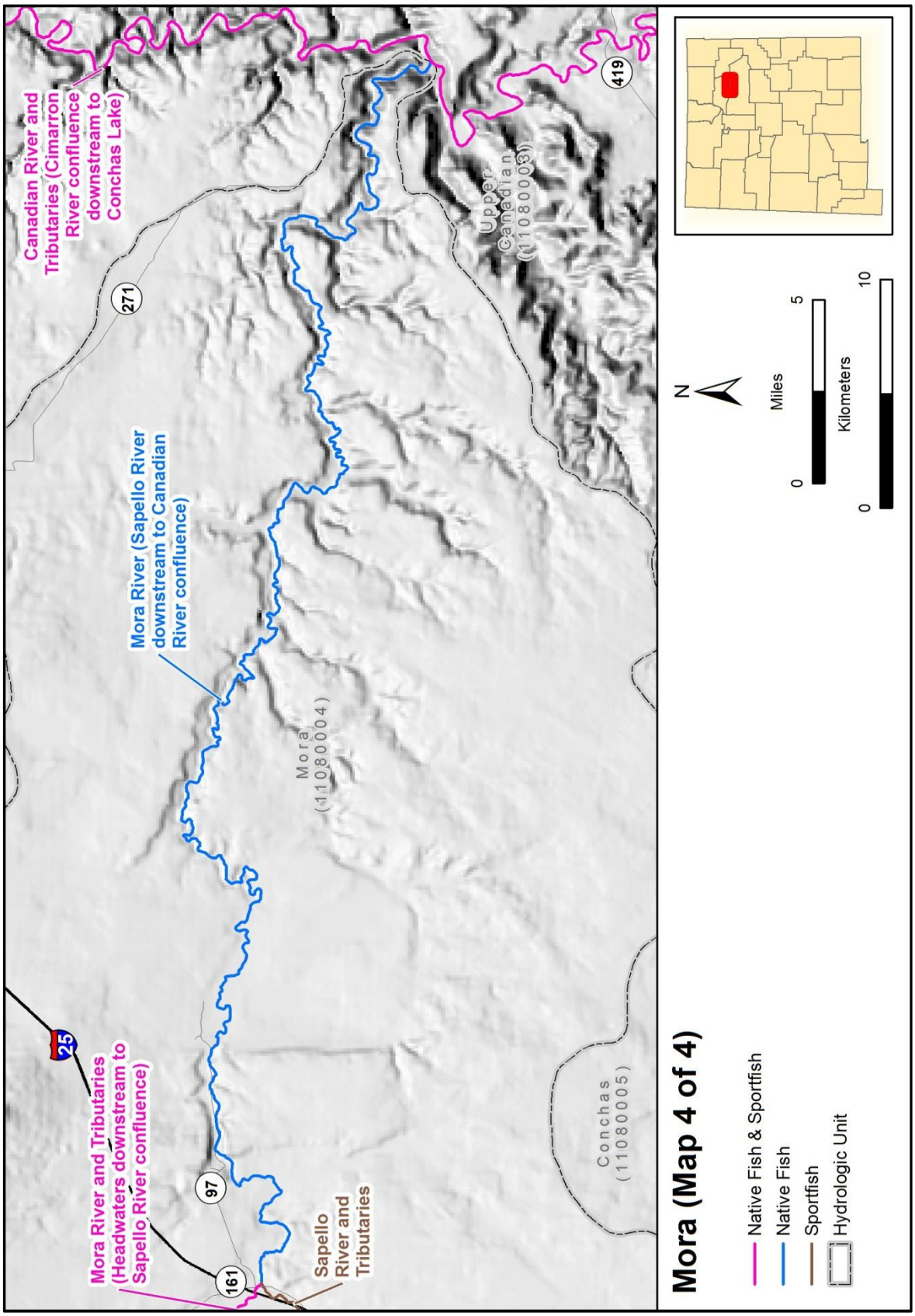

Figure 14. Mora (Map 4 of 4)

HUC 11080006 Upper Canadian – Ute Reservoir and 11080007 Ute Creek

HUC 11080006 Upper Canadian – Ute Reservoir and 11080007 Ute Creek

Water	Fish Species	Management Type	Management Direction
Ute Creek and Tributaries	Sand Shiner	Native Fish	Maintain distribution
	Suckermouth Minnow	Native Fish	Maintain distribution
Canadian River (Conchas Dam downstream to Ute Lake)	N/A	N/A	Entirely on private land. Status of fishery within this reach unknown due to limited access
Ute Lake	Largemouth Bass	Wild/ Supplemental stocking	Manage as a Low Density Bass Water due to low abundance of Largemouth Bass. Supplement with Largemouth Bass fingerling as available
	Smallmouth Bass	Wild	Manage as a Recreational Bass Water. Special regulation for Smallmouth Bass (14-inch minimum size limit)
	White Bass	Wild	Maintain regulations to support White Bass fishery
	Walleye	Put, Grow, and Take	Stock Walleye at 500 fry/surface acre. Actual stocking varies with reservoir elevation
Canadian River and Tributaries (Ute Dam downstream to stateline)	Arkansas River Shiner	Native Fish	Maintain distribution. Only known occurrence of Arkansas River Shiner in New Mexico
	Peppered Chub	Native Fish	Maintain distribution. Only known occurrence of Peppered Chub in New Mexico
	Plains Minnow	Native Fish	Maintain distribution

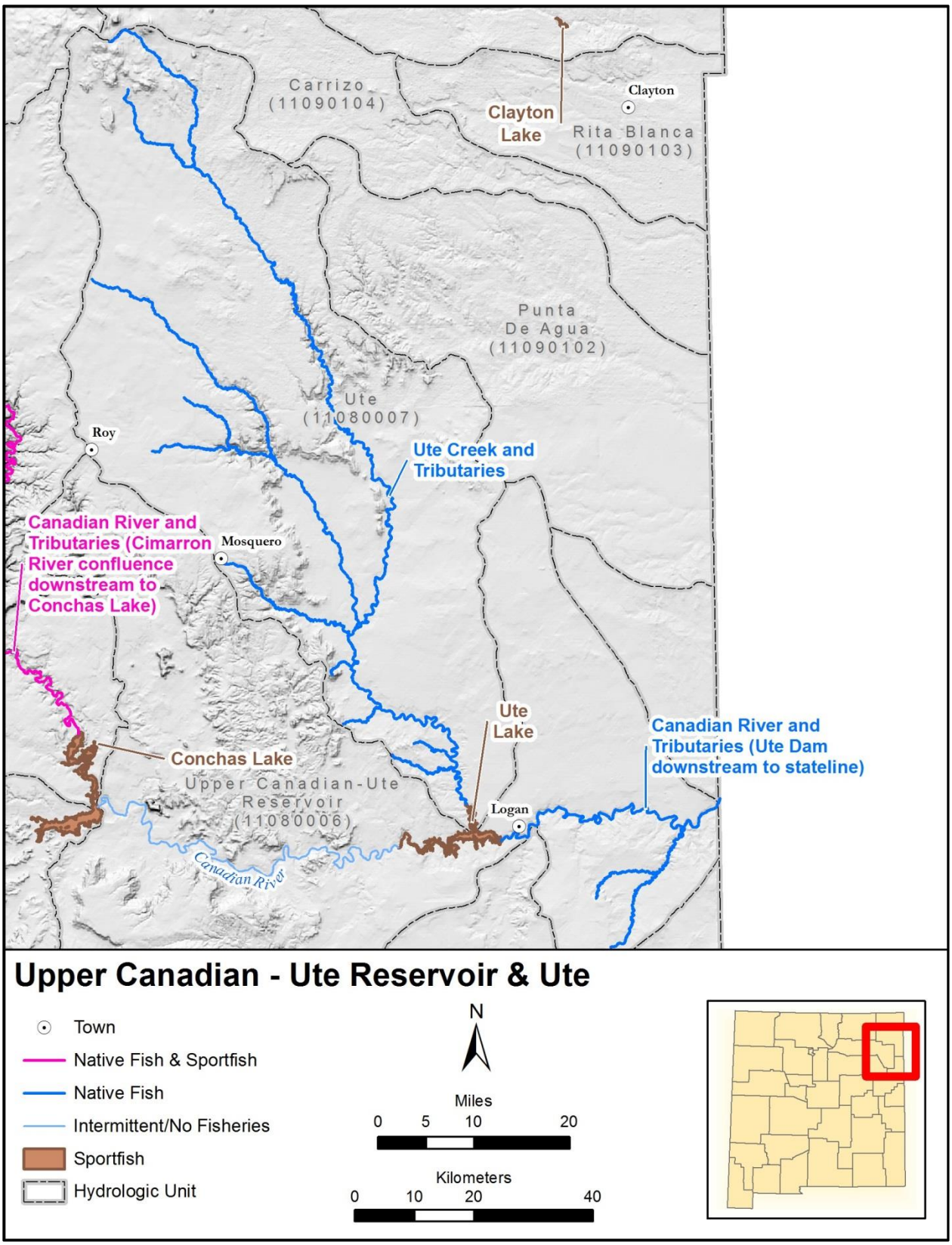

Figure 15. Upper Canadian - Ute Reservoir and Ute

HUC 11040001 Cimarron Headwaters and 11100101 Upper Beaver

Management Direction for HUC 11040001 Dry Cimarron and 11100101 Upper Beaver			
Water	***Fish Species***	***Management Type***	***Management Direction***
Dry Cimarron and headwaters	Central Stoneroller	Native Fish	Maintain distribution
Clayton Lake	Walleye	Put, Grow, and Take	Stock Walleye at 500 fry/surface acre. Actual stocking varies with reservoir elevation
	Largemouth Bass	Wild/ Supplemental stocking	Manage as Trophy Bass Water and maintain regulations to attain trophy potential. Supplement with Largemouth Bass subadults on annual basis
	Channel Catfish	Put and Take	Stock catchable Channel Catfish as available
	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Flathead Catfish	Wild	Continue to transplant Flathead Catfish as necessary to control Black Bullhead population

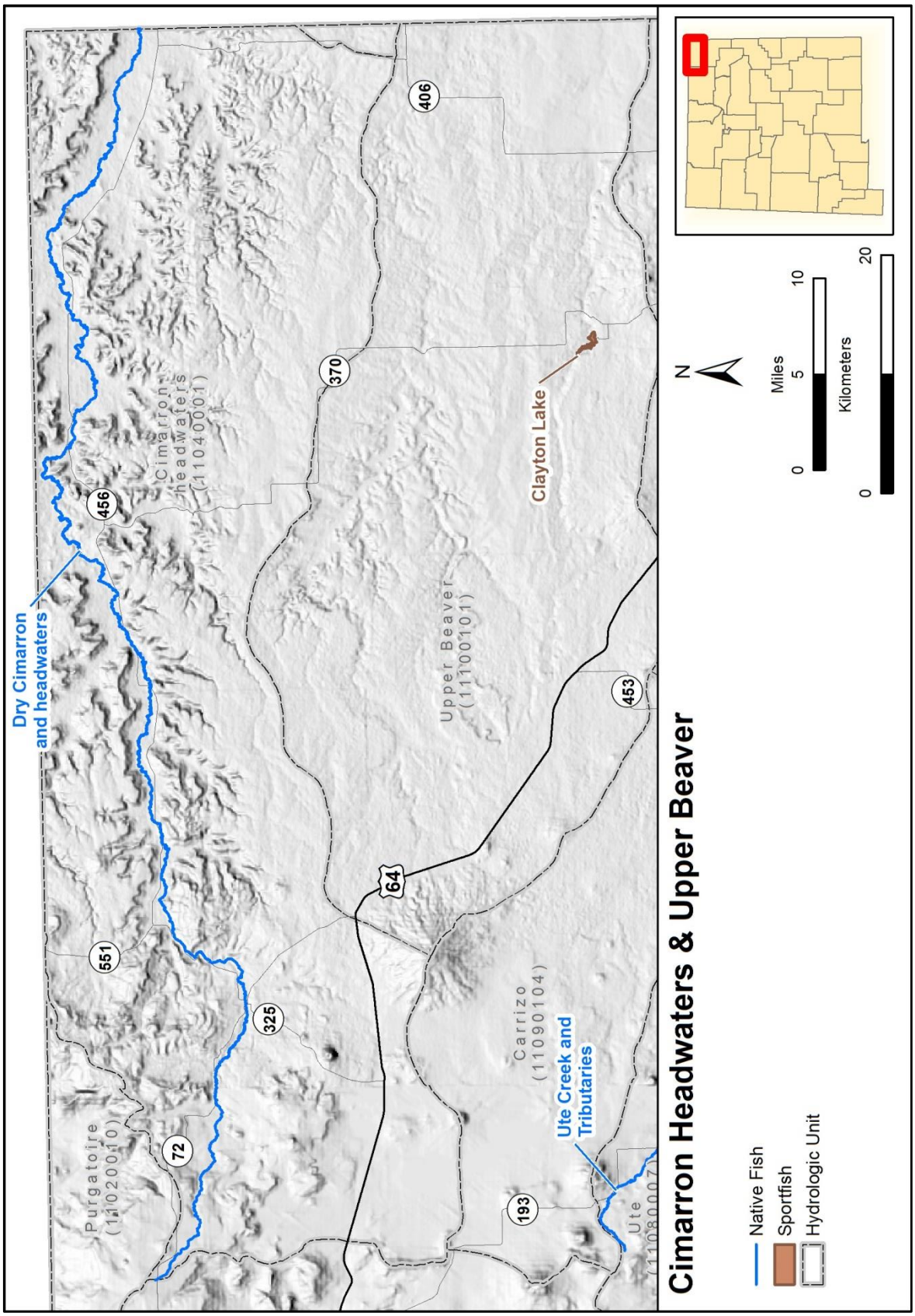

Figure 16. Cimarron Headwaters and Upper Beaver

HUC 12050001 Yellow House Draw, 12050002 Blackwater Draw, 12050005 Running Water Draw

Management Direction for HUC 12050001 Yellow House Draw, 12050002 Blackwater Draw, and 12050005 Running Water Draw

Water	Fish Species	Management Type	Management Direction
Greene Acres Lake	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
Ned Houk Ponds	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
Oasis Park Lake	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
	Sunfish	Suppression	Stock and maintain Largemouth Bass to control overpopulated sunfish populations
Dennis Chavez Pond	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
	Sunfish	Suppression	Stock and maintain Largemouth Bass to control overpopulated sunfish populations

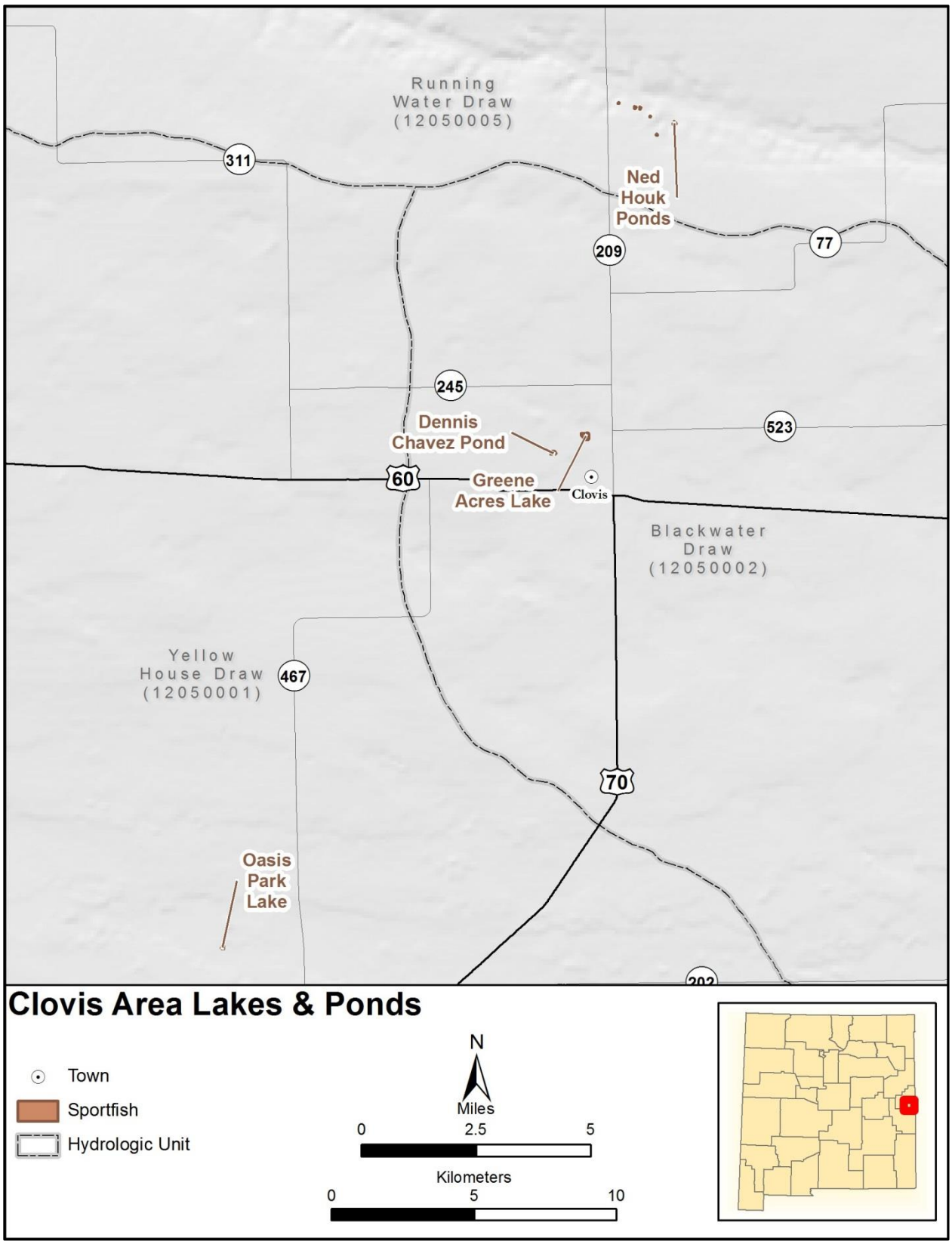

Figure 17. Clovis Area Lakes and Ponds

Pecos Watershed

The Pecos River arises on the southern slope of the Sangre de Cristo Mountain range in San Miguel County, New Mexico, and runs south through Guadalupe, De Baca, Chaves, and Eddy counties before it enters Texas. The Pecos Watershed encompasses 12.3 million acres in New Mexico. Principal New Mexico cities in the watershed include Las Vegas, Santa Rosa, Fort Sumner, Roswell, Artesia, and Carlsbad. Land use in this watershed is mainly rangeland, with some irrigated cropland and pastureland along the Pecos River. Roughly 10% of the industry in the lower Pecos Valley is agriculture based (De Baca, Chavez, and Eddy Counties). Primary crops include small grains, alfalfa, and other hay crops. Oil and gas development occur within the lower Pecos River valley.

Fisheries management in the Pecos Watershed has focused on trout management in the headwaters and warmwater species in the lower reaches and man-made reservoirs. Popular trout fisheries include the Pecos Canyon and Monastery Lake. Populations of Rio Grande Cutthroat Trout occur in Pecos River tributaries providing unique angling opportunities and significantly contributing to the status of this native trout. In 2012, the Department and other federal and state partners committed to restoring Rio Grande Cutthroat Trout to portions of the Pecos Watershed in the Rio Grande Cutthroat Trout Conservation Strategy. Conservation strategies have also been developed for Rio Grande Chub and Rio Grande Sucker and include waters in the Pecos Watershed. Specific waters are identified below where all or part will be restored to fulfill those commitments.

Several moderate to large reservoirs impound the Pecos River beginning with Santa Rosa Lake and ending with Avalon Dam near the New Mexico/Texas state line. Several urban ponds are intensively managed via seasonal stocking of Channel Catfish or Rainbow Trout. Golden algae blooms have negatively affected fisheries in several reservoirs in the lower Pecos since the early 2000s and continue to negatively affect some fisheries as blooms occur.

Several state or federally protected and sensitive fish species occur within the Pecos River. Designated critical habitat for Pecos Bluntnose Shiner includes significant reaches of the Pecos River between Lake Sumner and Brantley Lake. State threatened Pecos Pupfish inhabit multiple locations in the lower Pecos including waters on the Bottomless Lakes Sate Park. Blue Sucker, Gray Redhorse, and Texas hornshell, a native mussel that was recently declared federally endangered, occupy the Black River. Golden algae has also negatively affected native fish within the Pecos River, particularly downstream of Brantley Lake.

HUC 13060001 Pecos Headwaters – Headwaters to Santa Rosa

Management Direction for HUC 13060001 Pecos Headwaters – Headwaters to Santa Rosa Lake

Water	Fish Species	Management Type	Management Direction
Pecos River (above Pecos Falls)	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout. Special Trout Water regulation (Red Chile Water)
Pecos River and Tributaries (headwaters downstream to Cowles)	Brown Trout	Wild	Maintain regulations to support angling for wild trout
	Rio Grande Cutthroat Trout	Native Fish	Significant portions of this drainage to be considered for Rio Grande Cutthroat Trout restoration in the future
Holy Ghost Creek and Tributaries	Brown Trout	Wild	Maintain regulations to support angling for wild trout
	Rio Grande Cutthroat Trout	Native Fish	Significant portions of this drainage to be considered for Rio Grande Cutthroat Trout restoration in the future
	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout at Holy Ghost Campground downstream to Pecos River confluence
Bear Creek (Upstream of Barrier)	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout
Rito los Esteros	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout
Rio Valdez (Above Barrier)	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout. Special Trout Water regulation (Red Chile Water) from waterfall barrier 0.8 miles below FS Trail 239 upstream to its headwaters
Rio Mora Headwaters	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout
Cave Creek (Above Barrier)	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout
Rito del Padre and Tributaries	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout. Special Trout Water regulation (Red Chile Native Trout Conservation Water) from the fish migration barrier 0.3 miles upstream of confluence with Rito Sebadilloses to its headwaters including Rito de los Chimayosos
	Brown Trout	Suppression	Unlimited angler harvest
Dalton Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout

Management Direction for HUC 13060001 Pecos Headwaters – Headwaters to Santa Rosa Lake

Water	Fish Species	Management Type	Management Direction
Macho Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout
Jack's Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout. Special Trout Water regulation (Red Chile Water) from waterfalls 0.25 miles downstream of Highway 63 crossing to headwaters. Consider barrier improvements to further protect population
Cowles Ponds (Mt. View Ponds)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout. Upper pond open to anglers 11 years old and younger, 65 years old and older, and individuals with disabilities
Panchuela Creek and Tributaries	Brown Trout	Wild	Maintain regulations to support angling for wild trout
	Brook Trout	Wild	Maintain regulations to support angling for wild trout
	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout present in Cave Creek. Significant portions of this drainage to be considered for Rio Grande Cutthroat Trout restoration
Rio Mora (adjacent to Mora Campground)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
Rio Mora and Tributaries (Upstream of Mora Campground)	Trout	Wild	Maintain regulations to support angling for wild trout
	Rio Grande Cutthroat Trout	Native Fish	Significant portions of this drainage to be considered for Rio Grande Cutthroat Trout restoration in the future
Willow Creek	Rio Grande Cutthroat Trout	Native Fish	Active Rio Grande Cutthroat Trout restoration. Anticipated completion 2024
Lake Katherine	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock periodically with Pecos strain Rio Grande Cutthroat Trout, as available
Johnson Lake	Cutthroat Trout	Wild	Maintain regulations to support angling for wild trout. Lake would be part of Panchuela Creek Rio Grande Cutthroat Trout restoration
Pecos Baldy Lake	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock periodically with Pecos strain Rio Grande Cutthroat Trout, as available

Management Direction for HUC 13060001 Pecos Headwaters – Headwaters to Santa Rosa Lake

Water	Fish Species	Management Type	Management Direction
Stewart Lake	Cutthroat Trout	Wild	Maintain regulations to support angling for wild trout
Truchas Lakes	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock periodically with Pecos strain Rio Grande Cutthroat Trout, as available
Monastery Lake	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
Pecos River and Tributaries (Cowles downstream to Village of Pecos)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Brown Trout	Wild	Special Trout Water regulation (Green Chile Water) in the box canyon 0.5 miles upstream of the confluence with the Mora River to 0.2 miles downstream of the Cowles Bridge. Other species of trout exist in tributaries though the predominant species is Brown Trout. Maintain regulations to support angling for wild trout. Manage habitat improvement reaches within the Pecos Canyon State Park as Quality Trout Waters
Cow Creek and Tributaries	Trout	Wild	Brook, Brown, and Cutthroat trout are present depending upon individual watersheds. Need to investigate fishery status in lower reach of Cow Creek downstream of North San Ysidro
	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout near Cow Creek campground
	Rio Grande Cutthroat Trout	Native Fish	Portions of this drainage to be considered for Rio Grande Cutthroat Trout restoration in the future
Pecos River (Village of Pecos downstream to Interstate 25)	Brown Trout	Wild	Maintain regulations to support angling for wild trout. Collaborate with National Park Service to maintain angler opportunities with the Pecos National Historic Park
	Rio Grande Chub	Native Fish	Maintain distribution
Pecos River (Interstate 25 downstream to Santa Rosa Lake)	Rio Grande Chub	Native Fish	Maintain distribution
	Flathead Chub	Native Fish	Maintain distribution
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout within Villanueva State Park
	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish within Villanueva State Park

Management Direction for HUC 13060001 Pecos Headwaters – Headwaters to Santa Rosa Lake

Water	Fish Species	Management Type	Management Direction
Gallinas Creek (River) and Tributaries (Headwaters downstream to Interstate 25)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Brown Trout	Wild	Maintain regulations to support angling for wild trout. Limited wild trout potential in lower reaches due to dewatering and increased temperatures
Gallinas River (Downstream of Interstate 25)	N/A	N/A	Limited information is available about the status of this reach
Gallinas Ice Pond	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
El Porvenir Creek (Headwaters downstream to El Porvenir Campground)	Brown Trout	Wild	Maintain regulations to support angling for wild trout. Limited information on the status of this watershed
El Porvenir Creek (El Porvenir Campground downstream to confluence with Gallinas Creek)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
Storrie Lake	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Channel Catfish	Wild	Maintain regulations to support angling for wild Channel Catfish. Stock Channel Catfish as necessary
Harris Lake	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout. Open to anglers 11 years old and younger
	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
Tecolote Creek (Headwaters downstream to confluence with Falls Creek)	Trout	Wild	Brook, Brown, and Cutthroat trout are present in different reaches of this watershed. Maintain regulations to support angling for wild trout
Tecolote Creek (Falls Creek confluence downstream to Pecos River)	Rio Grande Chub	Native Fish	Maintain distribution. Limited information is available about the status of this reach. Primarily on private land

Management Direction for HUC 13060001 Pecos Headwaters – Headwaters to Santa Rosa Lake

Water	Fish Species	Management Type	Management Direction
El Rito Creek (Santa Rosa)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Roundnose Minnow	Native Fish	Maintain distribution
Santa Rosa Lake	Channel Catfish	Wild	Reservoir subject to significant water level fluctuations both within and between years. Stock Channel Catfish as necessary
	Walleye	Put, Grow, and Take	Stock Walleye at 500 fry/surface acre. Actual stocking varies with reservoir elevation. Brood source for Walleye
	Largemouth Bass	Wild/ Supplemental stocking	Manage as a Recreational Bass Water. Supplement with Largemouth Bass fry as available
	Smallmouth Bass	Wild	Manage as a Recreational Bass Water
Pecos River (Santa Rosa Lake to Lake Sumner)	N/A	N/A	Limited access, limited use and no native species of concern occur in this reach. Located primarily on private land
Lake Sumner	Channel Catfish	Wild	Reservoir subject to significant water level fluctuations both within and between years. Stock Channel Catfish as necessary
	Walleye	Put, Grow, and Take	Stock Walleye at 250 fry/surface acre. Actual stocking varies with reservoir elevation. Brood source for Walleye
	Spotted Bass	Wild	Manage as a Recreational Bass Water. One of two lakes in NM with Spotted Bass fisheries
	Smallmouth Bass	Wild	Manage as a Recreational Bass Water
Perch Lake	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
	Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
Rock Lake Kid's Pond	Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout. Open to anglers 11 years old and younger
	Largemouth Bass	Put and Take	Stock occasionally with retired brood bass
	Channel Catfish	Put and Take	Investigate potential as Special Summer Catfish water

Management Direction for HUC 13060001 Pecos Headwaters – Headwaters to Santa Rosa Lake			
Water	**Fish Species**	**Management Type**	**Management Direction**
Blue Hole Park Ponds	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish. Open to anglers 11 years old and younger, 65 years old and older, and individuals with disabilities
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
Tres Lagunas	N/A	N/A	Often dry. Some interest from the City of Santa Rosa in stocking but no current plans in place

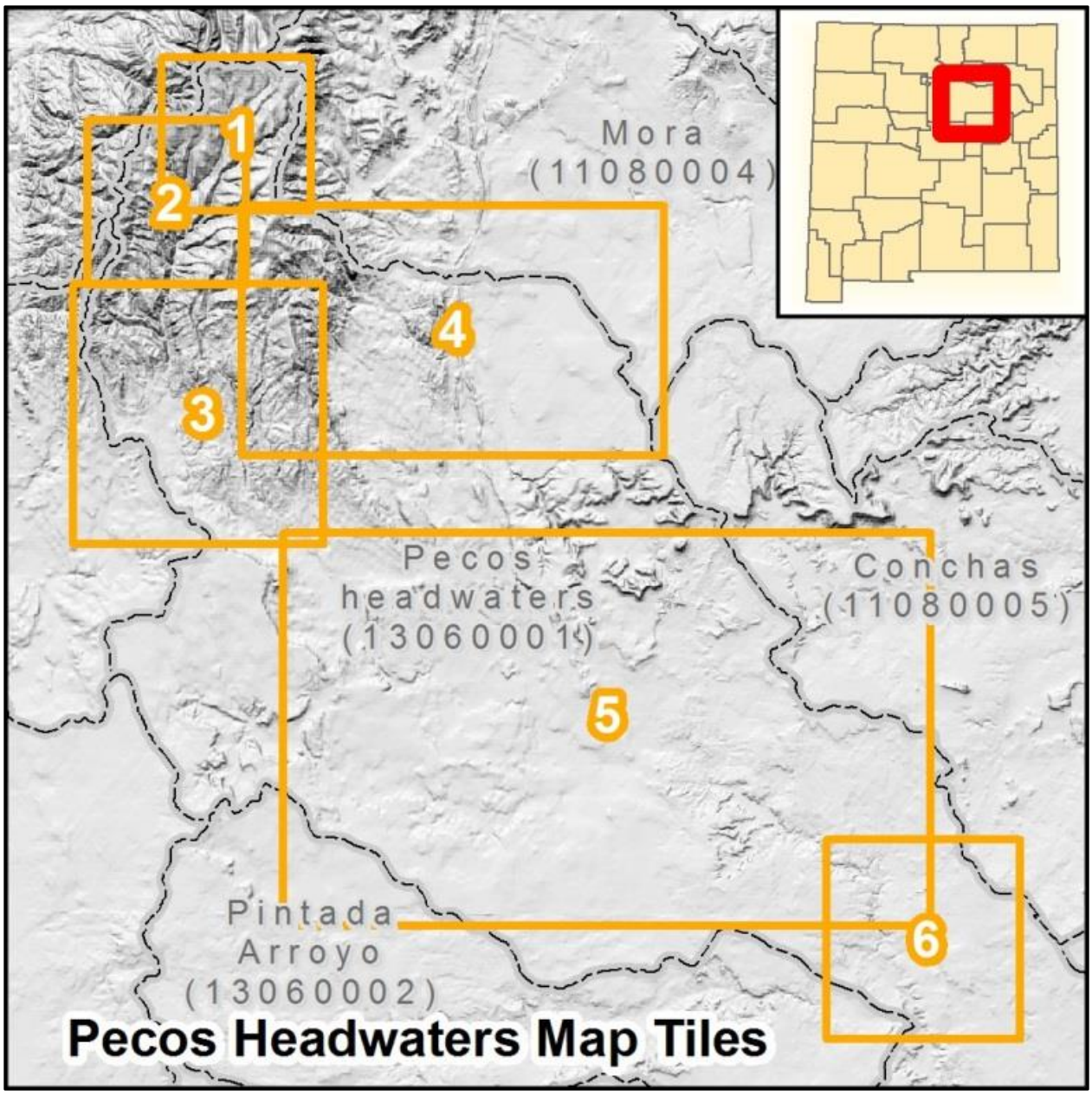

Figure 18. Pecos Headwaters Map Tiles

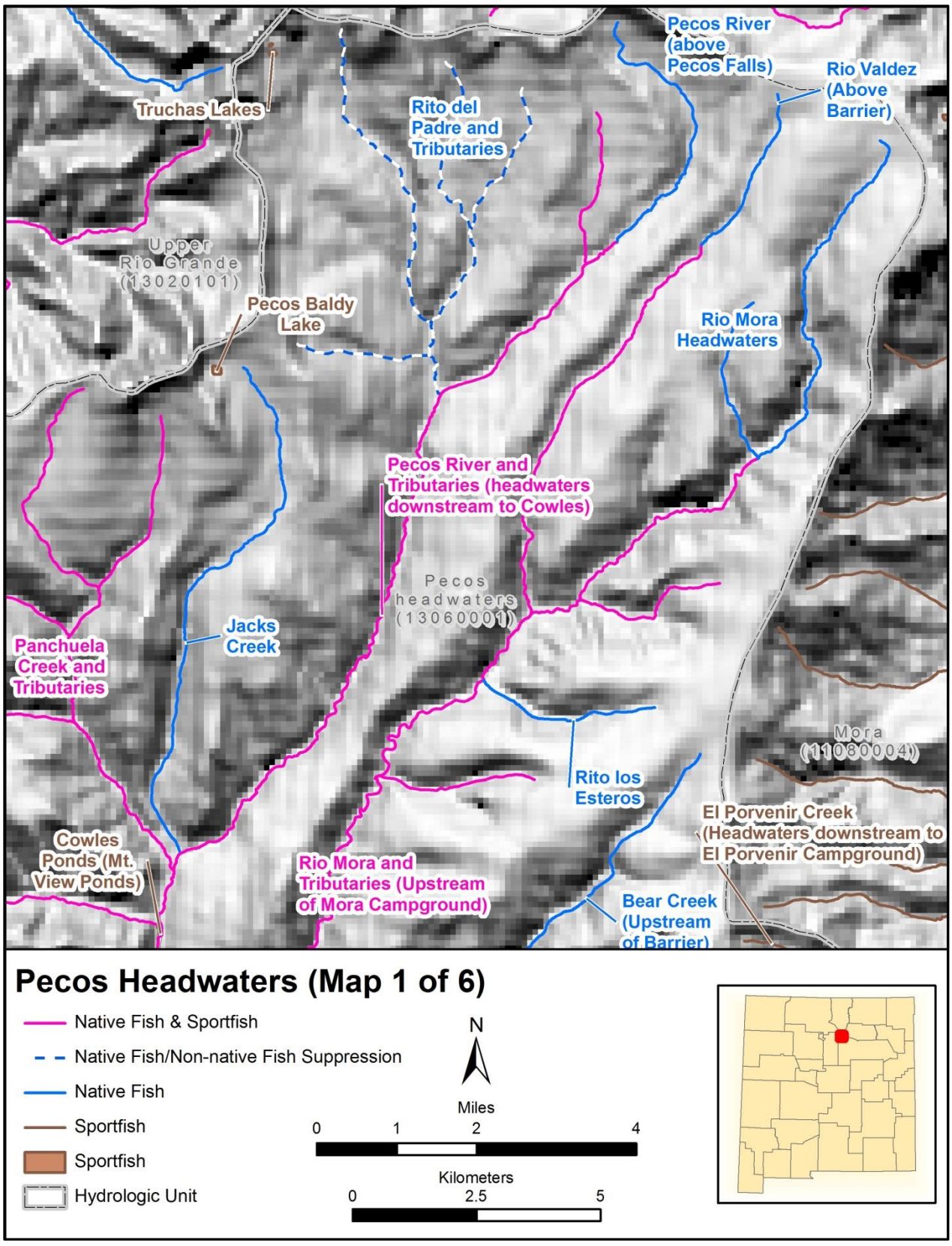

Figure 19. Pecos Headwaters (Map 1 of 6)

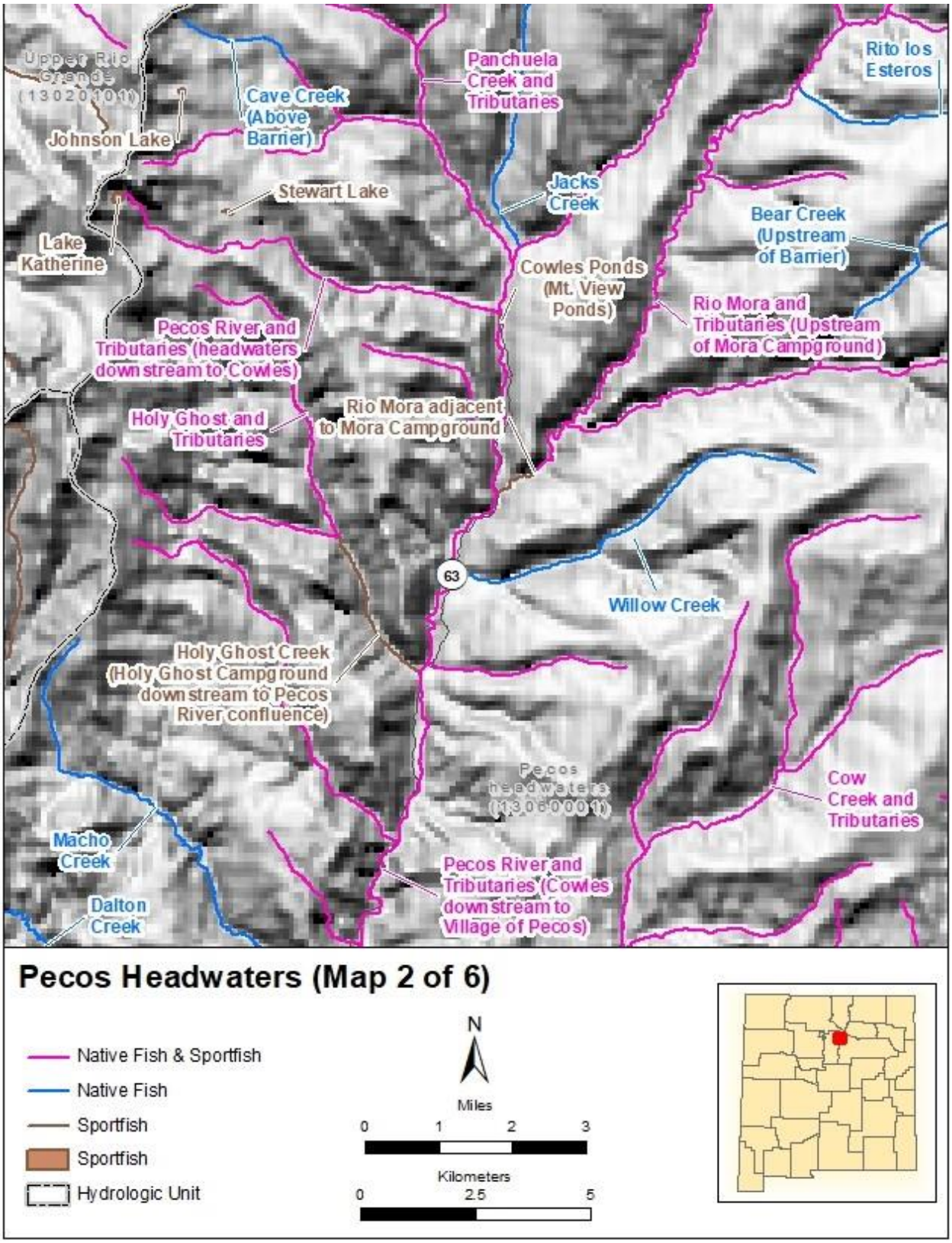

Figure 20. Pecos Headwaters (Map 2 of 6)

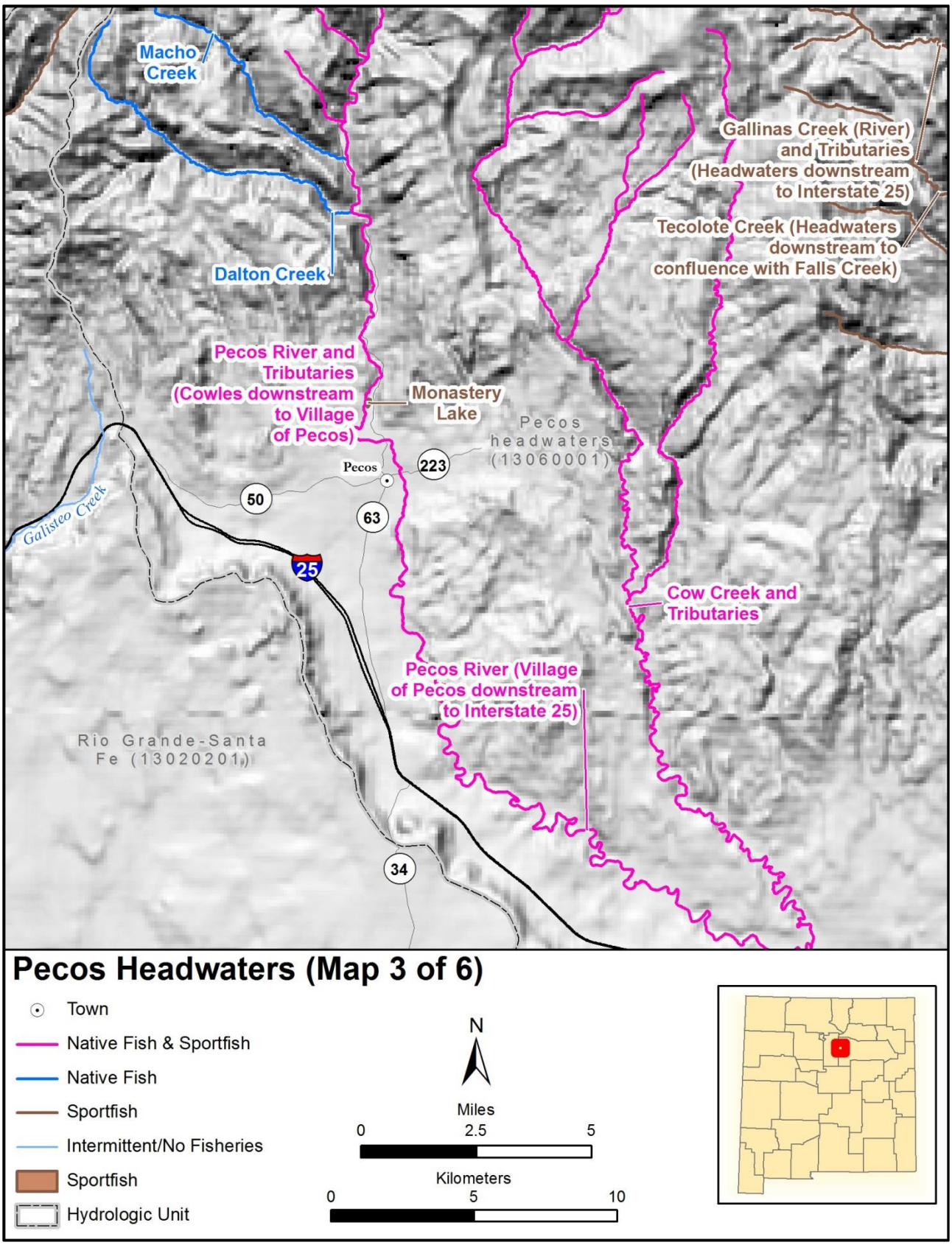

Figure 21. Pecos Headwaters (Map 3 of 6)

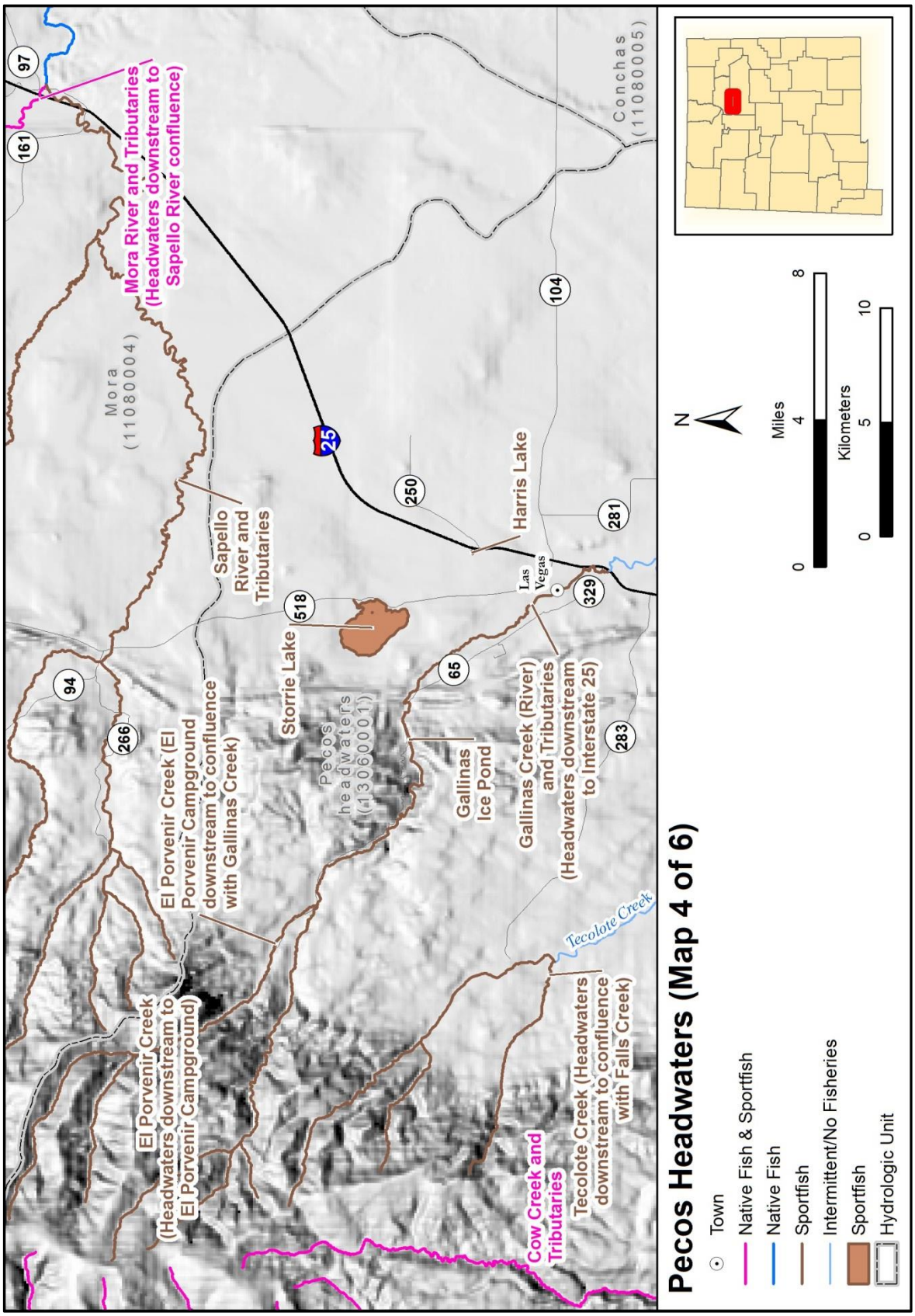

Figure 22. Pecos Headwaters (Map 4 of 6)

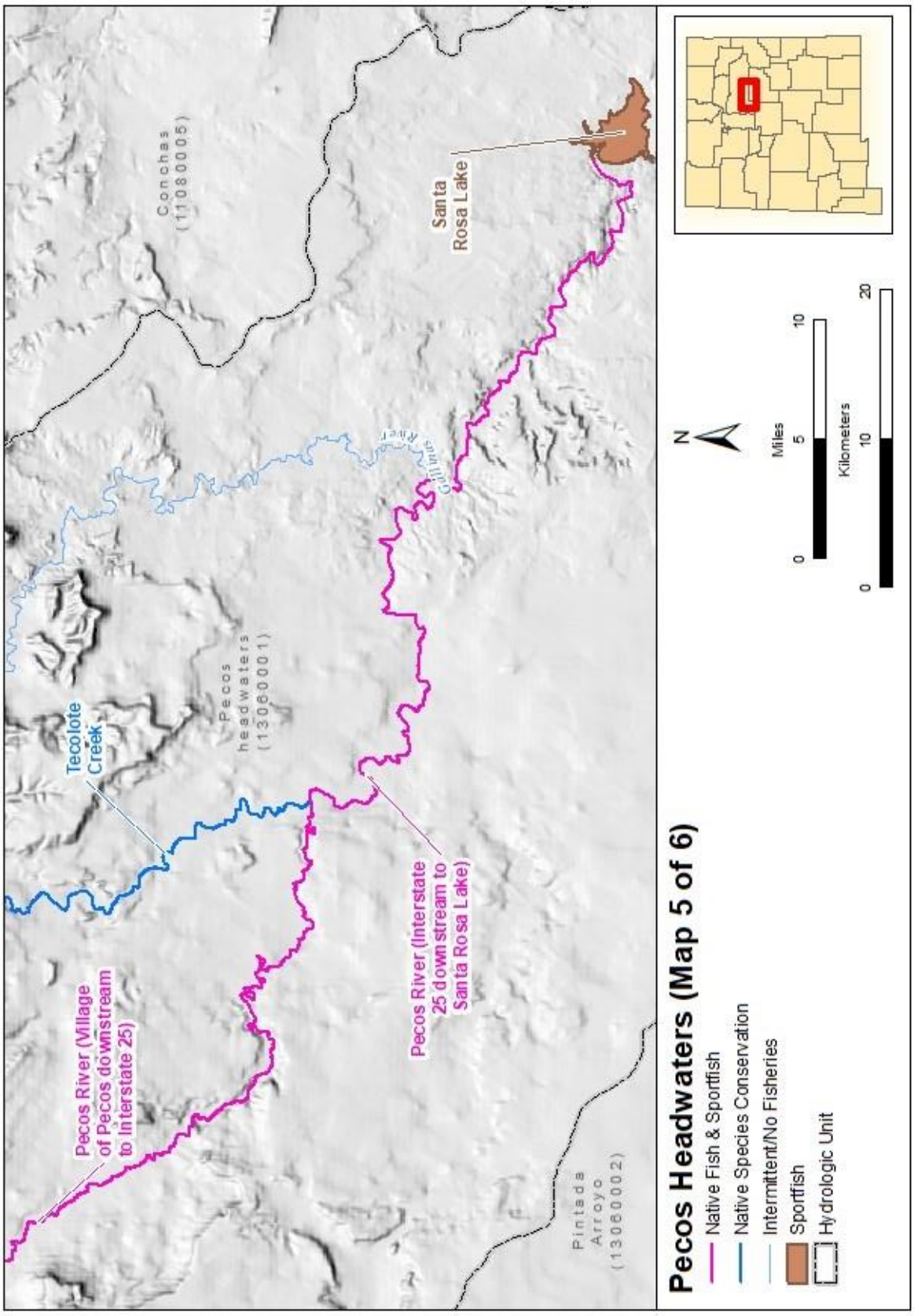

Figure 23. Pecos Headwaters (Map 5 of 6)

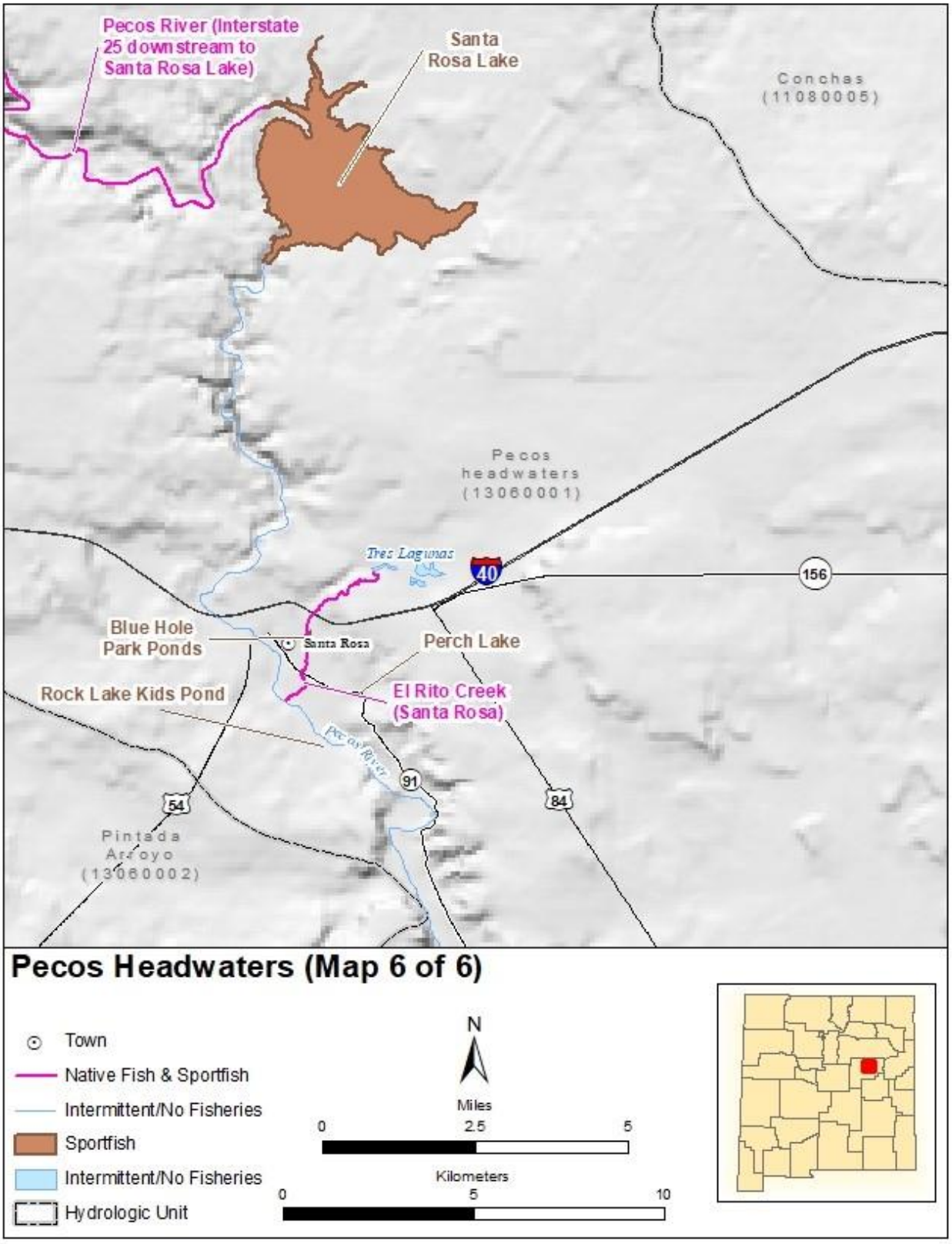

Figure 24. Pecos Headwaters (Map 6 of 6)

HUC 13060003 Upper Pecos, 13060005 Arroyo del Macho, 13060006 Gallo Arroyo, 13060007 Upper Pecos – Long Arroyo, 13060008 Rio Hondo, 13060010 Rio Peñasco, 13060011 Upper Pecos Black, 13070002 Delaware, 13070007 Landreth-Monument Draws, and 12080003 Monument Seminole Draws

Management Direction for HUC 13060003 Upper Pecos, 13060005 Arroyo del Macho, 13060006 Gallo Arroyo, 13060007 Upper Pecos – Long Arroyo, 13060008 Rio Hondo, 13060010 Rio Peñasco, 13060011 Upper Pecos Black, 13070002 Delaware, 13070007 Landreth-Monument Draws, and 12080003 Monument Seminole Draws

Water	Fish Species	Management Type	Management Direction
Pecos River (Lake Sumner to Fort Sumner)	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout in tailwater reach of Sumner Lake
Pecos River (Fort Sumner to Brantley Reservoir)	Pecos Bluntnose Shiner	Native Fish	Designated critical habitat for Pecos Bluntnose Shiner
	Pecos Pupfish	Native Fish	Pecos Pupfish occupy habitats on Bureau of Land Management, Bitter Lake National Wildlife Refuge, and Bottomless Lakes State Park. Implement actions identified in the Pecos Pupfish Conservation Agreement. All Pecos Pupfish downstream of Brantley Reservoir are Sheepshead Minnow/Pecos Pupfish hybrids
	Rio Grande Shiner	Native Fish	Maintain distribution
	Speckled Chub	Native Fish	Maintain distribution
	Flathead Catfish	Wild	Maintain regulations to support Flathead Catfish
Brantley Lake	Channel Catfish	Wild	Catch-and-release regulations removed in 2018 based on reduced contaminants in fish tissues. Department of Health, NM Environment Department, and NM Department of Game and Fish collaborated on new advisories in 2018. Regular golden algae blooms limit fishery potential and not consistently stocked. Subject to significant water level fluctuation
	White Bass	Wild	Catch-and-release regulations removed in 2018 based on reduced contaminants in fish tissues. Department of Health, NM Environment Department, and NM Department of Game and Fish collaborated on new advisories in 2018
	Largemouth Bass	Wild	Manage as a Recreational Bass Water. Stock Largemouth Bass as necessary

Management Direction for HUC 13060003 Upper Pecos, 13060005 Arroyo del Macho, 13060006 Gallo Arroyo, 13060007 Upper Pecos – Long Arroyo, 13060008 Rio Hondo, 13060010 Rio Peñasco, 13060011 Upper Pecos Black, 13070002 Delaware, 13070007 Landreth-Monument Draws, and 12080003 Monument Seminole Draws

Water	Fish Species	Management Type	Management Direction
Pecos River (Brantley Dam downstream to and including Lake Avalon)	N/A	N/A	Historical stronghold for Blue Sucker, Gray Redhorse and Black Bass. Currently limited potential for any fisheries management due to golden algae. Investigate mitigation measures to reduce the effects of golden algae
Lake Carlsbad	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout. Subject to periodic golden algae blooms
	Spotted Bass	Wild	Manage as a Recreational Bass Water
	Largemouth Bass	Wild	Manage as a Recreational Bass Water. Initiate habitat improvement project to support fishery. Stock Largemouth Bass as necessary Investigate potential as a Trophy Bass Water
	Channel Catfish	Put and Take	Stock with catchable Channel Catfish as available
Bataan Lake	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout. Subject to periodic golden algae blooms. Other sportfish species present but not managed due to limited habitat
	Largemouth Bass	Wild	Manage as a Recreational Bass Water. Initiate habitat improvement project to support fishery. Stock Largemouth Bass as necessary
	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
Pecos River (Lower Tansill Dam downstream to State Line including Six Mile and Ten Mile Dam Lakes)	Largemouth Bass	Wild	Manage Six Mile Dam as a Recreational Bass Water and Ten Mile Dam as a Low Density Bass Water. Subject to periodic golden algae blooms
	Gray Redhorse	Native Fish	Maintain distribution
	Channel Catfish	Wild	Maintain regulations to support Channel Catfish fishery. Consumption advisory for Channel Catfish – updated in 2018 to allow some consumption
	Blue Sucker	Native Fish	Investigate potential for repatriation of Blue Sucker

Management Direction for HUC 13060003 Upper Pecos, 13060005 Arroyo del Macho, 13060006 Gallo Arroyo, 13060007 Upper Pecos – Long Arroyo, 13060008 Rio Hondo, 13060010 Rio Peñasco, 13060011 Upper Pecos Black, 13070002 Delaware, 13070007 Landreth-Monument Draws, and 12080003 Monument Seminole Draws

Water	Fish Species	Management Type	Management Direction
Rio Bonito (Headwaters downstream to Bonito Lake)	Rio Grande Cutthroat Trout	Native Fish	Ongoing YY Brook Trout stocking study to investigate possibility for repatriation of Rio Grande Cutthroat Trout.
Bonito Lake	Triploid Rainbow Trout	Put and Take	Severely impacted by Little Bear Fire. Awaiting completion of dam rehabilitation and resolution of access issues. Stock catchable triploid Rainbow Trout
Rio Bonito (Downstream of Bonito Lake to the Rio Hondo confluence)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Brown Trout	Wild	Limited Brown Trout. Maintain regulations to support wild trout angling. Investigate potential of expanding habitat improvements on lower Rio Bonito
	Rio Grande Chub	Native Fish	Maintain distribution
Copeland Creek	Brook Trout	Wild	Maintain regulations to support wild trout angling
Rio Ruidoso and Tributaries	Brown Trout	Wild	Significant portions of the watershed within the jurisdiction of Mescalero Apache Tribe or on private land. Special Trout Water regulation (X-mas Chile Water) from Mescalero Reservation boundary downstream to Friedenbloom Drive
	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Rio Grande Chub	Native Fish	Maintain distribution
Pine Lodge Creek	Triploid Rainbow Trout	Put and Take	Investigate potential of stocking triploid Rainbow Trout
Grindstone Reservoir	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Channel Catfish	Wild	Maintain regulations to support fishery
	Smallmouth Bass	Wild/ Supplemental stocking	Manage as a Recreational Bass Water

Management Direction for HUC 13060003 Upper Pecos, 13060005 Arroyo del Macho, 13060006 Gallo Arroyo, 13060007 Upper Pecos – Long Arroyo, 13060008 Rio Hondo, 13060010 Rio Peñasco, 13060011 Upper Pecos Black, 13070002 Delaware, 13070007 Landreth-Monument Draws, and 12080003 Monument Seminole Draws

Water	Fish Species	Management Type	Management Direction
Eagle Creek	Brook Trout	Wild	Headwaters of the watershed within the jurisdiction of Mescalero Apache Tribe. Maintain regulations to support wild trout angling
Alto Lake	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish.
	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Largemouth Bass	Wild/ Supplemental Stocking	Manage as a Recreational Bass Water for Goldfish control. Also continue stocking other species such as Bluegill as necessary to balance bass to sunfish predator/prey ratios
Agua Chiquita	Brook Trout	Wild	Prone to drying. Maintain regulations to support wild trout angling
Rio Peñasco	Brown Trout	Wild	Primarily private property with small section of Forest Service property. Investigate Open Gate properties. Maintain regulations to support wild trout angling
	Triploid Rainbow Trout	Put and Take	Investigate Open Gate opportunities to provide a Rainbow Trout fishery
	Rio Grande Chub	Native Fish	Maintain distribution
	Greenthroat Darter	Native Fish	Maintain distribution
Bosque Redondo Lake	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
Bottomless Lakes	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout. Maintain prohibition of fishing with baitfish. Triploid Rainbow Trout stocking locations limited to reduce negative interactions with Pecos Pupfish
	Pecos Pupfish	Native Fish	Implement actions identified in the Pecos Pupfish Conservation Agreement

Management Direction for HUC 13060003 Upper Pecos, 13060005 Arroyo del Macho, 13060006 Gallo Arroyo, 13060007 Upper Pecos – Long Arroyo, 13060008 Rio Hondo, 13060010 Rio Peñasco, 13060011 Upper Pecos Black, 13070002 Delaware, 13070007 Landreth-Monument Draws, and 12080003 Monument Seminole Draws

Water	Fish Species	Management Type	Management Direction
Lake Van	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
Roswell Kids Pond	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish. Open to anglers 11 years old and younger
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
Corona Pond	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
Black River	Blue Sucker	Native Fish	Limited public access. Few Blue Sucker collected over the past several years. Investigate the feasibility of replacing road crossings (2) fragmenting population
	Gray Redhorse	Native Fish	Investigate the feasibility of replacing road crossings (2) fragmenting population
	Largemouth Bass	Wild	Maintain angling regulations to support Recreational Bass Water
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
Pecos River (Avalon Dam to Lake Carlsbad)	N/A	N/A	Often dry, limited angling opportunities
Eunice Lake	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
Jal Lake	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout

Management Direction for HUC 13060003 Upper Pecos, 13060005 Arroyo del Macho, 13060006 Gallo Arroyo, 13060007 Upper Pecos – Long Arroyo, 13060008 Rio Hondo, 13060010 Rio Peñasco, 13060011 Upper Pecos Black, 13070002 Delaware, 13070007 Landreth-Monument Draws, and 12080003 Monument Seminole Draws

Water	Fish Species	Management Type	Management Direction
Delaware River	Gray Redhorse	Native Fish	Repatriation efforts have ceased due to absence of perennial flows in recent years. Investigate feasibility of restoring perennial flows and if successful repatriate Gray Redhorse
Chaparral Park Lake	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
	Sunfish	Suppression	Stock and maintain Largemouth Bass to control overpopulated sunfish populations
Green Meadow Lake	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
Harry McAdams Park Pond	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout. Open to anglers 11 years old and younger, 65 years old and older, and individuals with disabilities

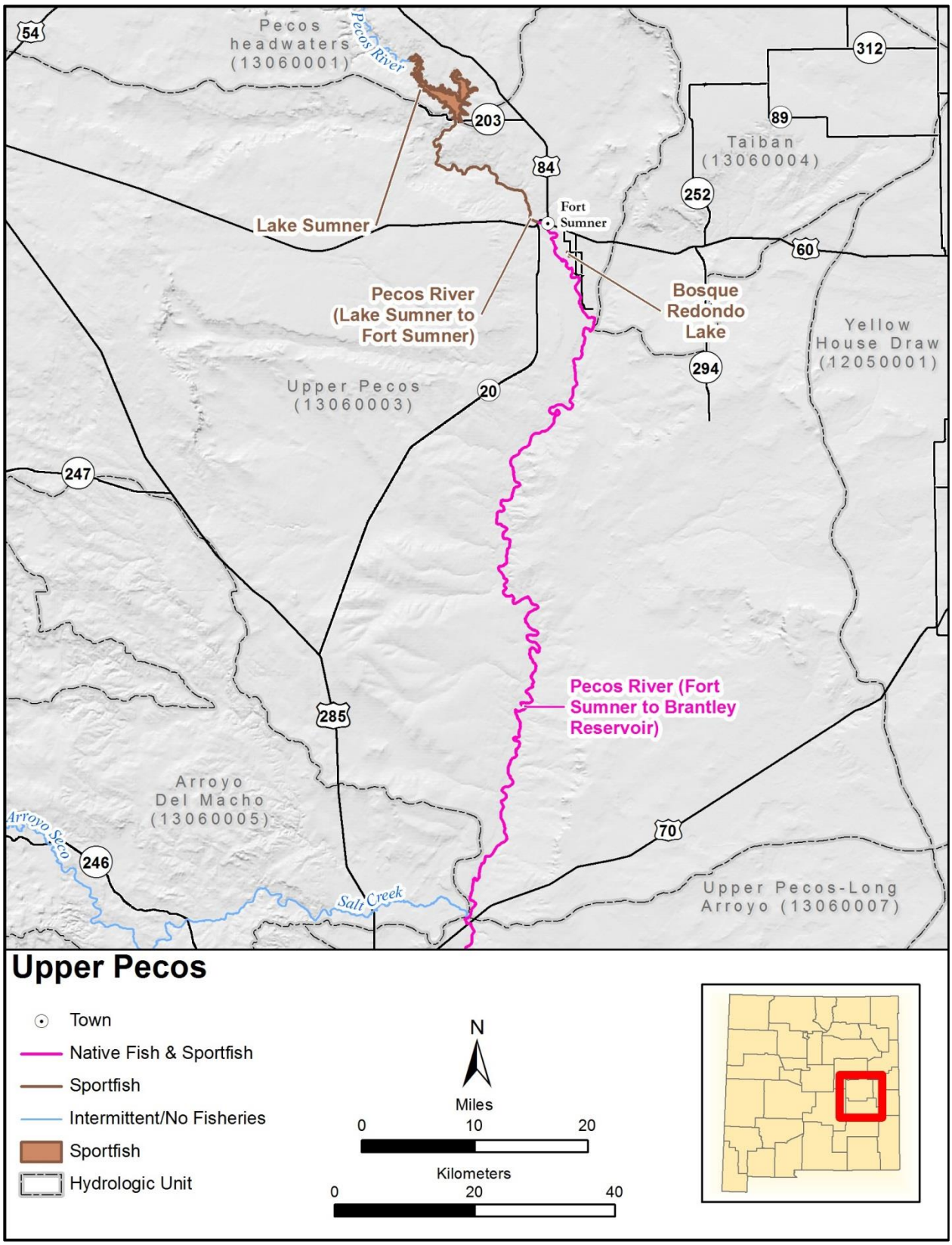

Figure 25. Upper Pecos

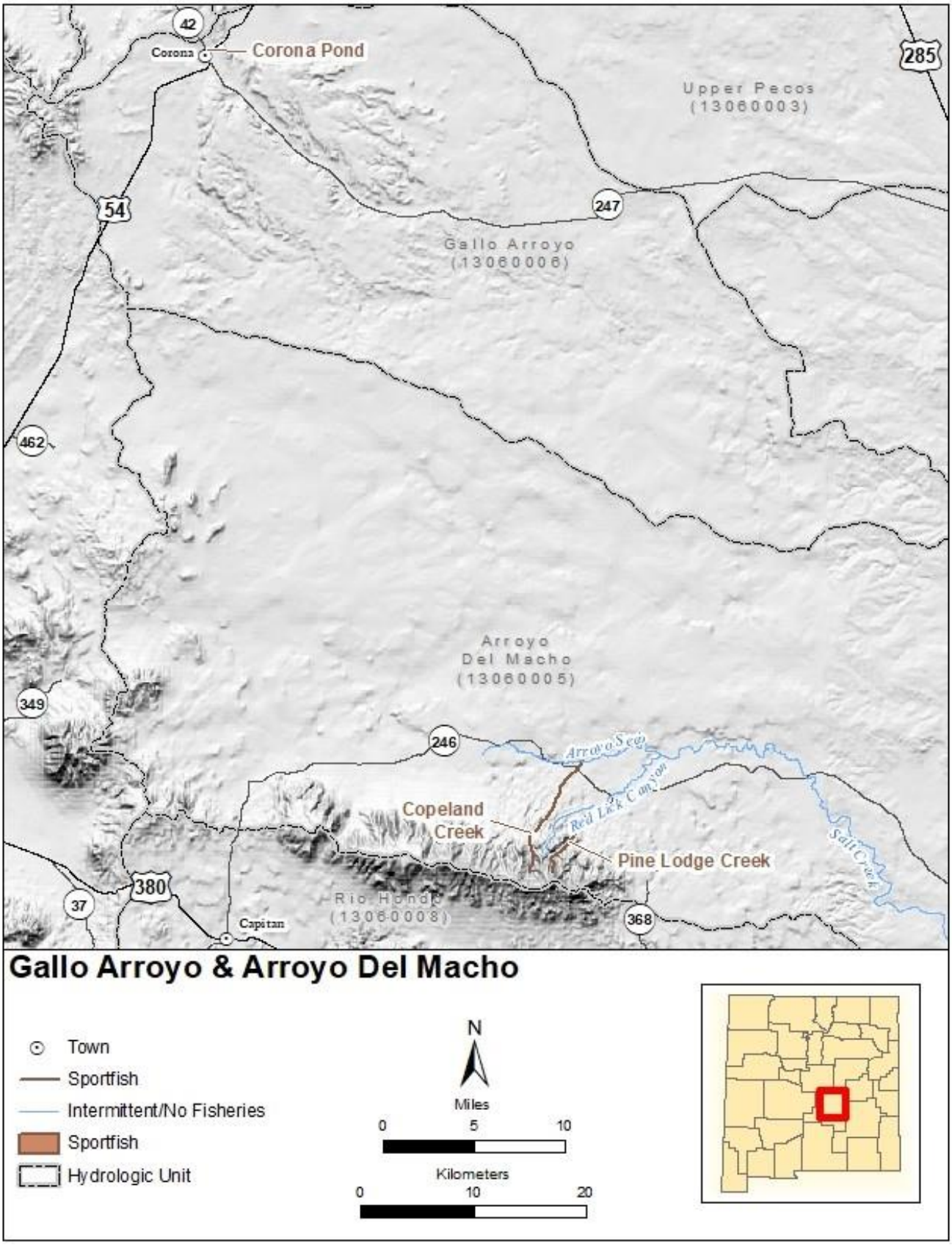

Figure 26. Gallo Arroyo and Arroyo Del Macho

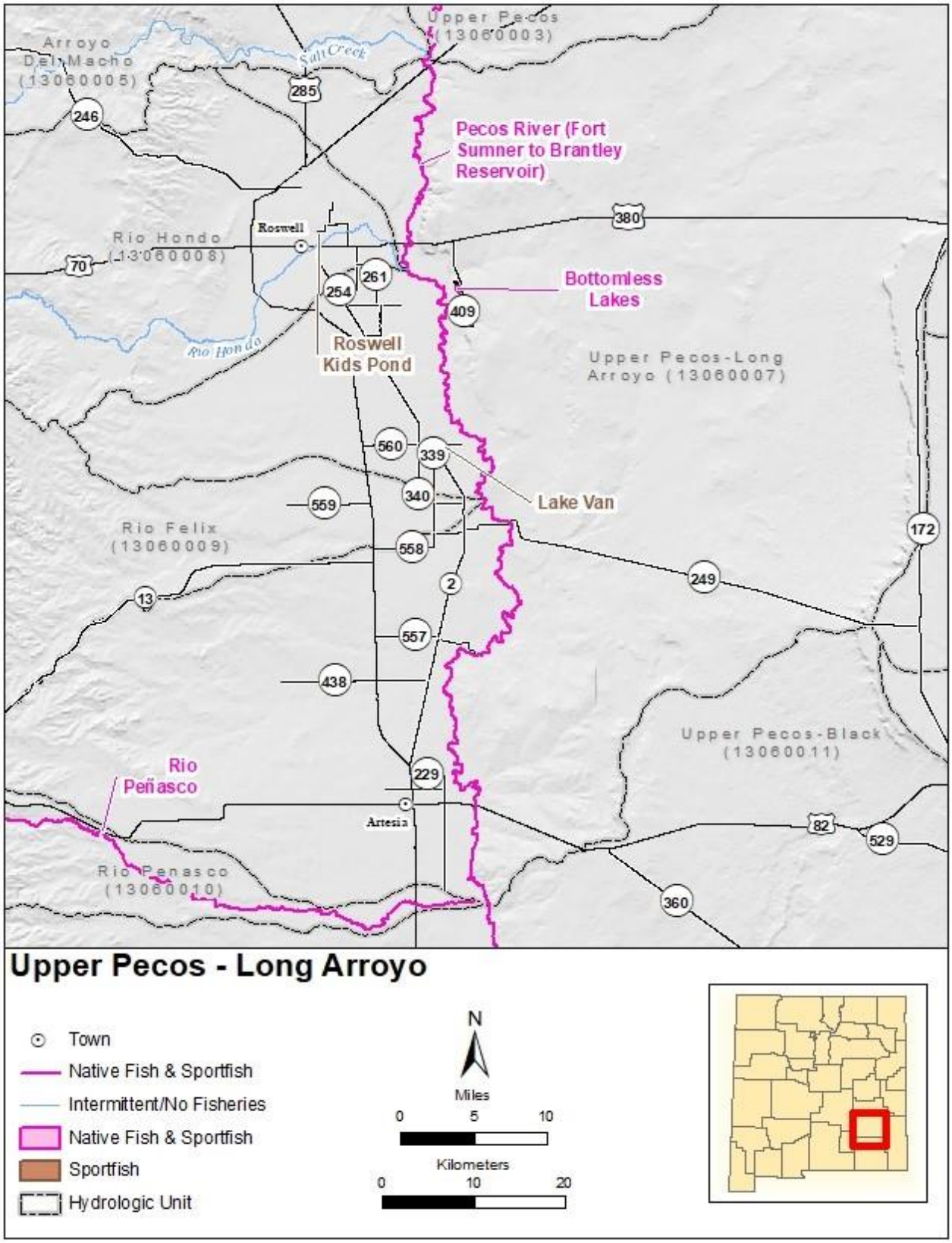

Figure 27. Upper Pecos - Long Arroyo

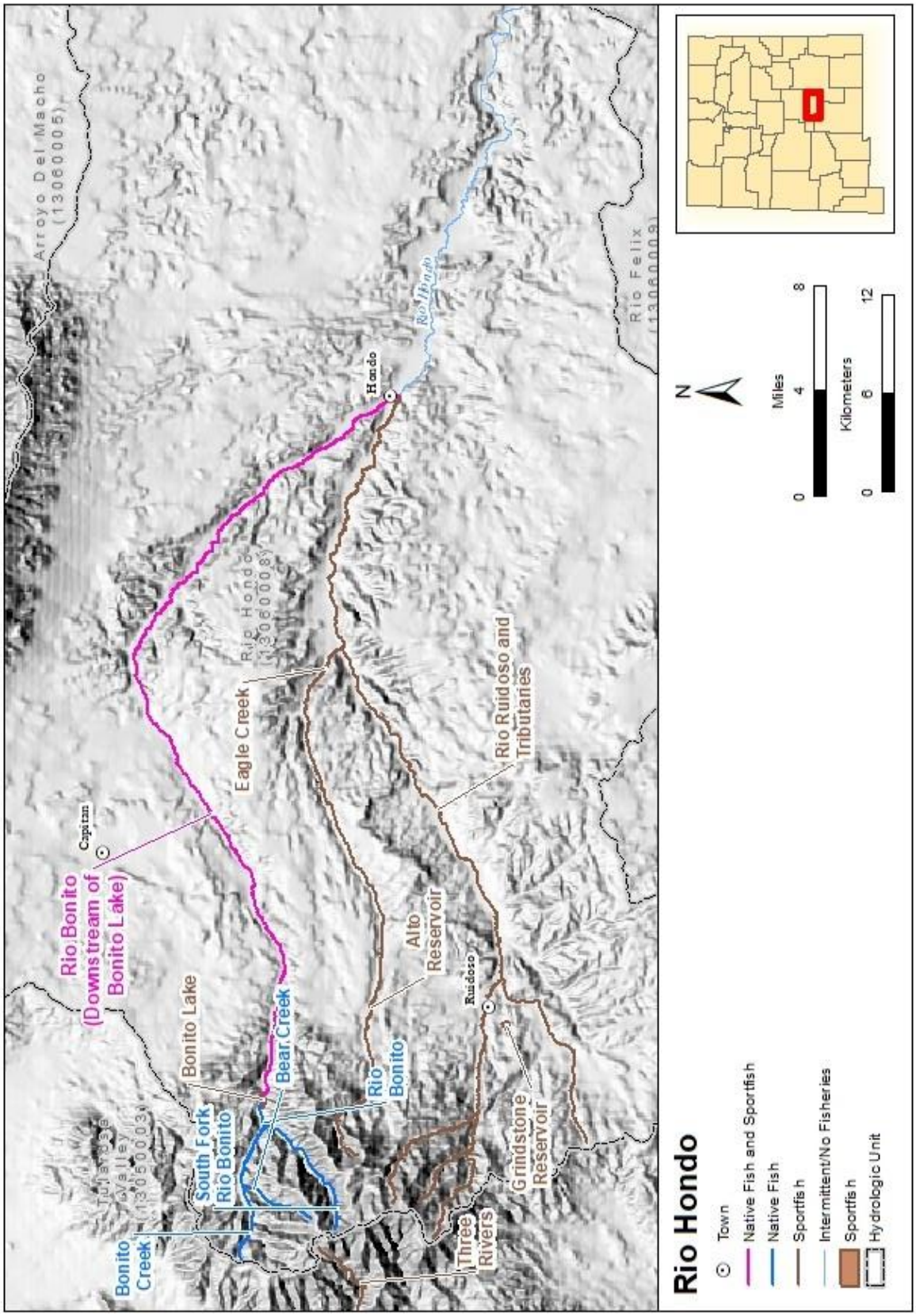

Figure 28. Rio Hondo

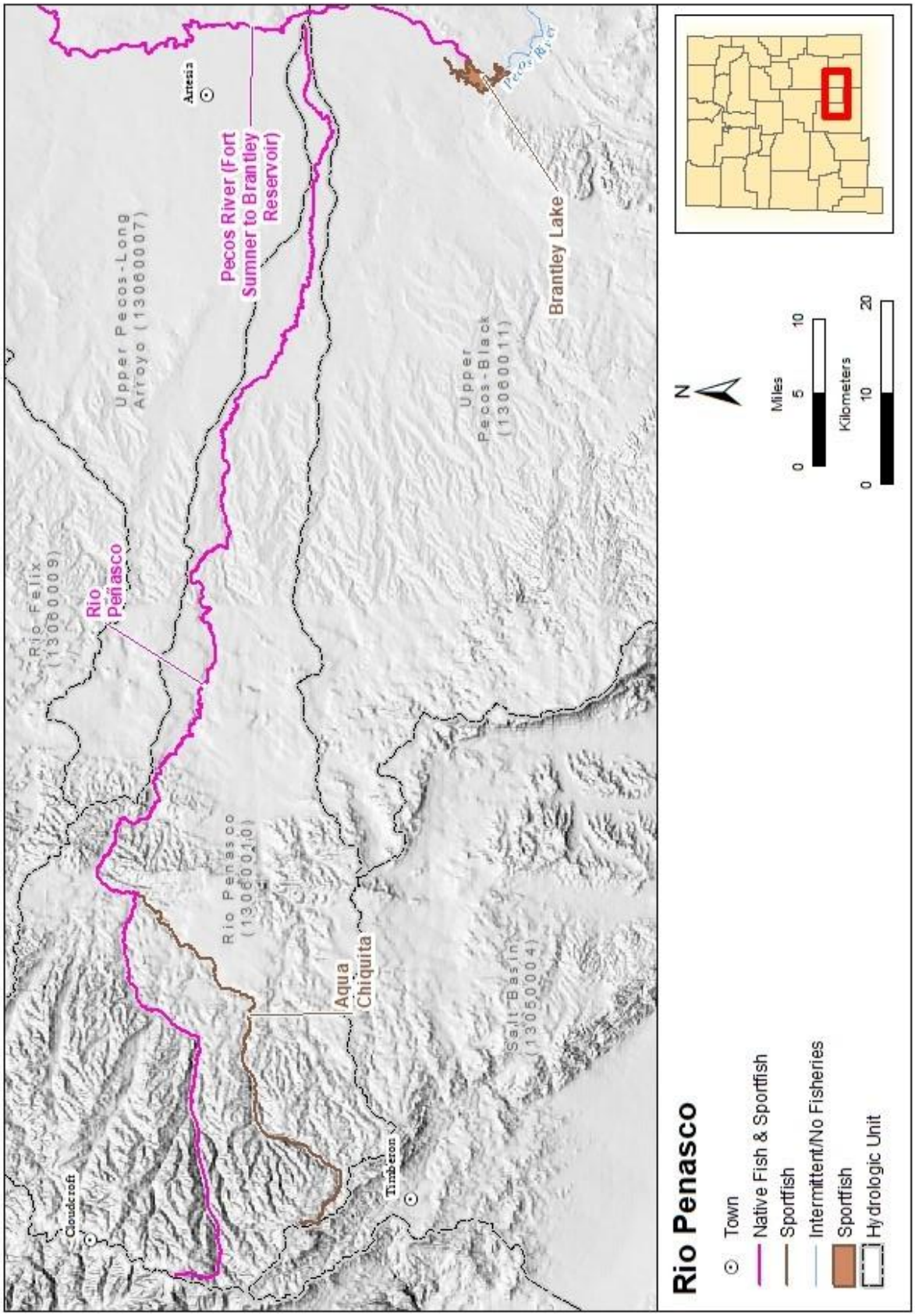

Figure 29. Rio Peñasco

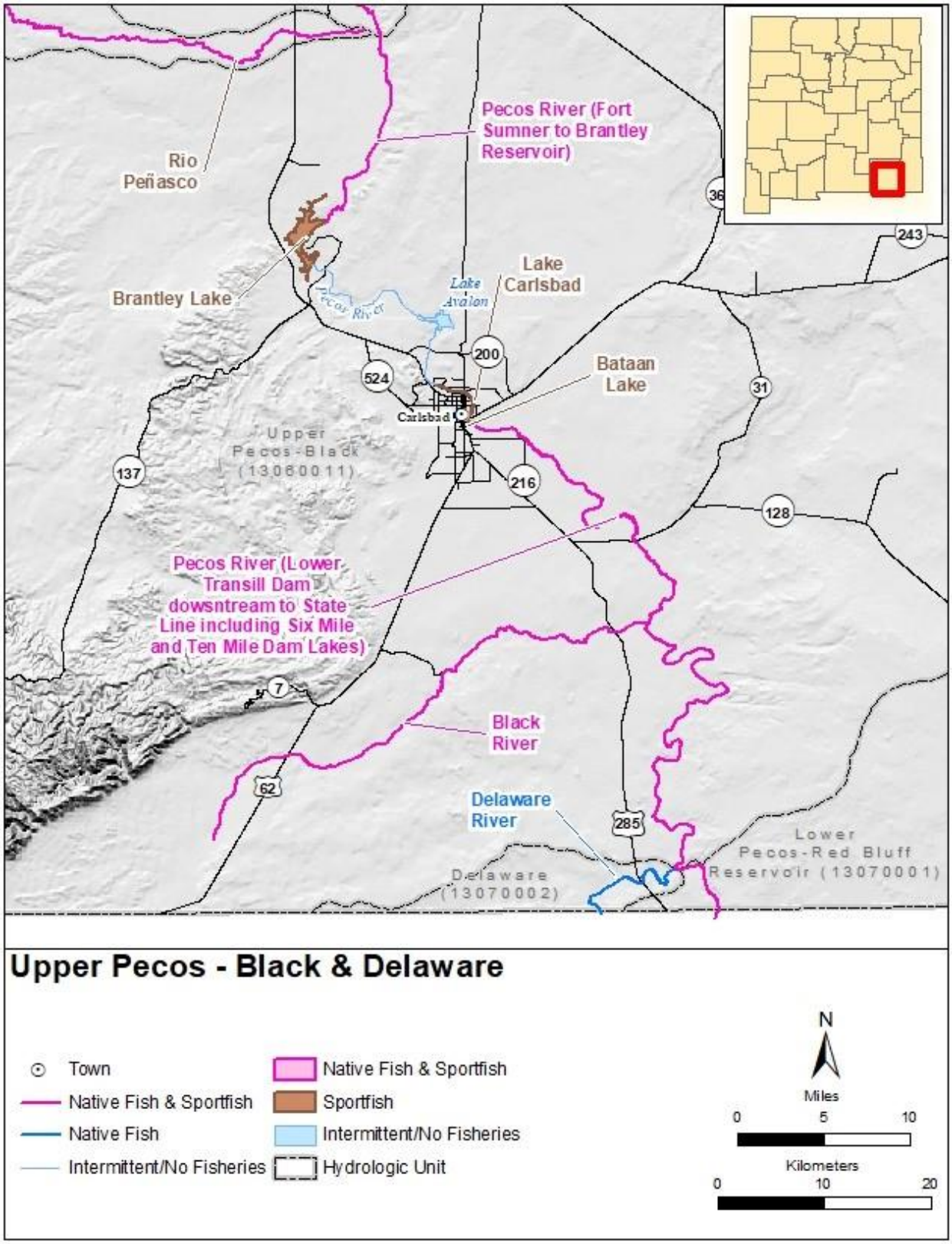

Figure 30. Upper Pecos - Black and Delaware

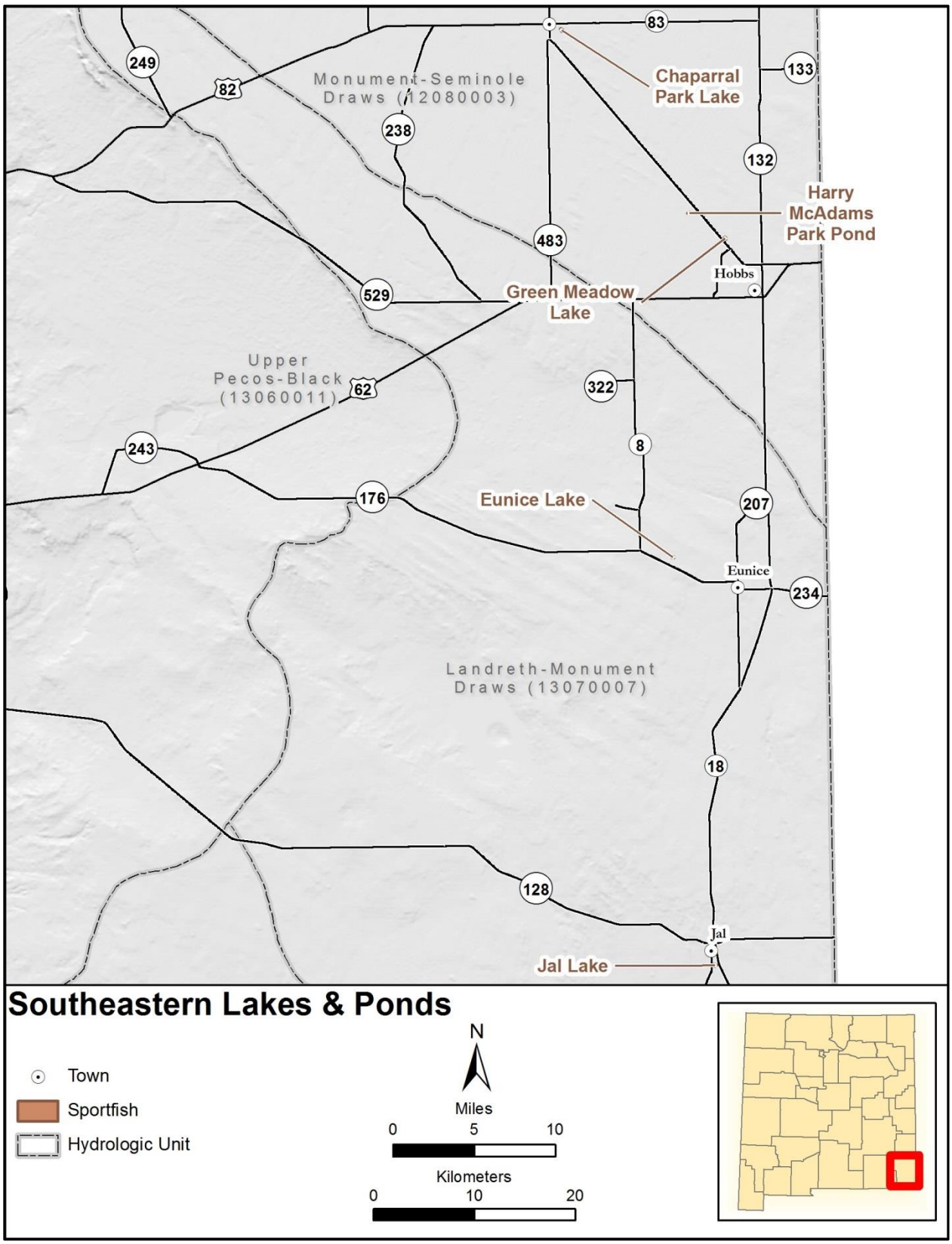

Figure 31. Southeastern Lakes and Ponds

Tularosa Watershed

The Tularosa Basin encompasses approximately 3.2 million acres in south central New Mexico and is a closed basin. There has been limited development in the watershed because much of the Tularosa Basin is federal government property (White Sands Missile Range, Holloman Air Force Base, White Sands National Monument). Due to limited perennial habitats in the Tularosa Watershed, fisheries management activities are limited to monitoring of White Sands Pupfish in coordination with federal agencies and recreational fisheries in the Three Rivers drainage near Alamogordo and Carrizozo Recreation Lake. The mainstem of the Tularosa River is primarily located on private lands and the status of the fisheries on public reaches are unknown.

HUC 13050003 Tularosa Valley

Management Direction for HUC 13050003 Tularosa Valley

Water	Fish Species	Management Type	Management Direction
Carrizozo Recreation Lake	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
Salt Creek and Malpais Spring	White Sands Pupfish	Native Fish	Implement actions identified in the White Sands Pupfish Conservation Agreement
Three Rivers	Brook Trout	Wild	Maintain regulations to support angling for wild trout

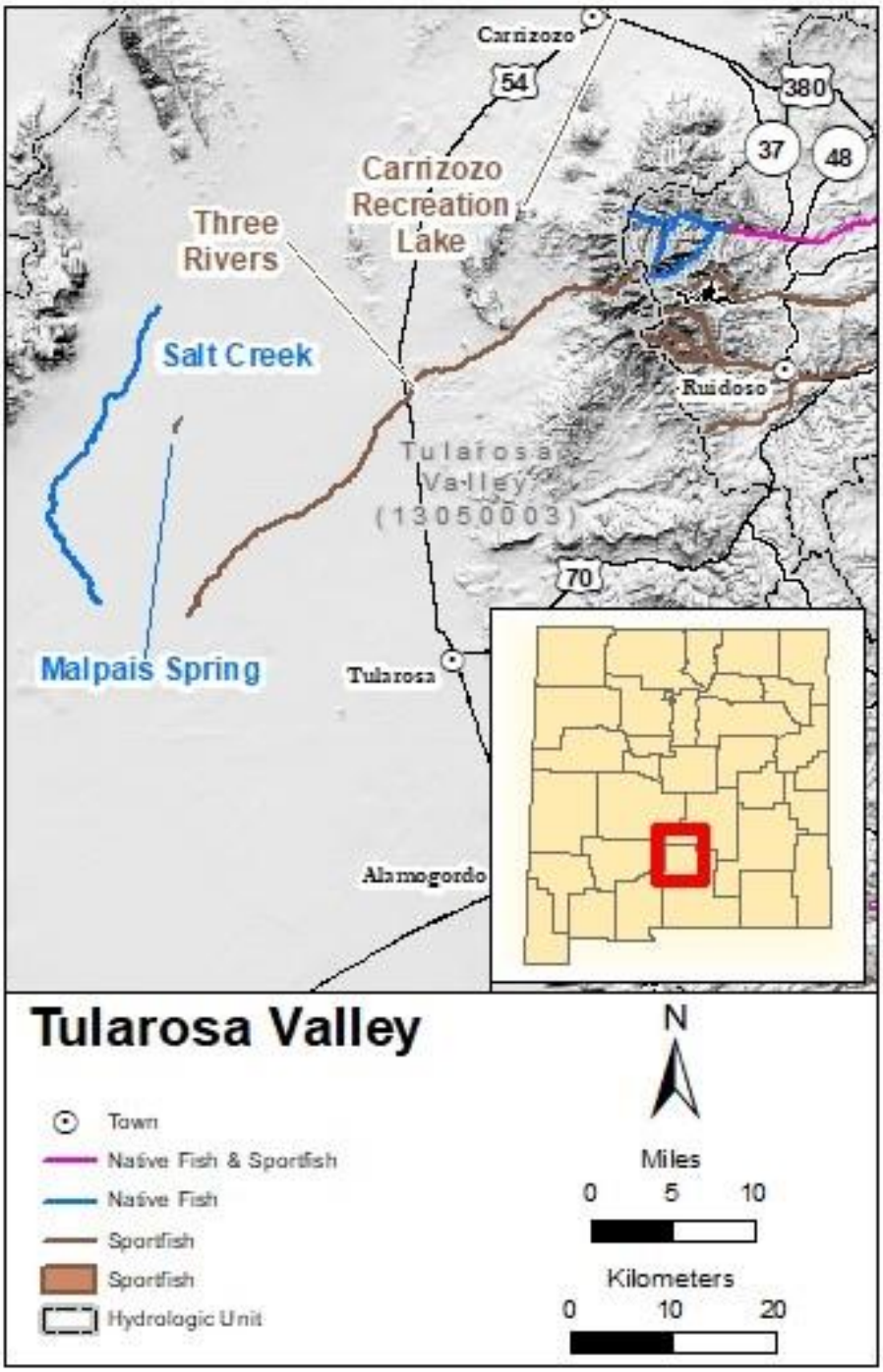

Figure 32. Tularosa Valley

Rio Grande Watershed

The Rio Grande Watershed originates in the San Juan Mountains of southern Colorado and flows south through central New Mexico for the entire length of the State. At El Paso, Texas, the drainage area is approximately 20.1 million acres, including the drainage area in Colorado (US Geological Survey 1996). There are several streams that drain into the Rio Grande include; (1) the Rio Chama, which joins the Rio Grande in north central New Mexico and is the most significant tributary; (2) the Jemez River which joins the Rio Grande near Bernalillo; and (3) the San Jose/Rio Puerco Drainage which also joins the Rio Grande south of San Antonio, NM. Smaller watersheds drain mountains in southern New Mexico. These drainages lack the diversity of those to the north, and many of them are ephemeral. Flow in the Rio Grande, typically low in the winter, is most significantly affected by snowmelt and summer rain events. A spring peak generally occurs between early April and mid-May from snow melt. Low flow returns in June followed by smaller peaks of shorter duration associated with monsoonal rain events. This historical flow regime has been greatly affected by irrigation diversions and agricultural reservoirs in the lower part of the system. Irrigation flows have increased the relative magnitude and duration of summer peaks and reduced the peak associated with snowmelt.

Most lands within the Rio Grande Watershed are under federal and quasi-federal ownership. The headwaters typically occur in National Forests (Carson, Santa Fe, Cibola, and Gila). The Rio Grande flows through large tracts of Bureau of Land Management holdings, the Middle Rio Grande Conservancy District, and the Elephant Butte Irrigation District. Cultivated cropland or orchards occupy about 7% of the basin. This form of agriculture is particularly dense in the Española Valley, Middle Rio Grande Valley, and the Mesilla Valley. Other reaches are used extensively for livestock grazing. Several large reservoirs impound water within the Rio Grande basin for flood control and water storage.

The Rio Grande offers a diversity of angling opportunities in New Mexico. Many high alpine lakes are located within the headwaters and offer exceptional opportunities for catching large Rio Grande Cutthroat Trout. Trout angling opportunities include scores of small streams inhabited by Brook, Brown, Cutthroat, and Rainbow trout as well as trophy angling opportunities in large rivers such as the Rio Grande and Rio Chama. Heron Reservoir offers kokanee angling and is the only Lake Trout fishery in the state. Elephant Butte Reservoir, the state's largest reservoir, receives significant angling pressure for Largemouth Bass, Striped Bass, and White Bass. Current conditions have also increased opportunities for Blue Catfish and Walleye. Popular urban fisheries include Tingley Beach in Albuquerque and Alumni Pond in Las Cruces. Unfortunately, impacts associated with climate change and drought have led to changes in some fisheries. For example, Abiquiu Reservoir has become too warm for the historic

coldwater fisheries it once supported, and Kokanee and Rainbow Trout are no longer being stocked there.

A single federally protected fish, Rio Grande Silvery Minnow, and several state protected or sensitive fish inhabit the Rio Grande Watershed. Active restoration efforts for Rio Grande Cutthroat Trout, Rio Grande Sucker, and Rio Grande Chub are ongoing in the Costilla Creek Watershed. The Department has increased our conservation efforts for Rio Grande Sucker and Rio Grande Chub, which are present in many reaches throughout the drainage. The entire middle Rio Grande is designated for Rio Grande Silvery Minnow recovery, and other than regulation enforcement, the Department has little active management (e.g., stocking) for other species in this reach. Rainbow Trout are seasonally stocked into the drains in this reach. Overall, reach designations for native and sportfish management presents little conflict among the management types.

HUC 13010005 Conejos

Management Direction for HUC 13010005 Conejos

Water	Fish Species	Management Type	Management Direction
Rio de Los Pinos and Tributaries	Triploid Rainbow Trout	Put and Take	Stocked catchable triploid Rainbow Trout in lower sections
	Brown Trout	Wild	Maintain regulations to support angling for wild trout. Special Trout Water regulation (Green Chile Water) from Forest Service Roads 284 and 87A, 2.5 miles upstream to private land. Manage as a Quality Trout Water
	Rio Grande Chub	Native Fish	Maintain Distribution
Beaver Creek and Tributaries	Brook Trout	Wild	Maintain regulations to support angling for wild trout
Laguna Larga	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout in early summer
Lagunitas	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout in early summer
	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock and evaluate fingerling Rio Grande Cutthroat Trout stocking strategies
Rio San Antonio and Tributaries	Brown Trout	Wild	Maintain regulations to support angling for wild trout in lower reaches

Management Direction for HUC 13010005 Conejos			
Water	**Fish Species**	**Management Type**	**Management Direction**
(Headwaters to Rio Nutrias)	Rio Grande Cutthroat Trout	Wild	Consider headwaters for inclusion as Red Chile Native Trout Conservation Water due to recent genetic analysis identifying this population as pure Rio Grande Cutthroat Trout
	Rio Grande Chub	Native Fish	Maintain distribution
	Rio Grande Sucker	Native Fish	Maintain distribution
Rio San Antonio and Tributaries (Rio Nutrias to State Line)	Brown Trout	Wild	Maintain regulations to support angling for wild trout
	Rio Grande Chub	Native Fish	Maintain distribution
	Rio Grande Sucker	Native Fish	Maintain distribution
Tanques Canyon	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout. Special Trout Water regulation (Red Chile Native Trout Conservation Water) from FS Road 93 crossing upstream to its headwaters; support U.S. Forest Service (USFS) in repairing barrier
	Brown Trout	Suppression	Periodically remove Brown Trout to maintain the Rio Grande Cutthroat Trout population. Unlimited angler harvest
Tio Grande Canyon	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout. Special Trout Water regulation (Red Chile Native Trout Conservation Water) within the Carson National Forest excluding private land; support USFS in repairing barrier
	Brown Trout	Suppression	Periodically remove Brown Trout to maintain the Rio Grande Cutthroat Trout population. Unlimited angler harvest

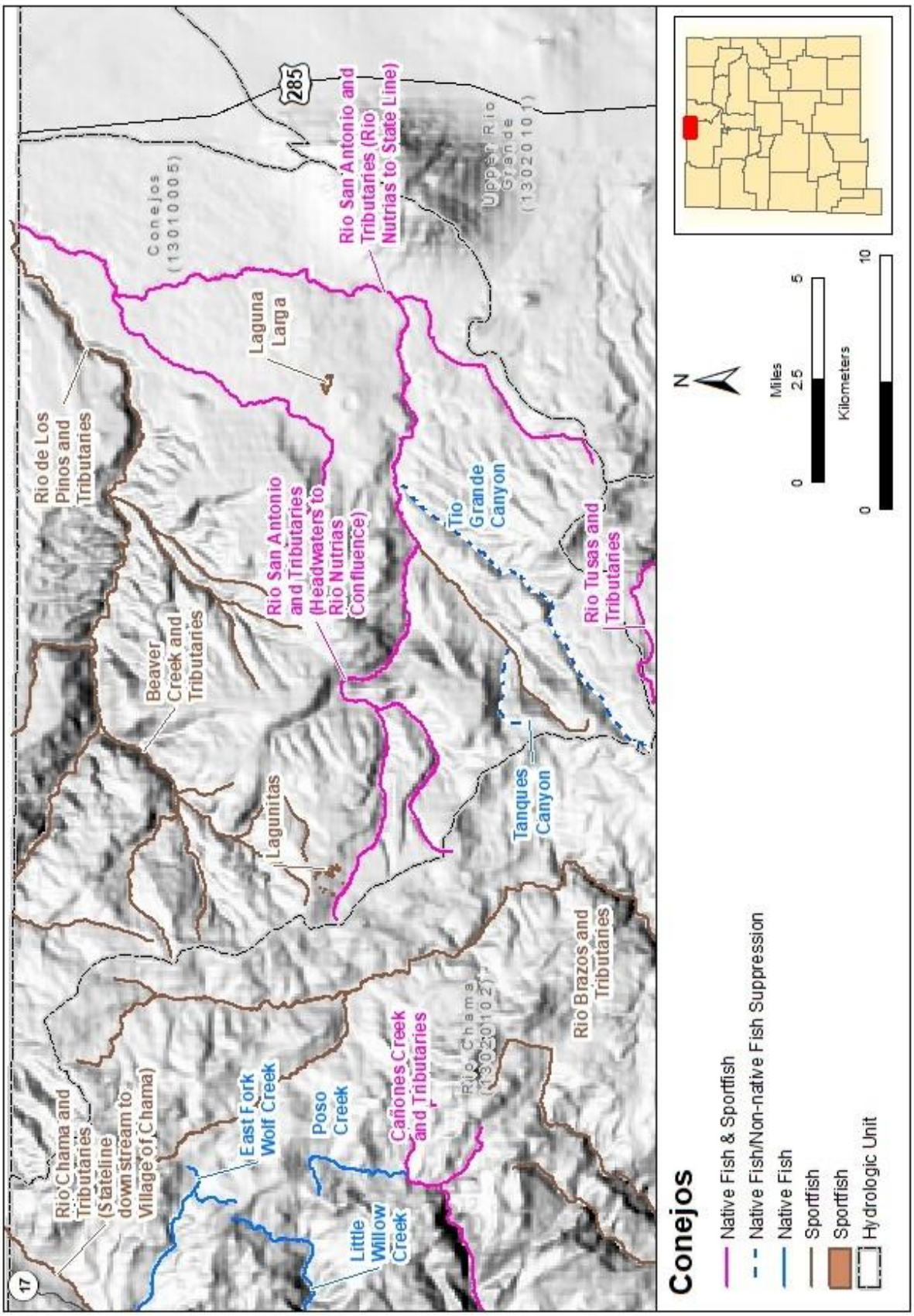

Figure 33. Conejos

HUC 13020101 Upper Rio Grande

Management Direction for HUC 13020101 Upper Rio Grande

Water	Fish Species	Management Type	Management Direction
Rio Grande (Colorado border downstream to Pilar)	Brown Trout	Wild	Special Trout Water regulation (X-mas Chile Water) from Colorado stateline downstream to Taos Junction Bridge at NM Highway 567. Manage as a Quality Trout Water
	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout between Taos Junction Bridge and Pilar and at John Dunn Bridge near Rio Hondo confluence
	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock fingerling Rio Grande Cutthroat Trout in Rio Grande Gorge and monitor to document recruitment
	Rio Grande Chub	Native Fish	Maintain distribution
Rio Grande (Pilar downstream to confluence of Rio Chama)	Brown Trout	Wild	Maintain regulations to support angling for wild trout
	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout between Pilar and Embudo
	Smallmouth Bass	Wild	Length limit removed in 2022 to encourage harvest of stunted population. Investigate effectiveness of regulation change. Statewide daily bag limit still in place
	Rio Grande Chub	Native Fish	Maintain distribution
Rio Grande (Rio Chama confluence downstream to Cochiti Lake)	Channel Catfish	Wild	Limited public access. Flows through Santa Clara and San Ildelfonso Pueblos before entering White Rock Canyon. Upstream of White Rock Canyon water too warm for year-round trout fishery, dominated by warmwater fish species. In canyon, upstream of Capulin Canyon, Brown Trout are self-sustaining. Downstream of Capulin Canyon fishery is predominantly a warmwater fishery. Channel Catfish are present throughout reach
	Brown Trout	Wild	Maintain regulations to support angling for wild trout
Costilla Creek (Headwaters downstream to Costilla Reservoir Dam)	Rio Grande Cutthroat Trout	Native Fish	Restoration project in this reach has been completed. Core Conservation Population of Rio Grande Cutthroat Trout
	Rio Grande Chub	Native Fish	Repatriate to appropriate habitats
	Rio Grande Sucker	Native Fish	Repatriate to appropriate habitats

Management Direction for HUC 13020101 Upper Rio Grande

Water	Fish Species	Management Type	Management Direction
Costilla Creek and Tributaries (Valle Vidal Unit of Carson National Forest)	Rio Grande Cutthroat Trout	Native Fish	Ongoing Rio Grande Cutthroat Trout restoration project from the Valle Vidal boundary upstream to Costilla Reservoir Dam. Special Trout Water regulation (Red Chile Water). Manage as a Quality Trout Water
	Rio Grande Chub	Native Fish	Repatriate to appropriate habitats including Comanche Creek watershed
	Rio Grande Sucker	Native Fish	Repatriate to appropriate habitats including Comanche Creek watershed
Costilla Creek and Tributaries (Valle Vidal Unit boundary downstream to confluence with Rio Grande)	Cutthroat Trout	Wild	Maintain regulations to support angling for wild trout. Special Trout Water regulation (Red Chile Water) from Valle Vidal boundary downstream to Latir Creek. Manage as a Quality Trout Water
	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout within the Open Gate lease. Investigate long-term transition from Rainbow Trout to Rio Grande Cutthroat Trout catchable stocking
Cabresto Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout. Special Trout Water regulation (Red Chile Native Trout Conservation Water) from Cabresto Canyon to headwaters not including Lake Fork
	Brook Trout	Suppression	Periodically remove Brook Trout to maintain the Rio Grande Cutthroat Trout population. Unlimited angler harvest
	Brown Trout	Suppression	Periodically remove Brown Trout to maintain the Rio Grande Cutthroat Trout population. Unlimited angler harvest
Cabresto Lake	Trout	Wild	Brook, Cutthroat, and Rainbow trout are present in this drainage. Maintain regulations to support angling for wild trout. Investigate need for stocking catchable triploid Rainbow Trout or fingerling Rio Grande Cutthroat Trout
Lake Fork Cabresto	Trout	Wild	Brook and Cutthroat trout are present. Maintain regulations to support angling for wild trout
Red River and Tributaries (Headwaters downstream confluence of Pioneer Creek)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Trout	Wild	Special Trout Water regulation (Green Chile Water) from its confluence with Goose Creek 1.1 miles upstream to the Carson National Forest boundary. Brook, Brown, and Cutthroat trout are present in the reach

Management Direction for HUC 13020101 Upper Rio Grande

Water	Fish Species	Management Type	Management Direction
Red River and Tributaries (Pioneer Creek confluence downstream to Red River Hatchery)	Triploid Rainbow Trout	Put and Take	Stock triploid Rainbow Trout
	Brown Trout	Wild	Natural thermal scarring as well as molybdenum mine limits wild trout potential
Red River (Red River Hatchery downstream to Rio Grande)	Triploid Rainbow Trout	Put and Take	Stock triploid Rainbow Trout
	Brown Trout	Wild	Special Trout Water regulation (X-mas Chile Water) from the lower walking bridge at Red River Hatchery downstream to confluence with Rio Grande. Manage as a Quality Trout Water
Red River City Ponds	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout from March to November. Middle (smaller) pond open to anglers 11 years old and younger, 65 years old and older, and individuals with disabilities
Red River Hatchery Pond	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout. Open to anglers 11 years old and younger, 65 years old and older, and individuals with disabilities
Eagle Rock Lake	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
Fawn Lakes	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout. Lakes severely impacted by flood damage. Investigate renovation potential with Carson National Forest
Middle Fork Lake	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock fingerling Rio Grande Cutthroat Trout
	Brook Trout	Wild	Maintain regulations to support angling for wild trout
Horseshoe Lake (East Fork Red River)	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock fingerling Rio Grande Cutthroat Trout
Columbine Creek and Tributaries	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout. Special Trout Water regulation (Red Chile Native Trout Conservation Water) from confluence with Red River to headwaters
	Brown Trout	Suppression	Periodically remove Brown Trout to maintain the Rio Grande Cutthroat Trout population. Unlimited angler harvest
San Cristobal Creek and Tributaries	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout

Management Direction for HUC 13020101 Upper Rio Grande

Water	Fish Species	Management Type	Management Direction
Rio Pueblo de Taos	Brown Trout	Wild	Primarily on Pueblo of Taos. Maintain regulations to support angling for wild trout
Rio Hondo Tributaries (Yerba Creek, Italianos Creek, Gavilan Creek, South Fork Rio Hondo)	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Populations of Rio Grande Cutthroat Trout. Special Trout Water Resulations (Red Chile Native Trout Conservation Water) in Yerba, Gavilan, Italianos creeks and South Fork Rio Hondo
	Brown Trout	Suppression	Present in Yerba and Gavilan Creeks, and South Fork Rio Hondo but not Italianos Creek. Periodically remove Brown Trout to maintain the Rio Grande Cutthroat Trout population. Unlimited angler harvest
Rio Hondo (Headwaters downstream to Highway 522)	Trout	Wild	Brown and Cutthroat trout present in this reach. Maintain regulations to support angling for wild trout
Rio Hondo (Highway 522 downstream to Rio Grande)	Triploid Rainbow Trout	Put and Take	Stock triploid Rainbow Trout
	Brown Trout	Wild	Maintain regulations to support angling for wild trout
Williams Lake	N/A	N/A	Habitat is limited and winterkill conditions are likely common. Stocking suspended
Rio Fernando de Taos	Triploid Rainbow Trout	Put and Take	Stock triploid Rainbow Trout during spring and early summer months. Most of this creek is ephemeral which limits angling potential
	Brown Trout	Wild	Maintain regulations to support angling for wild trout
Rio Grande del Rancho (Little Rio Grande) and Tributaries	Brown Trout	Wild	Maintain regulations to support angling for wild trout
	Rio Grande Chub	Native Fish	Maintain distribution
	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout in extreme headwaters of the Little Rio Grande
Rio Chiquito	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout. Consider headwaters for inclusion as Red Chile Native Trout Conservation Water due to recent genetic analysis identifying this population as pure Rio Grande Cutthroat Trout
	Brown Trout	Wild	Maintain regulations to support angling for wild trout in lower reaches

Management Direction for HUC 13020101 Upper Rio Grande

Water	Fish Species	Management Type	Management Direction
Pot Creek (Rito de la Olla) and Tributaries	Brown Trout	Wild	Maintain regulations to support angling for wild trout
Palociento Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout. Special Trout Water regulation (Red Chile Native Trout Conservation Water) from confluence with Pot Creek to headwaters
	Brown Trout	Suppression	Periodically remove Brown Trout to maintain the Rio Grande Cutthroat Trout population. Unlimited angler harvest
Frijoles Creek (Taos)	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout. Special Trout Water regulation (Red Chile Native Trout Conservation Water) from confluence with Pot Creek to headwaters
	Brown Trout	Suppression	Periodically remove Brown Trout to maintain the Rio Grande Cutthroat Trout population**.** Unlimited angler harvest
Rio Pueblo and Tributaries	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Brown Trout	Wild	Maintain regulations to support angling for wild trout
La Junta Canyon (Rito la Presa)	Brown Trout	Wild	Maintain regulations to support angling for wild trout. Conservation Population of Rio Grande Cutthroat Trout in extreme headwaters of Sardinas and La Presa
Alamitos Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout
Policarpio Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout
Rio Santa Barbara and Tributaries (Headwaters downstream to Middle and West Forks confluence)	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout. Special Trout Water (Red Chile Native Trout Conservation Water)
	Brown Trout	Suppression	Periodically remove Brown Trout to maintain the Rio Grande Cutthroat Trout population. Unlimited angler harvest
Rio Santa Barbara (Middle and West Forks confluence downstream to Rio Embudo confluence)	Brown Trout	Wild	Maintain regulations to support angling for wild trout

Management Direction for HUC 13020101 Upper Rio Grande

Water	Fish Species	Management Type	Management Direction
Jicarita Creek and Indian Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Populations of Rio Grande Cutthroat Trout
Rio de las Trampas	Rio Grande Cutthroat Trout	Wild	Conservation Population of Rio Grande Cutthroat Trout suspected of hybridization
Embudo Creek (Rio Embudo) and Tributaries	Brown Trout	Wild	Maintain regulations to support angling for wild trout
	Rio Grande Chub	Native Fish	Maintain Distribution
Rio de Truchas	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout
Rio Medio and Tributaries (Santa Fe)	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout in extreme headwaters
	Brown Trout	Wild	Maintain regulations to support angling for wild trout
Rio Molino	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout
Rio Frijoles (Santa Fe)	Brown Trout	Wild	Maintain regulations to support angling for wild trout
	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout in extreme headwaters
Santa Cruz River	Brown Trout	Wild	Primarily private property below Santa Cruz Reservoir and not managed by the Department. Maintain regulations to support angling for wild trout
Santa Cruz Reservoir	Brown Trout	Wild	Irrigation withdrawals cause lake to drop dramatically through the summer thereby limiting wild trout potential
	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
Rio Quemado	Brown Trout	Wild	Primarily on private land. Maintain regulations to support angling for wild trout
	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout
South Fork Rio Quemado and Tributaries	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout
Guaje Creek	Rio Grande Cutthroat Trout	Native Fish	Severely impacted by Cerro Grande and Las Conchas wildfires. Non-native trout were extirpated. Consider for repatriation of Rio Grande Cutthroat Trout

Management Direction for HUC 13020101 Upper Rio Grande

Water	Fish Species	Management Type	Management Direction
Los Alamos Reservoir	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout as conditions allow
	Rio Grande Cutthroat Trout	Put, Grow, and Take	Investigate stocking fingerling Rio Grande Cutthroat Trout
Tesuque Creek and Tributaries	Rainbow Trout	Wild	Lower reach almost entirely within Tesuque Pueblo. Maintain regulations to support angling for wild trout in areas under Department jurisdiction
Rio Nambe and Tributaries	Trout	Wild	Lower section entirely within Nambe Pueblo (Rainbow Trout stocked in Nambe Lake by Pueblo). Maintain regulations to support angling for wild trout in areas under Department jurisdiction
Rio en Medio	Rainbow Trout	Wild	Maintain regulations to support angling for wild trout
	Brook Trout	Wild	Maintain regulations to support angling for wild trout
Lost Lake (East Fork Red River)	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock fingerling Rio Grande Cutthroat Trout
Trampas Lakes (Upper)	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock fingerling Rio Grande Cutthroat Trout every other year
Hidden Lake	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock fingerling Rio Grande Cutthroat Trout when possible
Trampas Lakes (Lower)	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock fingerling Rio Grande Cutthroat Trout every other year
San Leonardo Lake	N/A	N/A	Habitat is limited and winterkill conditions are likely common. Stocking suspended
Goose Lake	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock fingerling Rio Grande Cutthroat Trout when possible
Jose Vigil Lake	Rio Grande Cutthroat Trout	Put, Grow, and Take	Investigate stocking with Rio Grande Cutthroat Trout
Osha Canyon	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout
Rito Angostura	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout

Management Direction for HUC 13020101 Upper Rio Grande

Water	Fish Species	Management Type	Management Direction
La Cueva Canyon	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout
Sardinas Canyon	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout
Rito la Presa Headwaters	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout
Tienditas Creek	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout
Pojoaque River and Tributaries	N/A	N/A	Intermittent throughout reach, no current data. Located across four pueblos (Tesuque, Nambe, Pojoaque, and San Ildefonso)

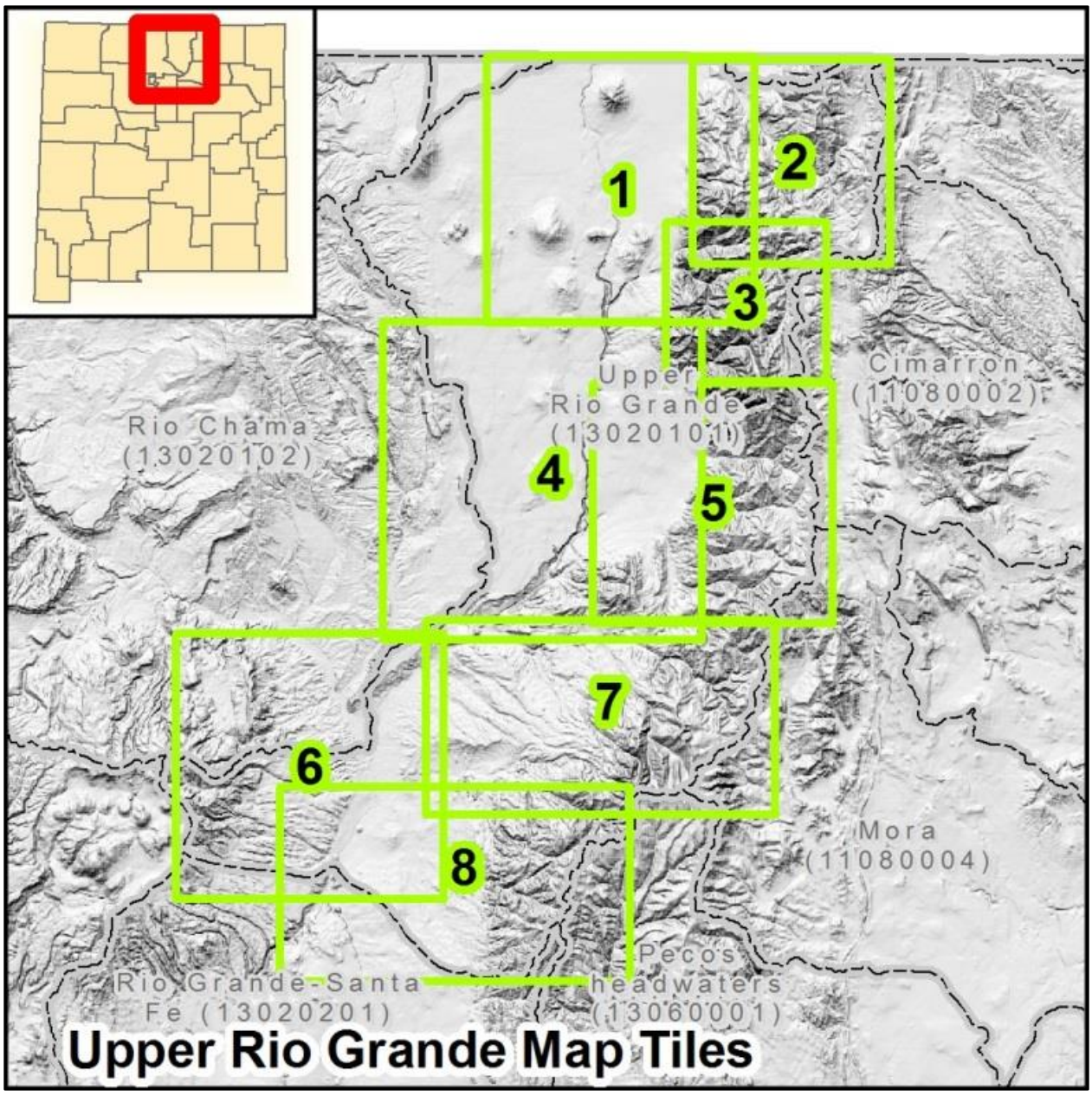

Figure 34. Upper Rio Grande Map Tiles

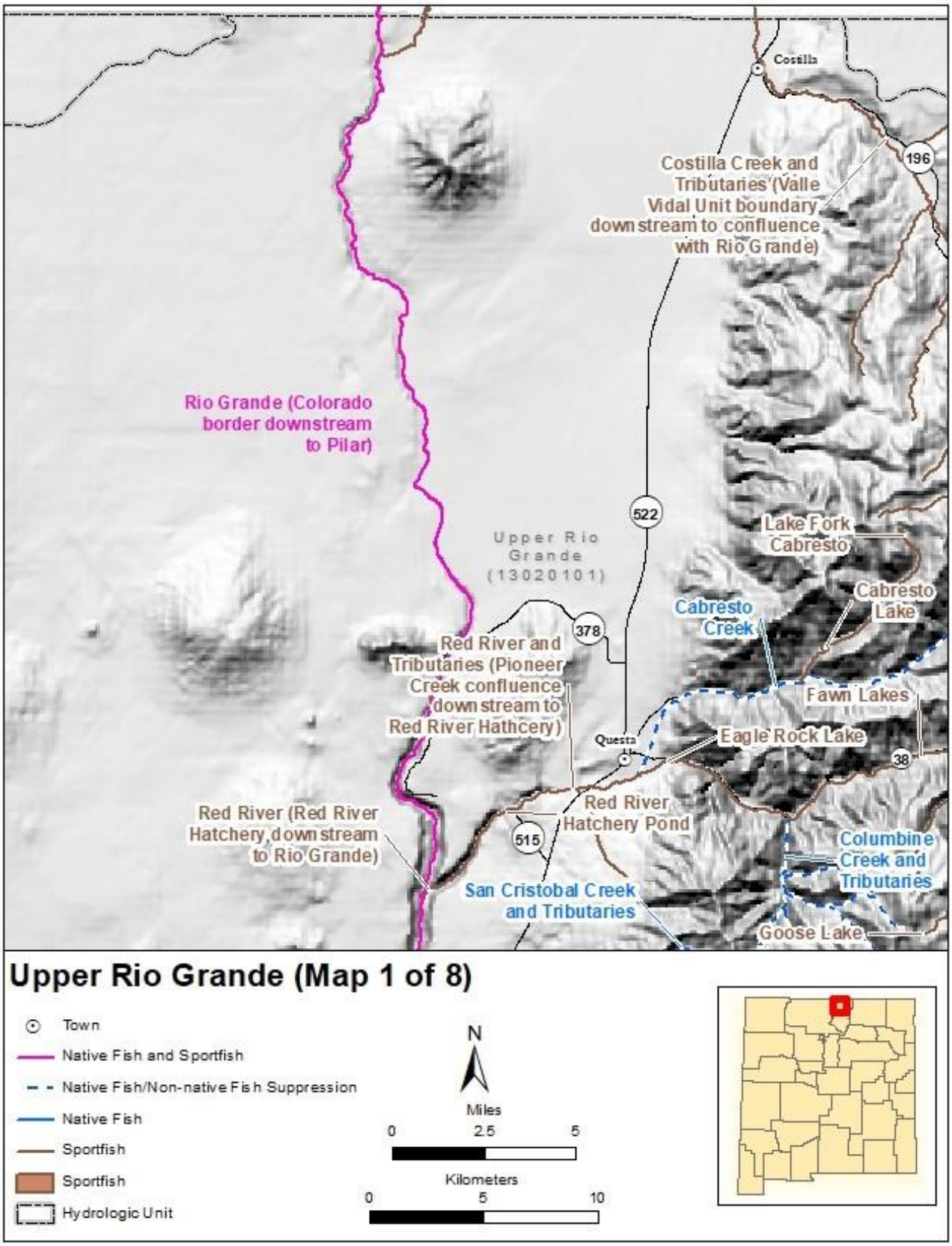

Figure 35. Upper Rio Grande (Map 1 of 8)

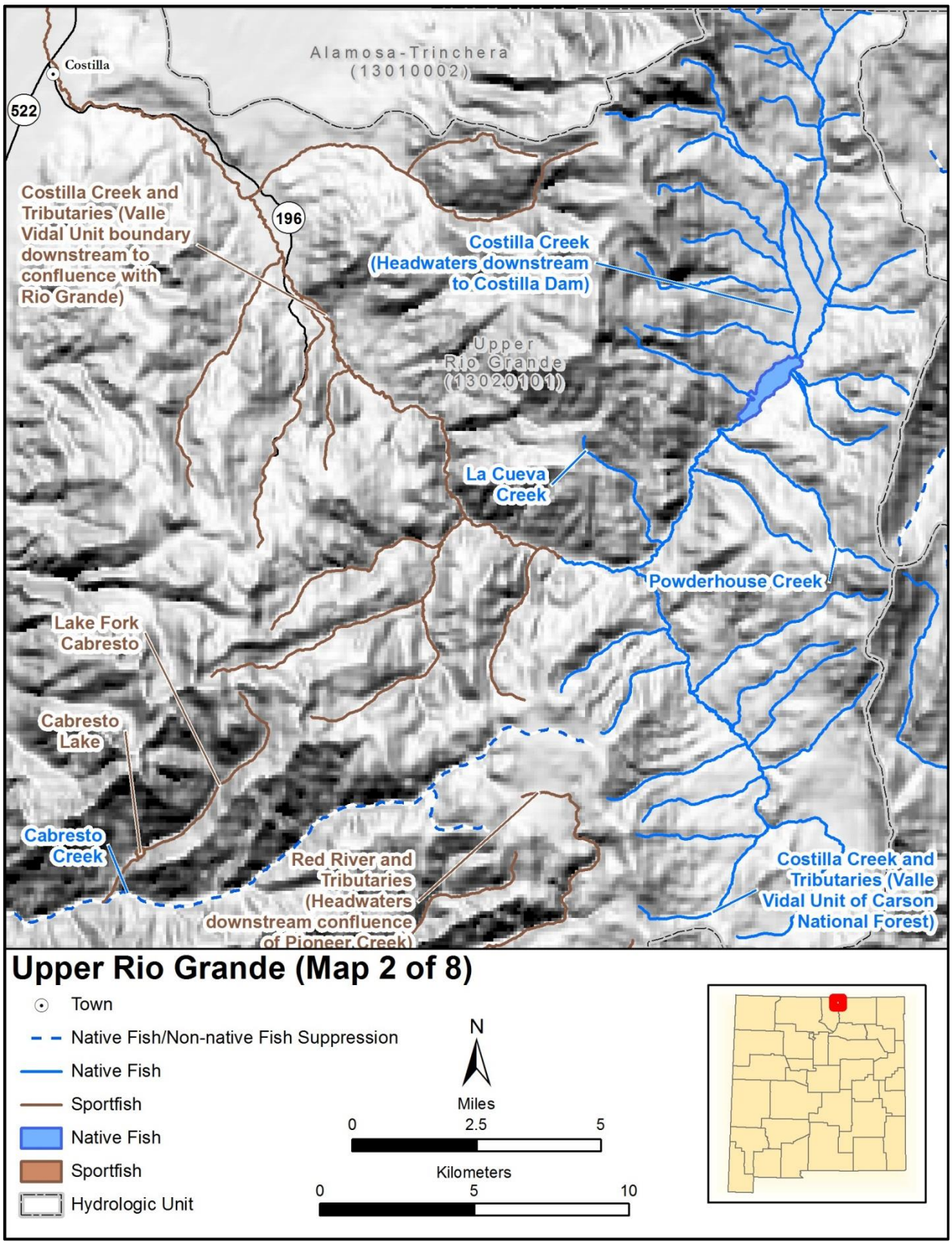

Figure 36. Upper Rio Grande (Map 2 of 8)

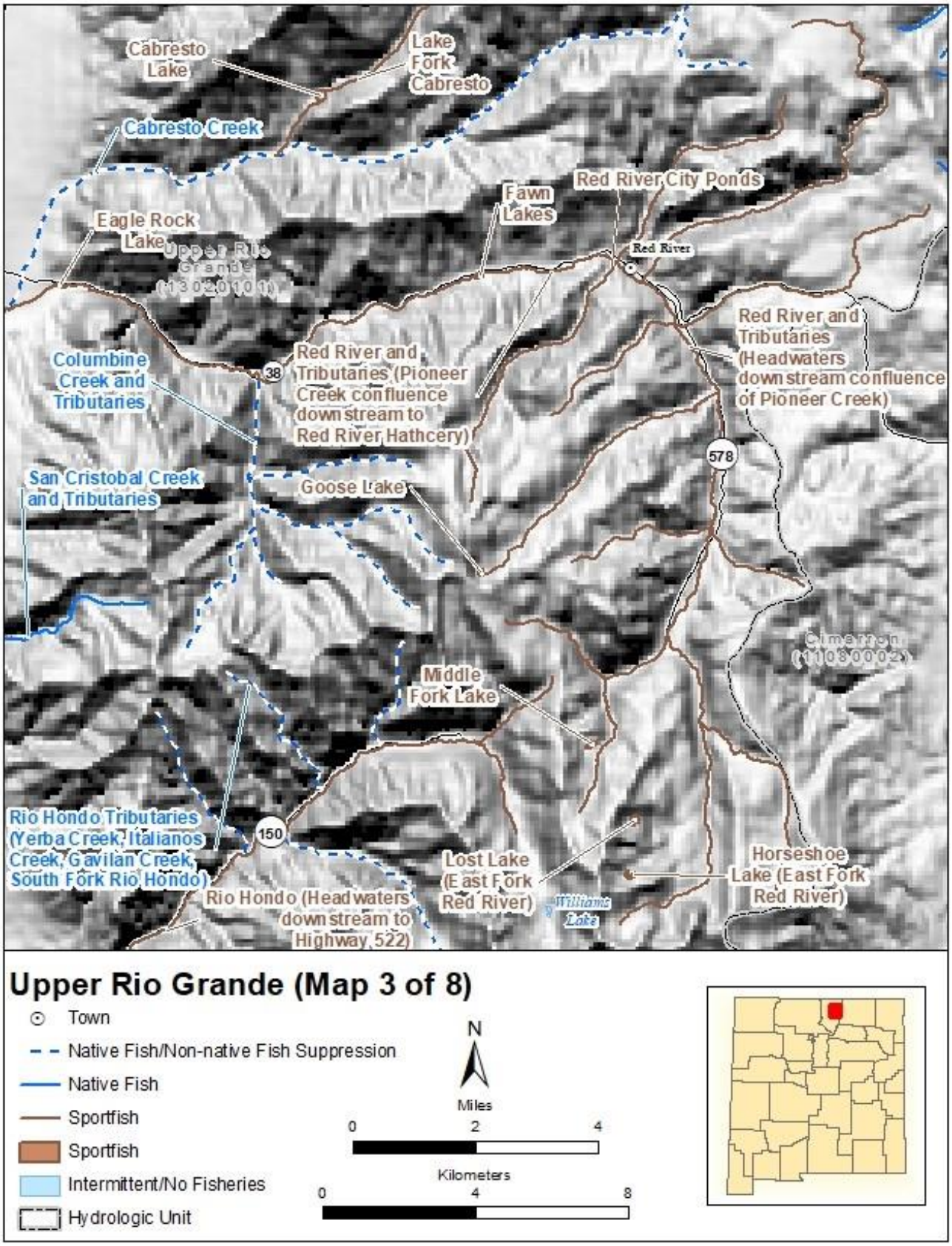

Figure 37. Upper Rio Grande (Map 3 of 8)

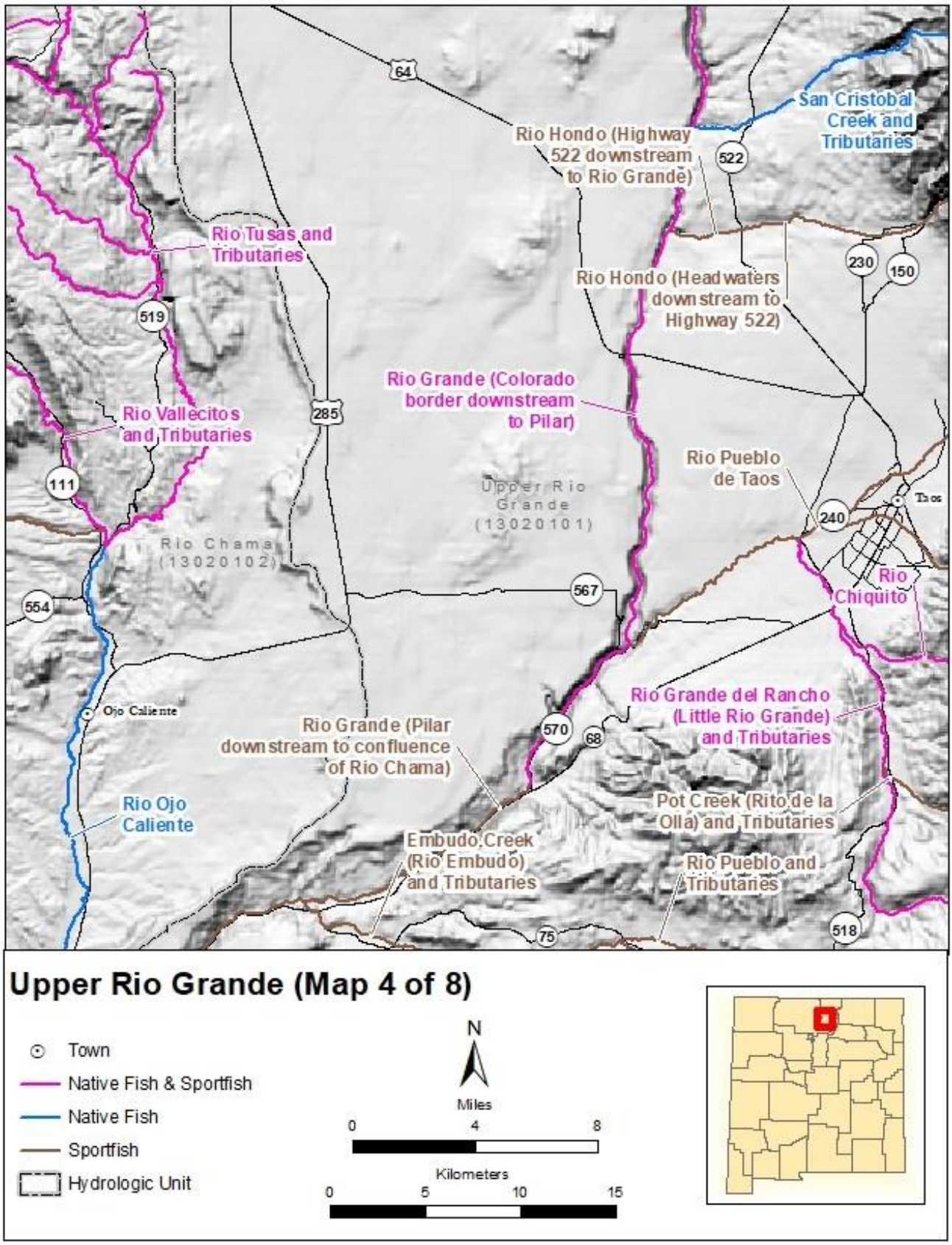

Figure 38. Upper Rio Grande (Map 4 of 8)

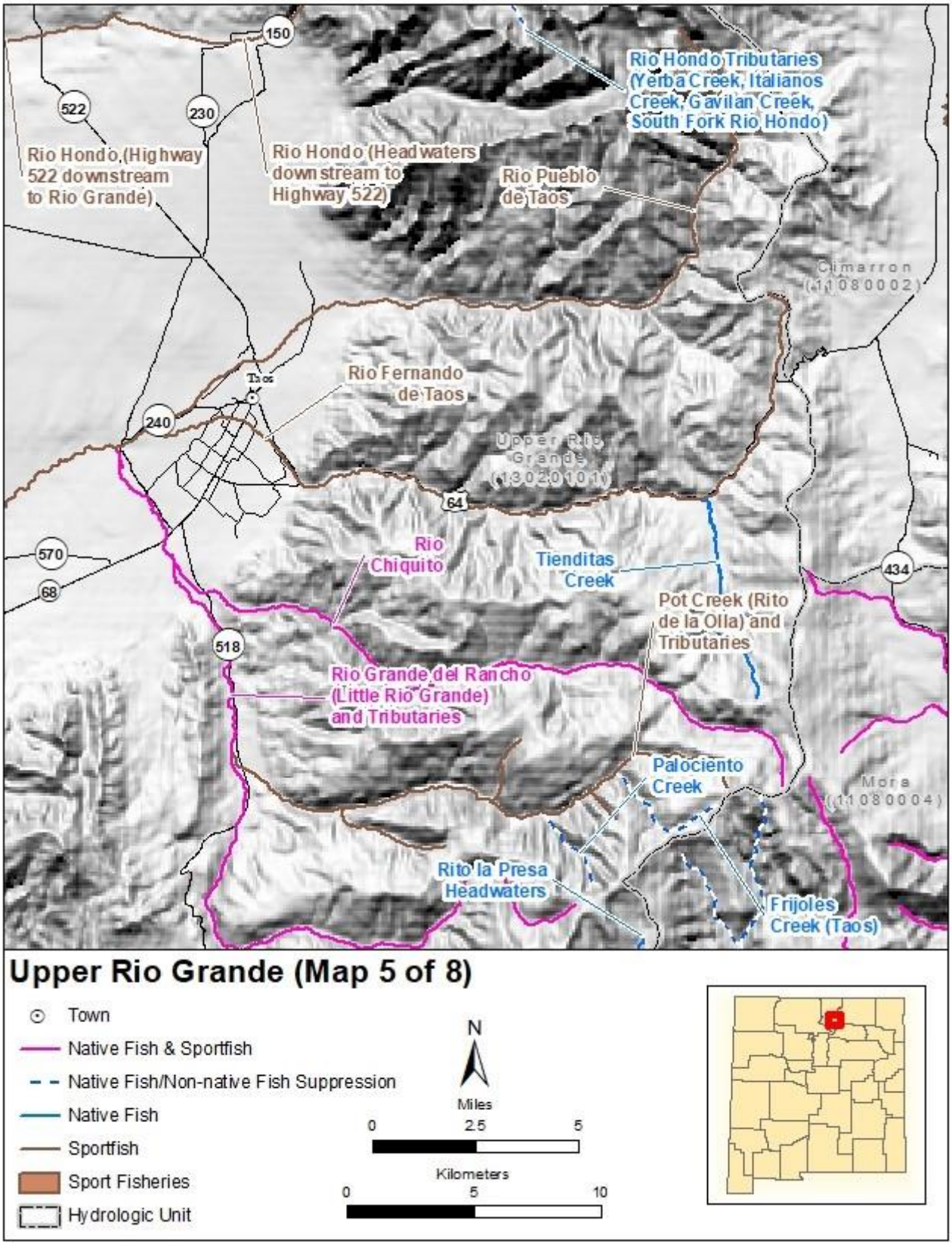

Figure 39. Upper Rio Grande (Map 5 of 8)

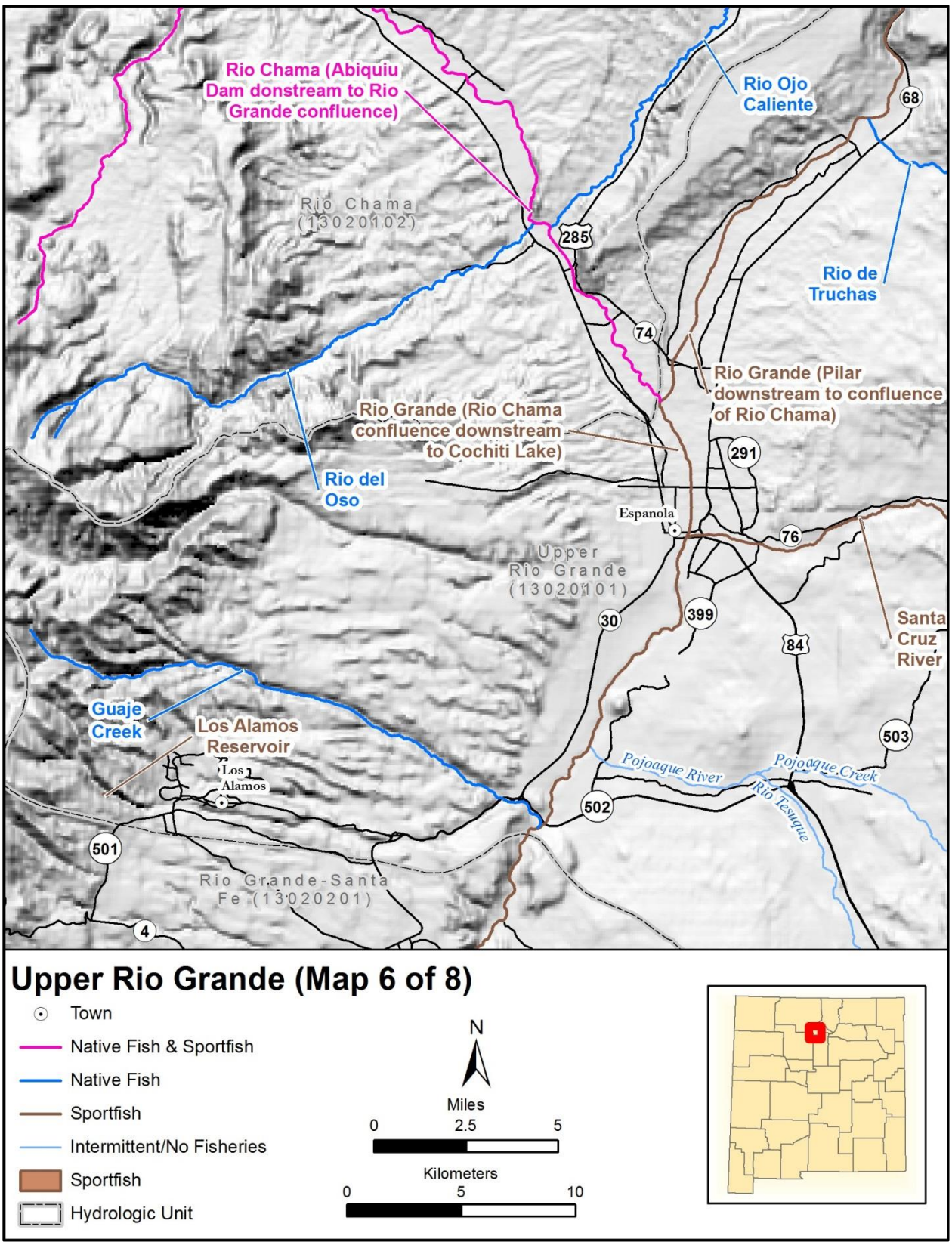

Figure 40. Upper Rio Grande (Map 6 of 8)

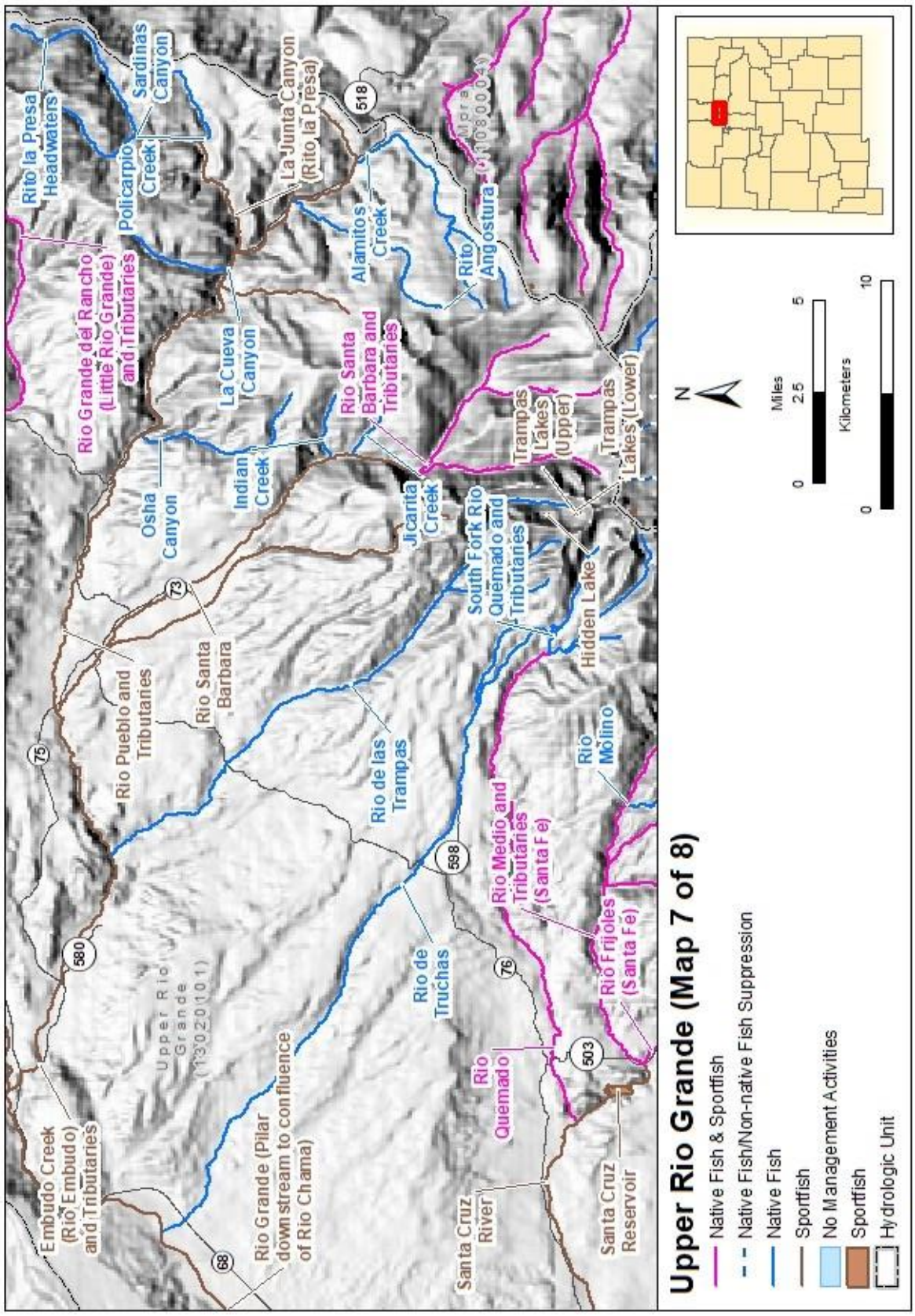

Figure 41. Upper Rio Grande (Map 7 of 8)

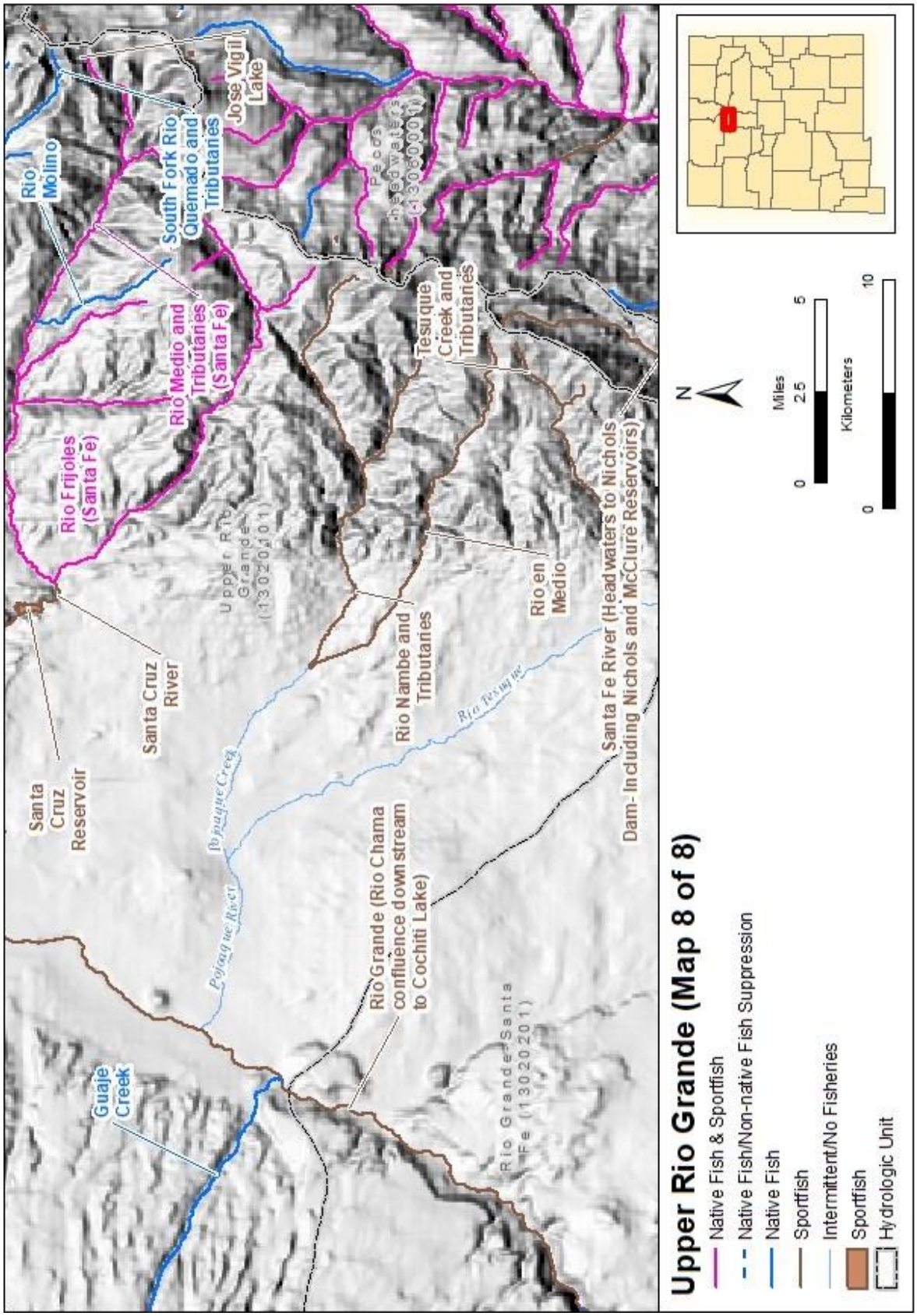

Figure 42. Upper Rio Grande (Map 8 of 8)

HUC 13020102 Rio Chama

Management Direction for HUC 13020102 Rio Chama

Water	Fish Species	Management Type	Management Direction
Placer Creek	Brook Trout	Suppression/ Wild	Ongoing YY Brook Trout stocking study to investigate possibility for repatriation of Rio Grande Cutthroat Trout upstream of waterfall barrier at FS Road 1893. Maintain regulations to support angling for wild trout downstream of waterfall barrier
Hopewell Lake	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Brook Trout	Wild	Maintain regulations to support angling for wild trout
	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock and evaluate fingerling Rio Grande Cutthroat Trout stocking strategies
Rio Tusas and Tributaries	Rainbow Trout	Wild	Rainbow Trout and Cutthroat Trout population in upper drainage. Maintain regulations to support angling for wild trout
	Rio Grande Chub	Native Fish	Maintain distribution
	Rio Grande Sucker	Native Fish	Maintain distribution
Rio Vallecitos and Tributaries	Brown Trout	Wild	Maintain regulations to support angling for wild trout
	Rio Grande Chub	Native Fish	Maintain distribution
	Rio Grande Sucker	Native Fish	Maintain distribution
Jaroso Creek	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout
El Rito Creek and Tributaries	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout upstream of fish migration barrier near Salvador Canyon. Conservation Population of Rio Grande Cutthroat Trout downstream of barrier. Seasonally stock catchable Rio Grande Cutthroat Trout in lower reach near campground

Management Direction for HUC 13020102 Rio Chama			
Water	**Fish Species**	**Management Type**	**Management Direction**
	Rio Grande Chub	Native Fish	Maintain distribution
Rio Ojo Caliente	Rio Grande Chub	Native Fish	Maintain distribution
	Rio Grande Sucker	Native Fish	Maintain distribution
Rio Chama and Tributaries (Stateline downstream to Village of Chama)	Brown Trout	Wild	No stocking upstream of Village of Chama. No current population data. Maintain regulations to support angling for wild trout
	Rainbow Trout	Wild	Maintain regulations to support angling for wild trout
East Fork Wolf Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout
Rio Chama between Village of Chama and El Vado Lake	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout annually. Leased access in Village of Chama
	Brown Trout	Wild	Special Trout Water regulation (Green Chile Water) within Rio Chama Wildlife and Fishing Area from Heron Reservoir outlet 2.9 miles upstream to Cottonwood Flats. Maintain regulations to support angling for wild trout. Manage Special Trout Water reach as a Quality Trout Water
	Rio Grande Chub	Native Fish	Maintain distribution
Rio Chama (El Vado Dam downstream to Abiquiu Reservoir)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Brown Trout	Wild	Special Trout Water regulation (Red Chile Water) from USGS gaging station located below Cooper's Landing to the Rio Nutrias confluence. Maintain regulations to support angling for wild trout. Manage Special Trout Water reach as Quality Trout Water
	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock fingerling Rio Grande Cutthroat Trout annually and monitor to document recruitment

Management Direction for HUC 13020102 Rio Chama			
Water	**Fish Species**	**Management Type**	**Management Direction**
Rio Chama (Abiquiu Dam downstream to Rio Grande confluence)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout annually in tailwater
	Brown Trout	Wild	Special Trout Water regulation (X-mas Chile Water) from US Highway 84 upstream 7.0 miles to base of Abiquiu Dam. Investigate effectiveness of Special Trout Water regulation. Manage as a Quality Trout Water
	Rio Grande Cutthroat Trout	Put, Grow, and Take	Investigate potential as recreational Rio Grande Cutthroat Trout fishery
	Rio Grande Chub	Native Fish	Maintain distribution
	Flathead Chub	Native Fish	Maintain distribution
Heron Reservoir	Kokanee	Put, Grow, and Take	Primary source for statewide kokanee broodstock. Kokanee season closed October-mid November for kokanee spawn. Stock at 100 fingerlings/surface acre. Annual stocking rate varies by reservoir elevation
	Triploid Rainbow Trout	Put, Grow, and Take	Rainbow Trout stocked by U.S. Fish and Wildlife Service per mitigation measures for the Colorado River Storage Act. Continued stocking uncertain due to Federal reduction in recreational hatchery budget. Fulfill stocking rates with Department raised triploid Rainbow Trout
	Lake Trout	Wild	Lake Trout introduced in the 1980s and is the only Lake Trout fishery in New Mexico. Maintain regulations to support angling for lake trout
El Vado Reservoir	Kokanee	Put, Grow, and Take	Lake experiences large fluctuations due to irrigation demands limiting fishery potential. Stock at 100 fingerlings/surface acre. Annual stocking rate varies by reservoir elevation
	Brown Trout	Wild	Maintain regulations to support angling for wild trout
	Triploid Rainbow Trout	Put, Grow, and Take	Stock fingerling triploid Rainbow Trout

Management Direction for HUC 13020102 Rio Chama			
Water	**Fish Species**	**Management Type**	**Management Direction**
Abiquiu Reservoir	Walleye	Put, Grow, and Take	Stock Walleye at 500 fry/surface acre. Annual stocking varies with reservoir elevation
	Channel Catfish	Wild	Maintain regulations to support angling for Channel Catfish
	Smallmouth Bass	Wild	Manage as a Recreational Bass Water
Rio Chamita and Tributaries	Brown Trout	Wild	Maintain regulations to support angling for wild trout. Investigate riparian restoration opportunities on Sargent Wildlife Management Area to benefit aquatic and terrestrial species and restoration for Rio Grande Cutthroat Trout. Special Trout Water regulation (Green Chile Water) on Sargent Wildlife Management Area
	Rio Grande Chub	Native Fish	Maintain distribution
Nabor Creek to below Nabor Dam (including Nabor Lake)	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout. Special Trout Water regulation (Red Chile Water)
Canones Creek (San Juans) and Tributaries	Brown Trout	Wild	Almost entirely on private and Jicarilla Apache Nation property
	Rio Grande Cutthroat Trout	Native Fish	Almost entirely on private and Jicarilla Apache Nation property. Small population of Rio Grande Cutthroat Trout in headwaters of Poso Creek
Laguna del Campo (Burns Lake)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout. Open to anglers 14 years old and younger, 65 years old and older, individuals with disabilities, and up to two parents supervising youth anglers
Rio Brazos and Tributaries	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout annually at two locations along the Rio Brazos open to angler access granted by landowners. Predominantly privately owned
	Brown Trout	Wild	Maintain regulations to support angling for wild trout
	Rio Grande Chub	Native Fish	Maintain distribution

Management Direction for HUC 13020102 Rio Chama			
Water	**Fish Species**	**Management Type**	**Management Direction**
	Rio Grande Sucker	Native Fish	Maintain distribution
Brazos Lodge Pond	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout in the early summer
Rito Tierra Amarilla and Tributaries	Cutthroat Trout	Wild	Almost entirely on private property. Maintain regulations to support angling for wild trout
	Rainbow Trout	Wild	Maintain regulations to support angling for wild trout
Nutrias (Trout) Lakes	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout. Reintroduction of boreal toad is ongoing
	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock and evaluate fingerling Rio Grande Cutthroat Trout stocking strategies
Canjilon Lakes	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout. Carson NF working on large-scale dredging/renovation project at these lakes
	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock and evaluate fingerling Rio Grande Cutthroat Trout stocking strategies
Canjilon Creek	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout
	Rio Grande Chub	Native Fish	Maintain distribution
Rio Cebolla (Rio Arriba) and Tributaries	Rio Grande Chub	Native Fish	Maintain distribution
	Trout	Wild	Almost entirely on private land. Maintain regulations to support angling for wild trout
Rio Nutrias (Rio Arriba) and Tributaries	Rio Grande Chub	Native Fish	Maintain distribution
	Trout	Wild	Almost entirely on private land. Maintain regulations to support angling for wild trout

Management Direction for HUC 13020102 Rio Chama			
Water	**Fish Species**	**Management Type**	**Management Direction**
Rio Puerco (East) and Tributaries	Cutthroat Trout	Wild	Hybridized cutthroat trout population in the headwaters. Maintain regulations to support angling for wild trout
	Rainbow Trout	Wild	Rainbow Trout present in lower reaches. Maintain regulations to support angling for wild trout
Coyote Creek (Rio Arriba)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout in the spring
Cañones Creek (Jemez) and Tributaries	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout
Polvadera Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout. Population lost after the South Fork wildfire. Repatriate Rio Grande Cutthroat Trout if habitat is suitable in the future
Chihuahueños Creek	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout
Rio del Oso	Rio Grande Cutthroat Trout	Native Fish	Severely impacted by the Las Conchas wildfire. Previously inhabited by a small Conservation Population of Rio Grande Cutthroat Trout. Population lost after the wildfire. Repatriate Rio Grande Cutthroat Trout if habitat is suitable in the future
Rio Gallina and Tributaries	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout in the spring. Assess whether stocking is still prudent due to limited access
	Brown Trout	Wild	Maintain regulations to support angling for wild trout
Little Willow Creek	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout almost entirely on Jicarilla Apache Nation property

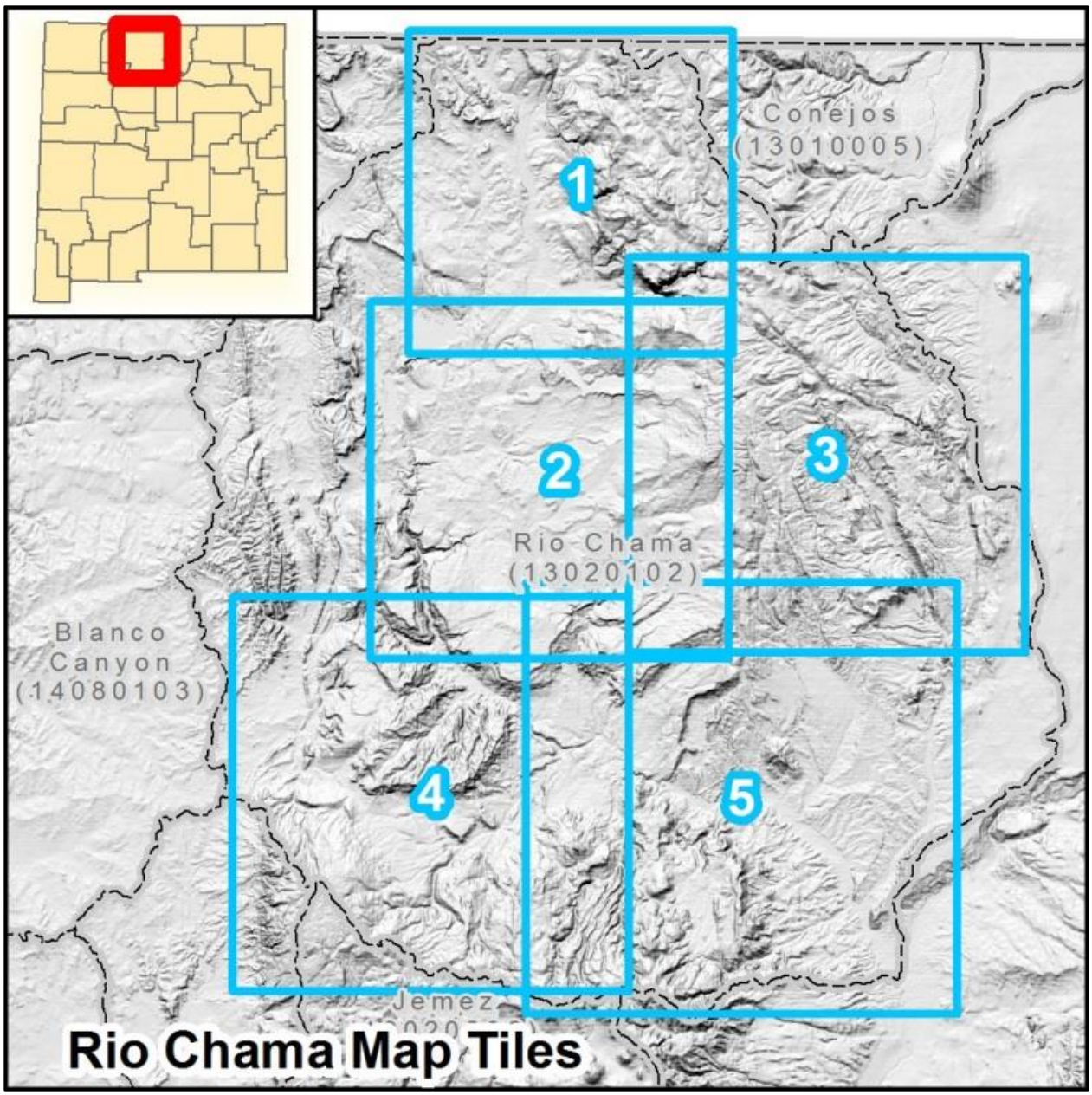

Figure 43. Rio Chama Map Tiles

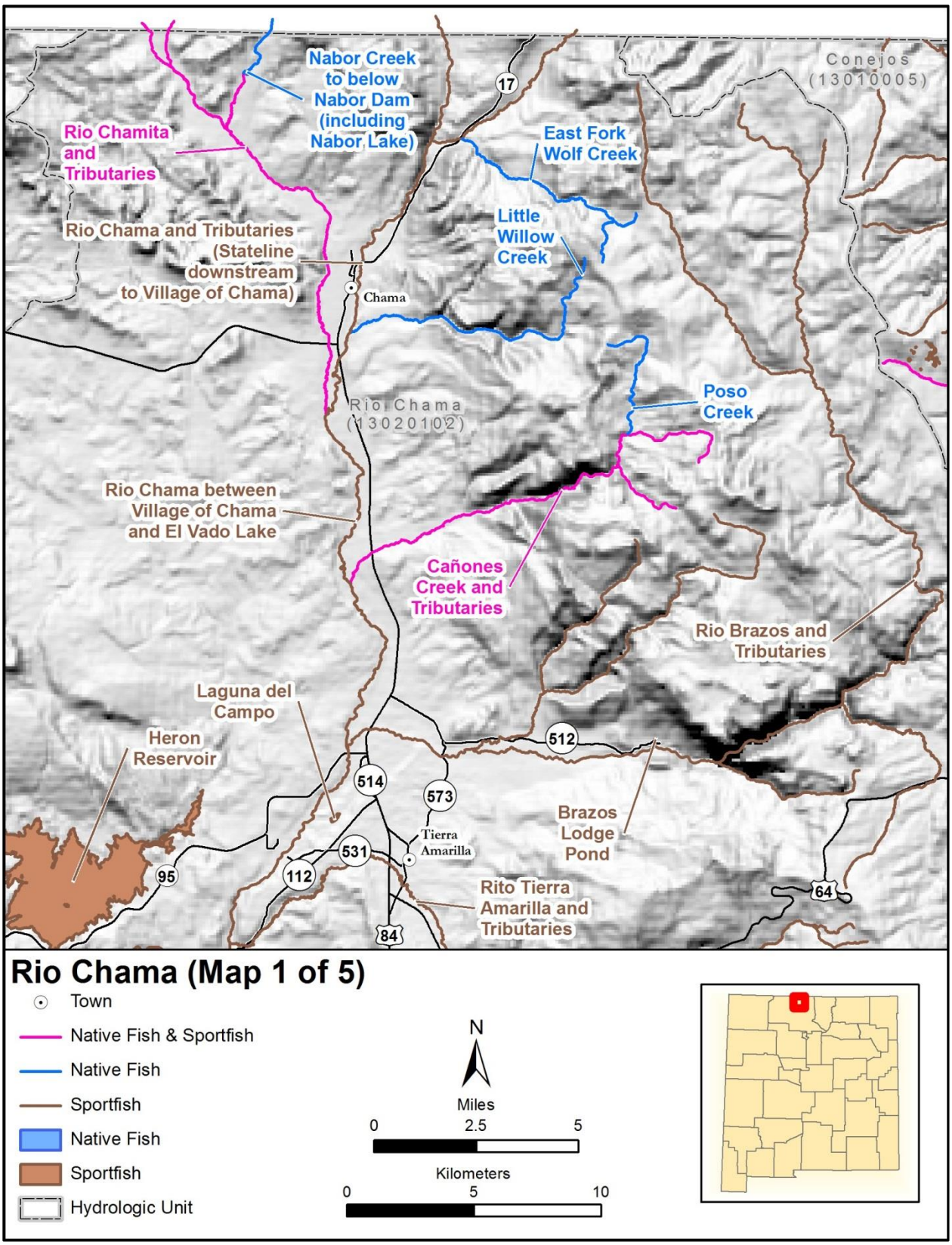

Figure 44. Rio Chama (Map 1 of 5)

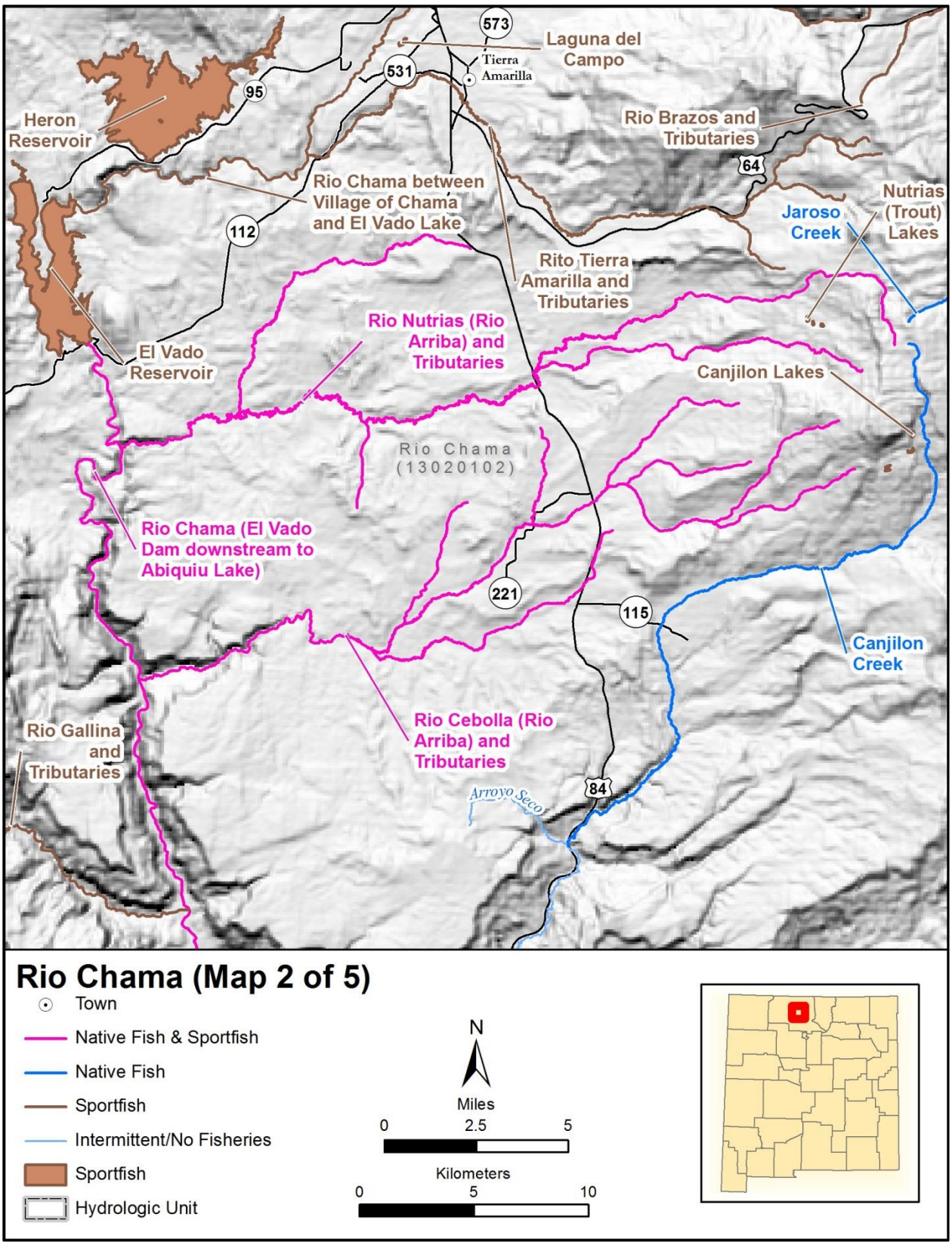

Figure 45. Rio Chama (Map 2 of 5)

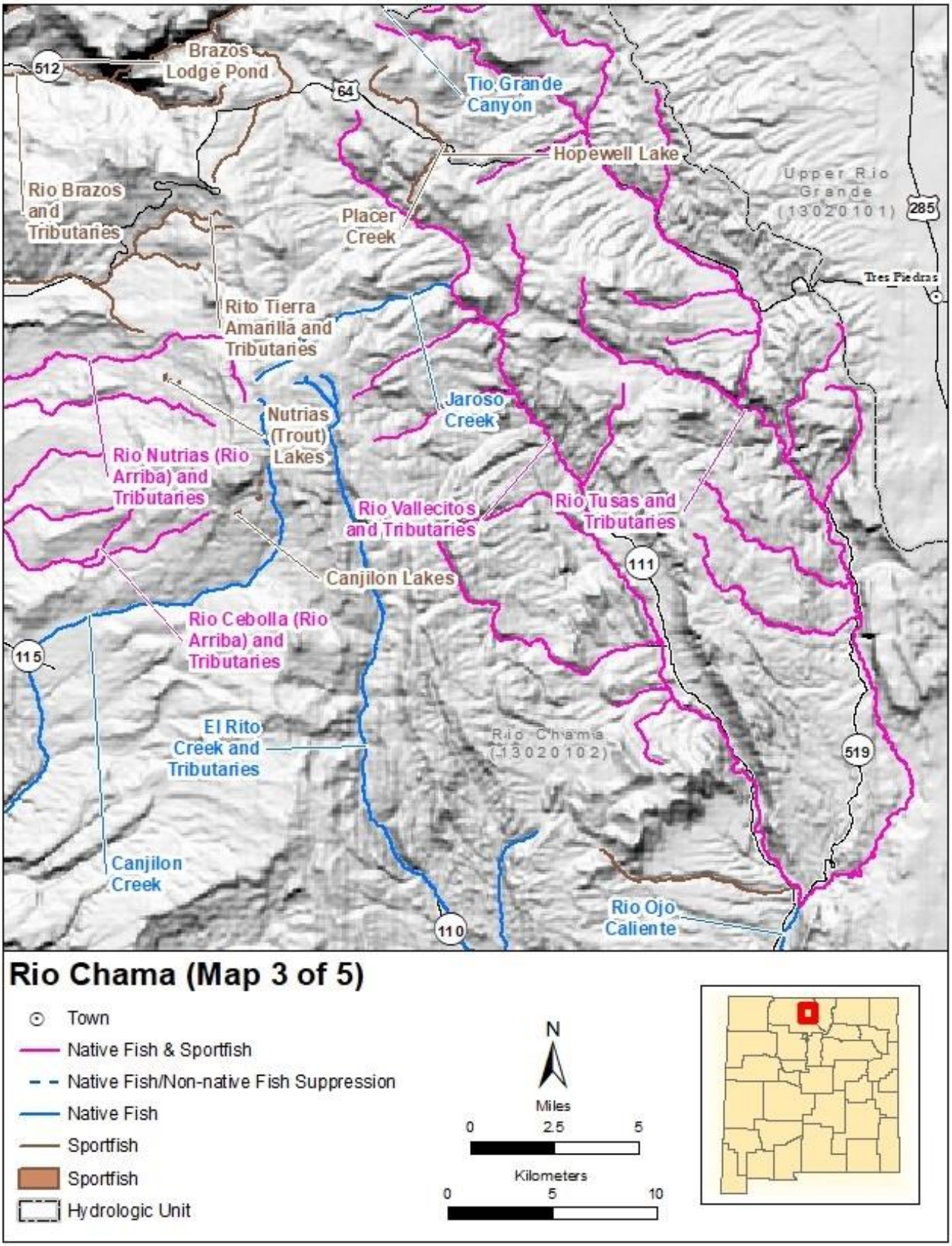

Figure 46. Rio Chama (Map 3 of 5)

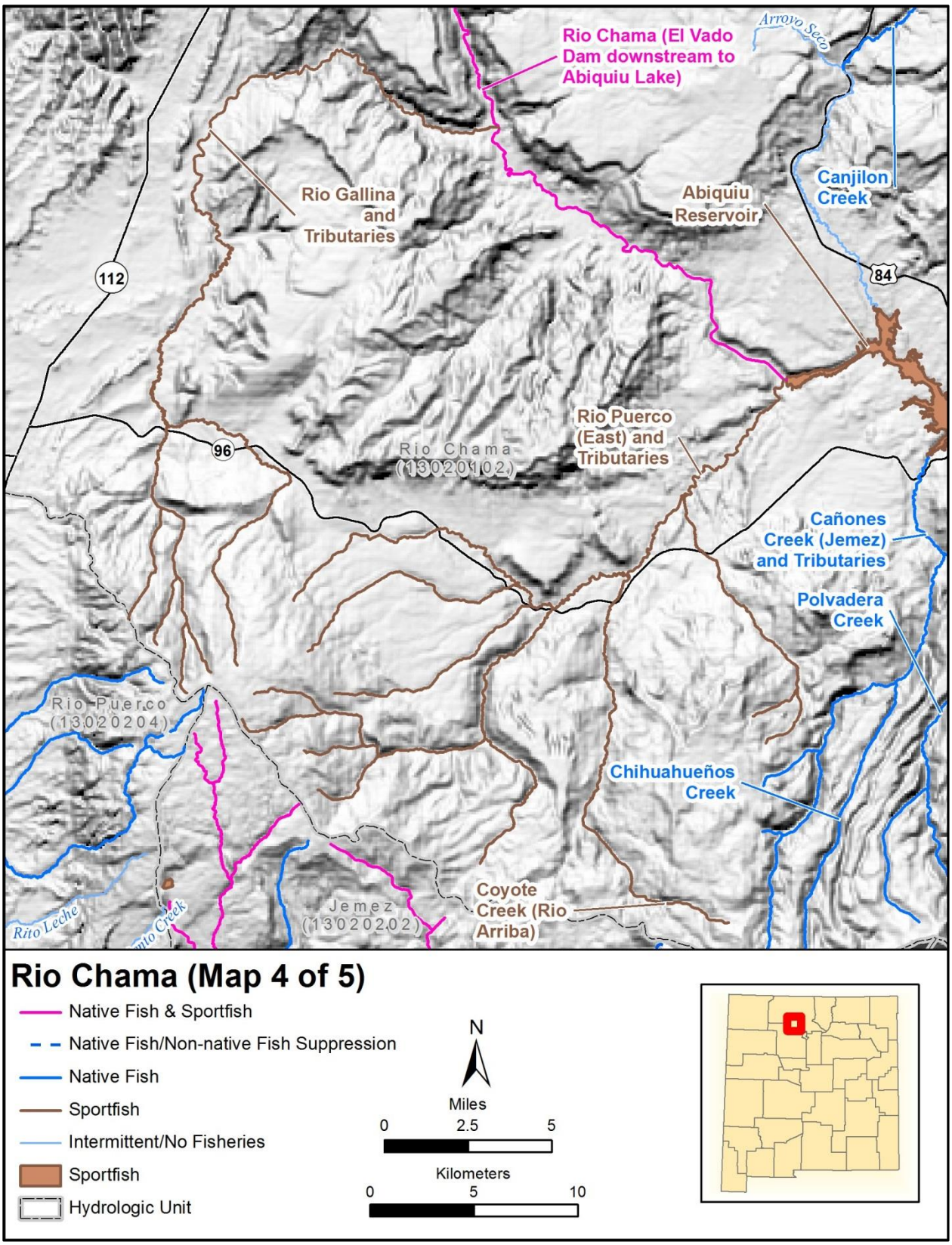

Figure 47. Rio Chama (Map 4 of 5)

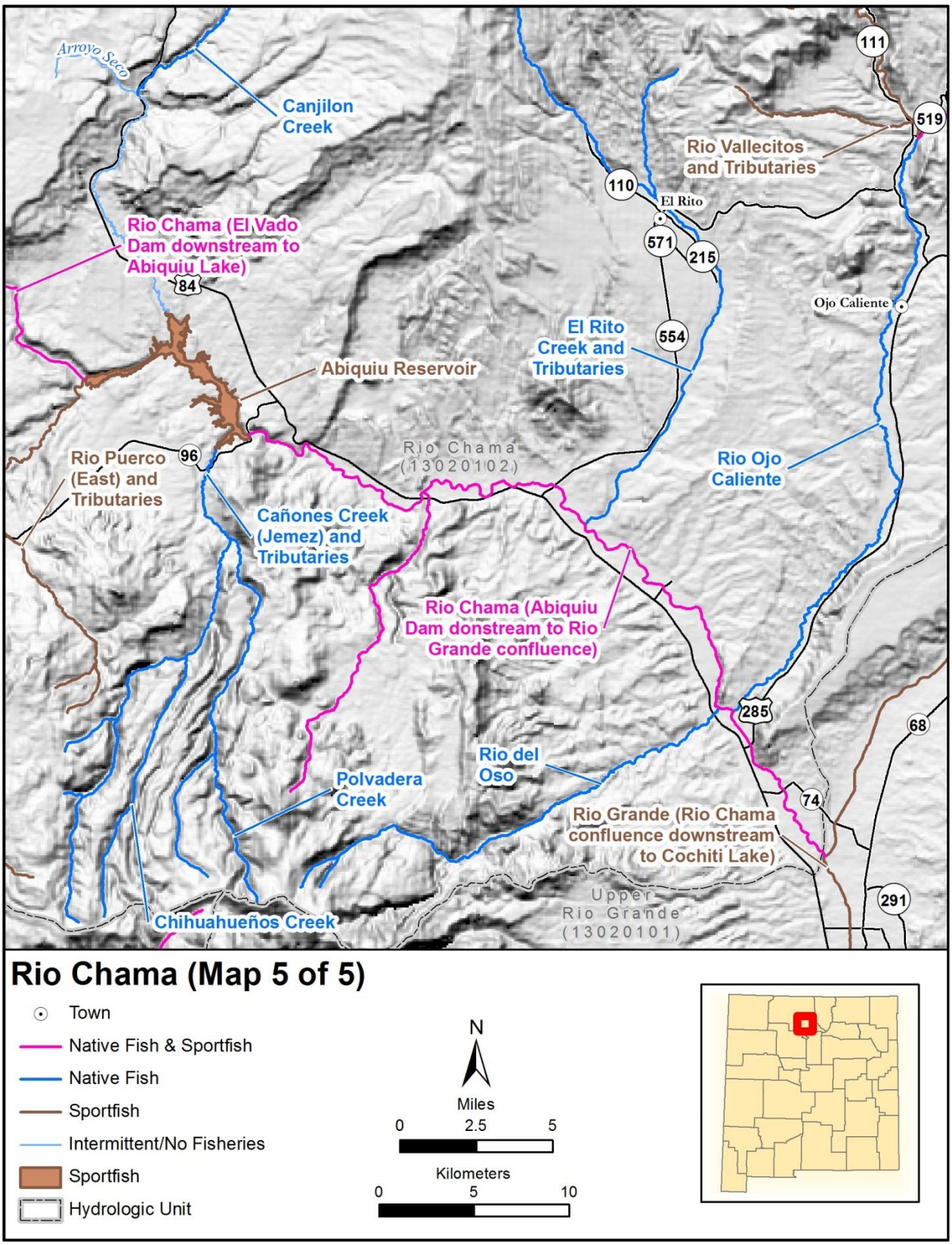

Figure 48. Rio Chama (Map 5 of 5)

HUC 13020201 Rio Grande - Santa Fe

Management Direction for HUC 13020201 Rio Grande-Santa Fe

Water	Fish Species	Management Type	Management Direction
Cochiti Lake	Walleye	Put, Grow, and Take	Collaborate with Cochiti Pueblo and U.S. Army Corps of Engineers to investigate potential for stocking Walleye. If stocked, monitor in the reservoir and in downstream areas to document recruitment and assess reservoir escapement to Rio Grande Silvery Minnow Critical Habitat. Maintain statewide Walleye regulations
	Largemouth Bass	Wild	Manage as a Recreational Bass Water
	Northern Pike	Wild	Maintain regulations to support Northern Pike fishery
Rito de los Frijoles (Frijoles Creek - Los Alamos)	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout. Located within National Park Service and special angling rules in place
Capulin Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout. Special Trout Water regulation (Red Chile Water) from confluence with Rio Grande to its headwaters
Santa Fe River (Headwaters to Nichols Dam- Including Nichols and McClure Reservoirs)	Rainbow Trout	Wild	Upper Santa Fe River from near Randall Davey Audubon Center upstream to headwaters is closed to the public. Rainbow Trout inhabit this reach including both Nichols and McClure Reservoirs
Santa Fe River (Nichols Dam to wastewater treatment plant)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout in coordination with the City of Santa Fe fishing derby. Stream routinely dries between Nichols Reservoir and wastewater treatment plan
Santa Fe River (Wastewater treatment plant to Rio Grande)	Rio Grande Sucker	Native Fish	Maintain distribution. Rio Grande Sucker are abundant in the reach between wastewater treatment plant and the Rio Grande. Reach is partially within the jurisdiction of Cochiti Pueblo
Peralta Creek	Rio Grande Cutthroat Trout	Native Fish	Severely impacted by the Las Conchas wildfire. Cutthroat Trout population was extirpated. Reintroduction efforts planned for 2022

Management Direction for HUC 13020201 Rio Grande-Santa Fe			
Water	**Fish Species**	**Management Type**	**Management Direction**
Cochiti Creek and Tributaries	Rio Grande Cutthroat Trout	Native Fish	Severely impacted by the Las Conchas wildfire. Brook Trout and Rainbow Trout present prior to Las Conchas wildfire with small Conservation Population of Rio Grande Cutthroat Trout also present in Medio Dia Creek. Will be stocked with Rio Grande Cutthroat Trout when watershed recovers
Las Huertas Creek (Ellis Creek)	N/A	N/A	Formerly stocked once per year with catchable sized Rainbow Trout. Last stocked in 2010 and subject to drying. Stocking suspended
Sanchez Canyon	Rio Grande Cutthroat Trout	Native Fish	Severely impacted by Dome and Las Conchas wildfires. Has existing natural barrier. Evaluate for Rio Grande Cutthroat Trout repatriation

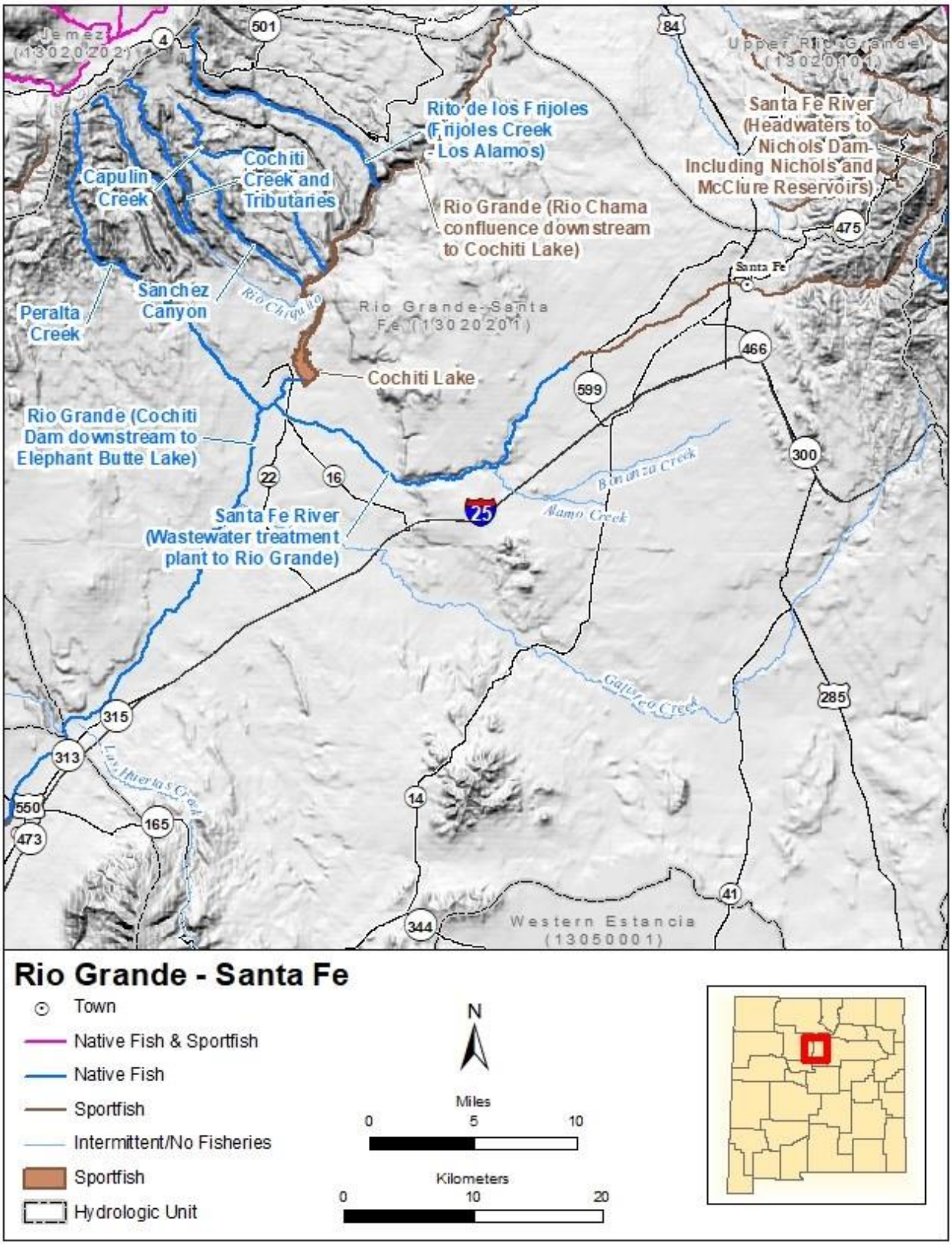

Figure 49. Rio Grande - Santa Fe

HUC 13020202 Jemez, 13020204 Rio Puerco, 13020207 Rio San Jose

Management Direction for HUC 13020202 Jemez, 13020204 Rio Puerco, 13020207 Rio San Jose

Water	Fish Species	Management Type	Management Direction
San Gregorio Reservoir	Triploid Rainbow Trout	Put and Take	Access for stocking vehicles suspended by Santa Fe National Forest in 2022. Suspend stocking or investigate alternative strategy
	Rio Grande Cutthroat Trout	Put, Grow, and Take	Evaluate stocking fingerling or subadult Rio Grande Cutthroat Trout to replace Rainbow Trout fishery
East Fork Jemez River and Tributaries	Triploid Rainbow Trout	Put and Ta\e	Upper reaches are within the Valles Caldera National Preserve and special use rules may apply. Stock catchable triploid Rainbow Trout downstream of East Fork Trailhead and Preserve boundary
	Brown Trout	Wild	Special Trout Water regulation (Green Chile Water) on Valles Caldera National Preserve and special use rules apply. Maintain regulations to support angling for wild trout
	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock fingerling Rio Grande Cutthroat Trout on Forest Service property as part of recreational stocking study
	Rio Grande Chub	Native Fish	Maintain distribution
	Rio Grande Sucker	Native Fish	Maintain distribution
San Antonio Creek and Tributaries	Triploid Rainbow Trout	Put and Take	Upper reach and tributary (Rio de los Indios) are within Valles Caldera National Preserve. Stock catchable triploid Rainbow Trout downstream of Preserve boundary
	Brown Trout	Wild	Special Trout Water regulation (Green Chile Water) on Valles Caldera National Preserve including 2.0 miles downstream of Preserve boundary and special use rules apply for Preserve reaches. Maintain regulations to support angling for wild trout. Manage as a Quality Trout Water
	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock fingerling Rio Grande Cutthroat Trout as part of recreational stocking study
	Rio Grande Sucker	Native Fish	Maintain distribution
	Rio Grande Chub	Native Fish	Maintain distribution

Management Direction for HUC 13020202 Jemez, 13020204 Rio Puerco, 13020207 Rio San Jose

Water	Fish Species	Management Type	Management Direction
Rio de Las Vacas and Tributaries (Fish Barrier near NM 126 crossing to confluence with Rio Cebolla)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Brown Trout	Wild	Maintain regulations to support angling for wild trout. Turbidity and temperature limit wild trout opportunities
	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock fingerling Rio Grande Cutthroat Trout downstream of the Rio de Las Vacas Campground as part of recreational stocking study
	Rio Grande Sucker	Native Fish	Maintain distribution
	Rio Grande Chub	Native Fish	Maintain distribution
Rio de Las Vacas and Tributaries (Headwaters downstream to Fish Barrier near Highway 126)	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout. Special Trout Water regulation (Red Chile Native Trout Conservation Water)
	Brown Trout	Suppression	Unlimited angler harvest
Rito de Las Palomas	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout
Rio Cebolla (Headwaters downstream to Seven Springs Day Use Area, including McKinney Pond)	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout. McKinney Dam needs refurbishment (USFS). Non-native suppression occurred here annually from 2005-2013 and will likely continue. Special Trout Water regulation (Red Chile Native Trout Conservation Water) from Seven Springs Day Use Area upstream to its headwaters
	Brown Trout	Suppression	Periodically remove Brown Trout to maintain the Rio Grande Cutthroat Trout population. Unlimited angler harvest
Rio Cebolla (below Seven Springs Day Use Area to Fenton Lake)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout downstream of Seven Springs Hatchery
	Brown Trout	Wild	Maintain regulations to support angling for wild trout
	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock fingerling Rio Grande Cutthroat Trout annually as part of recreational stocking study
	Rio Grande Sucker	Native Fish	Maintain distribution
	Rio Grande Chub	Native Fish	Maintain distribution

Management Direction for HUC 13020202 Jemez, 13020204 Rio Puerco, 13020207 Rio San Jose

Water	Fish Species	Management Type	Management Direction
Fenton Lake	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout. Excessive sedimentation resulting from the Lake wildfire will require future dredging
	Brown Trout	Wild	Maintain regulations to support angling for wild trout
	Rio Grande Chub	Native Fish	Maintain distribution
Rio Cebolla (Fenton Lake to Rio Guadalupe)	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock fingerling Rio Grande Cutthroat Trout as part of recreational stocking study (Part of Rio Guadalupe stocking)
	Brown Trout	Wild	Maintain regulations to support angling for wild trout
	Rio Grande Sucker	Native Fish	Maintain distribution
	Rio Grande Chub	Native Fish	Maintain distribution
Rio Guadalupe	Brown Trout	Wild	Special Trout Water regulation (Green Chile Water) from Deer Creek Landing upstream 6 miles to Stable Canyon. Manage as a Quality Trout Water
	Rio Grande Cutthroat Trout	Put, Grow, and Take	Stock fingerling Rio Grande Cutthroat Trout as part of recreational stocking study
	Rio Grande Chub	Native Fish	Maintain distribution
	Rio Grande Sucker	Native Fish	Maintain distribution
Jemez River (Battleship Rock downstream to confluence with Rio Guadalupe)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout. Scheduled for stocking year-round though only suitable from September to May
	Brown Trout	Wild	Maintain regulations to support angling for wild trout though water quality (temperature) limits potential downstream of Jemez Springs
	Rio Grande Chub	Native Fish	Maintain distribution
	Rio Grande Sucker	Native Fish	Maintain distribution. Rio Grande sucker are present though White Sucker abundance increasing downstream of Jemez Springs

Management Direction for HUC 13020202 Jemez, 13020204 Rio Puerco, 13020207 Rio San Jose

Water	Fish Species	Management Type	Management Direction
Jemez River (Rio Guadalupe confluence downstream to Rio Grande)	N/A	N/A	Almost entirely within boundaries of Zia, Jemez, and Santa Ana Pueblos. Not actively managed by Department
Seven Springs Kids Pond (Brood Pond)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout annually. Open to anglers 11 years old and younger
	Rio Grande Cutthroat Trout	Put and Take	Investigate stocking catchable Rio Grande Cutthroat Trout
Paliza Creek	Brown Trout	Wild	Maintain regulations to support angling for wild trout
Rio Puerco (West) and Tributaries (San Pedro Parks Wilderness)	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande Cutthroat Trout in Rio Puerco, Rito de los Pinos, and La Jara Creek
Rito de los Pinos	Brook Trout	Suppression	Ongoing YY Brook Trout stocking study to investigate possibility for repatriation of Rio Grande Cutthroat Trout
Bluewater Lake	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout during winter and spring months
	Channel Catfish	Put and Take	Stock catchable Channel Catfish as available
	Tiger Muskie	Put, Grow, and Take	Maintain target density of 4 fish/acre to maximize growth, suppress unwanted goldfish and white sucker, and provide a quality tiger muskie fishery. Stock fingerling tiger muskie annually (possibly less often) to attain target density
Bluewater Creek (upstream of Bluewater Lake)	Rio Grande Chub	Native Fish	Maintain distribution
	Rio Grande Sucker	Native Fish	Maintain distribution
Grants Riverwalk Pond	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
Rio Puerco (Nacimiento Creek to Rio Grande)	N/A	N/A	No current data and is primarily ephemeral

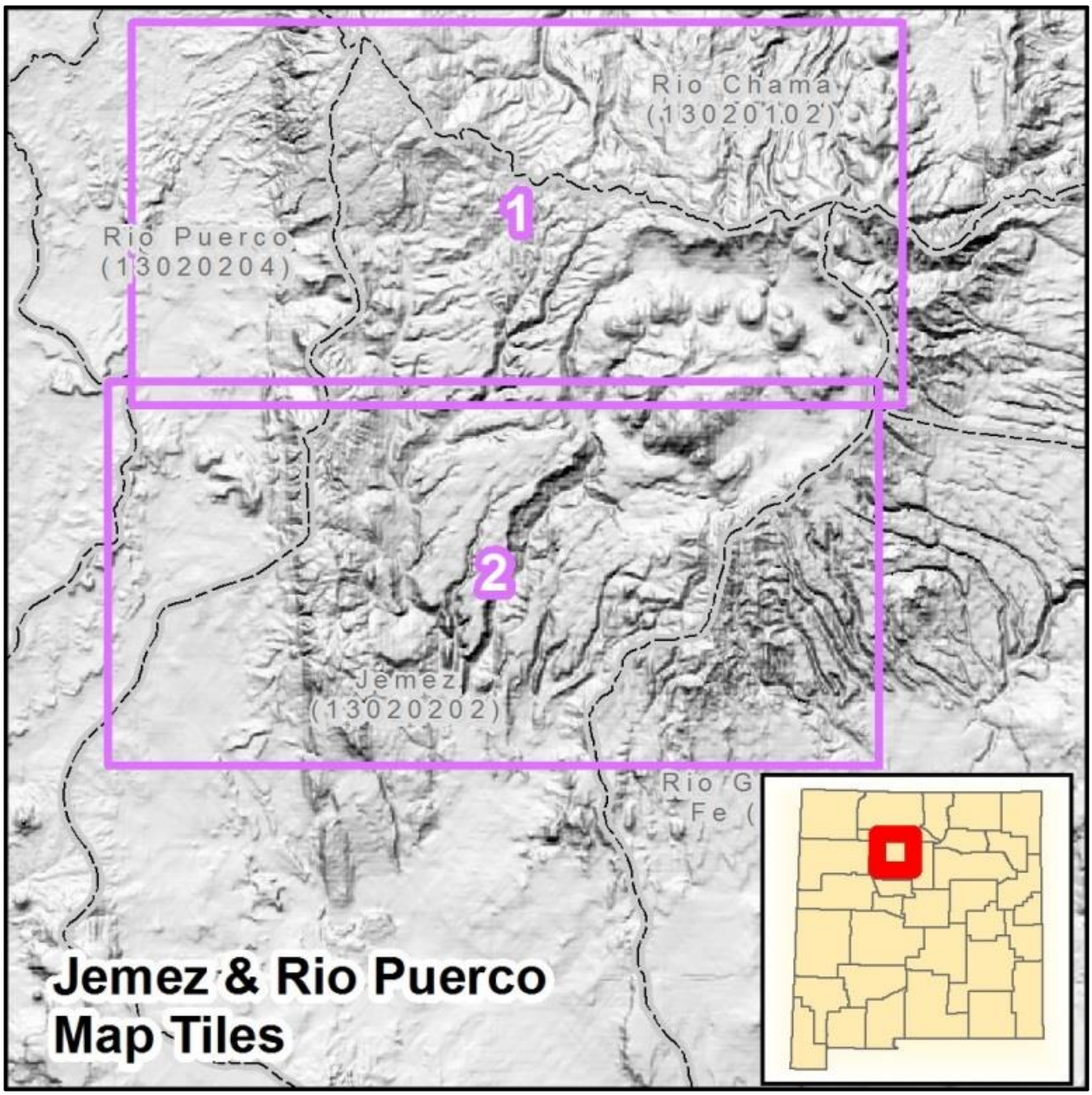

Figure 50. Jemez and Rio Puerco Map Tiles

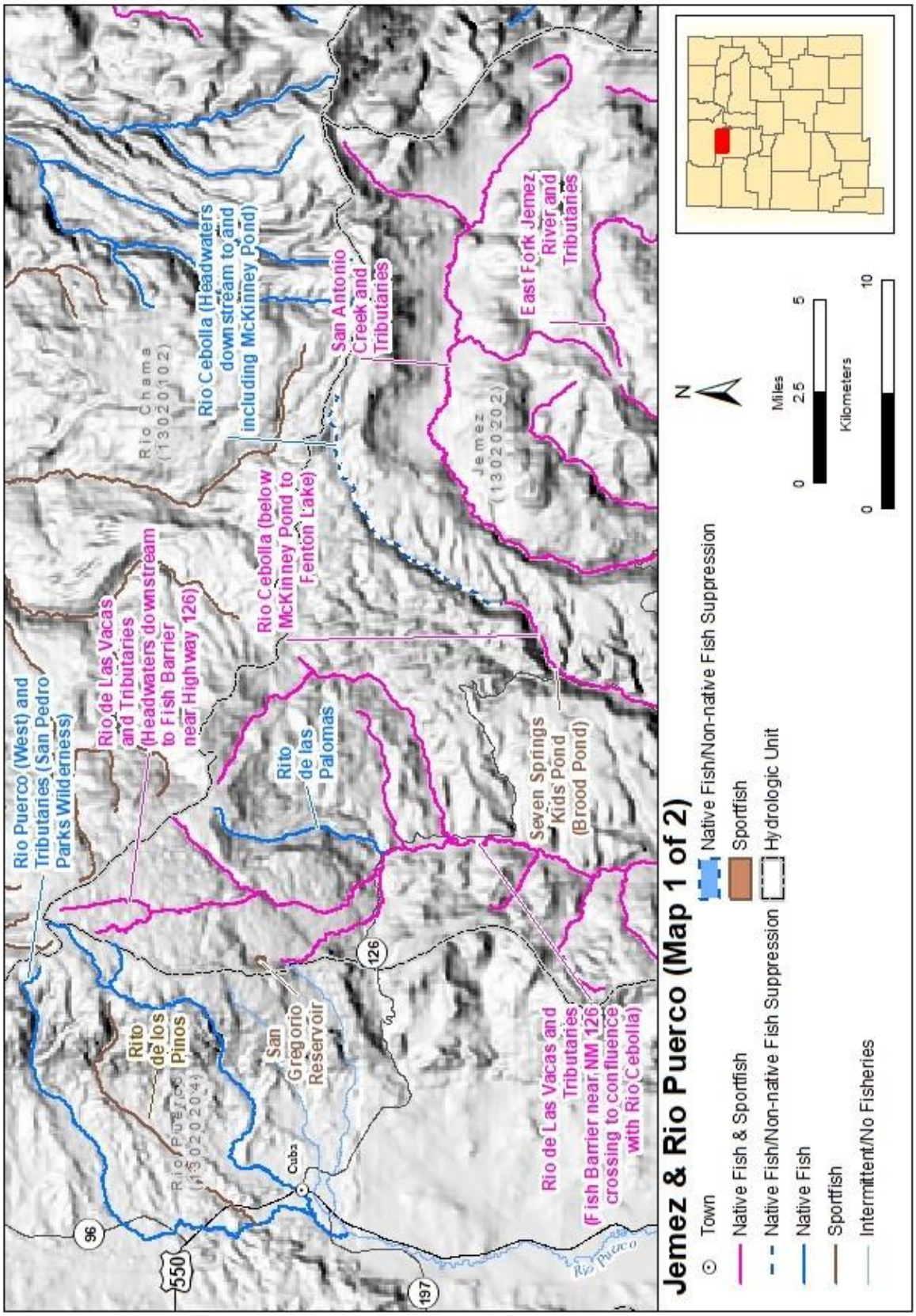

Figure 51. Jemez and Rio Puerco (Map 1 of 2)

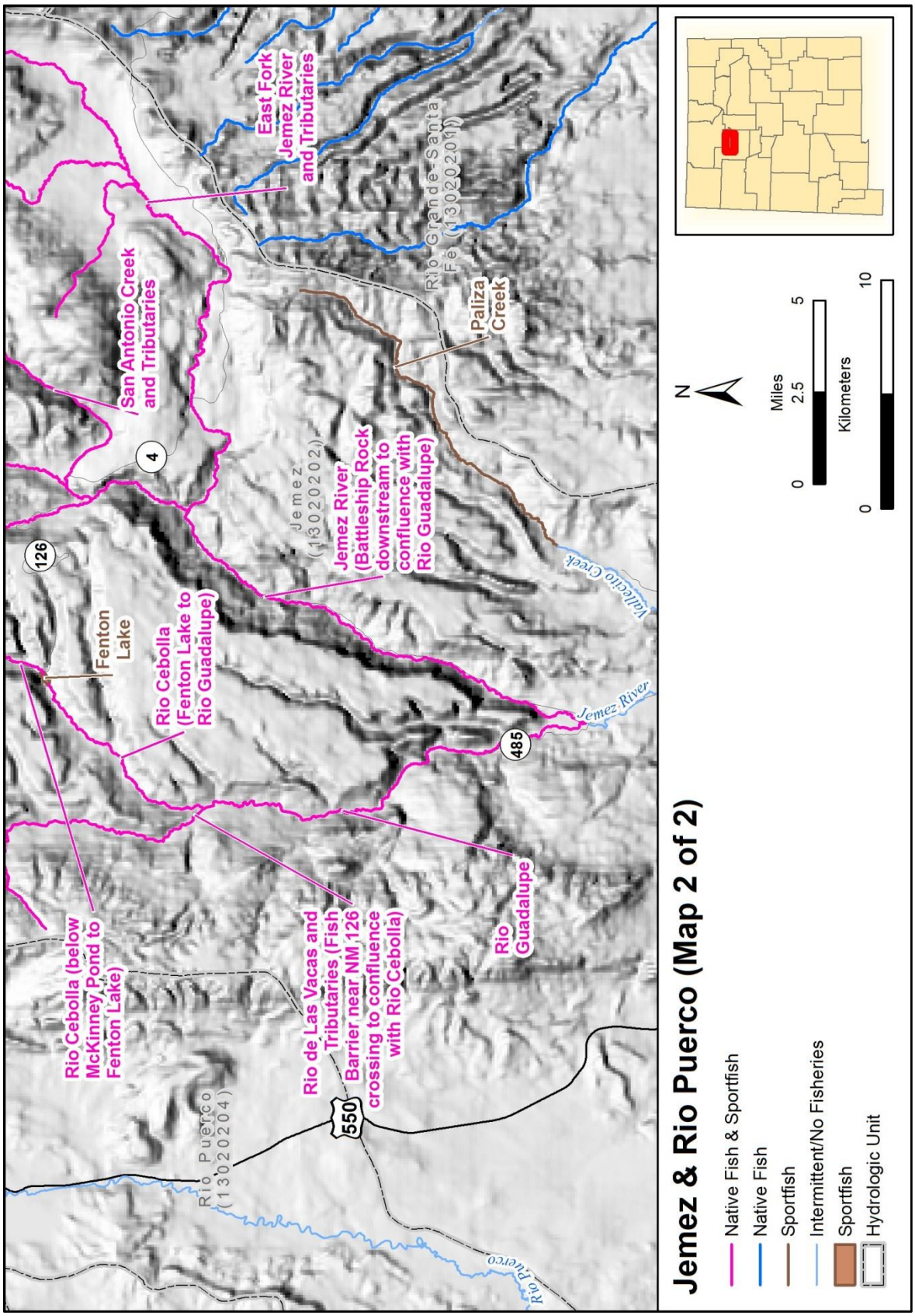

Figure 52. Jemez and Rio Puerco (Map 2 of 2)

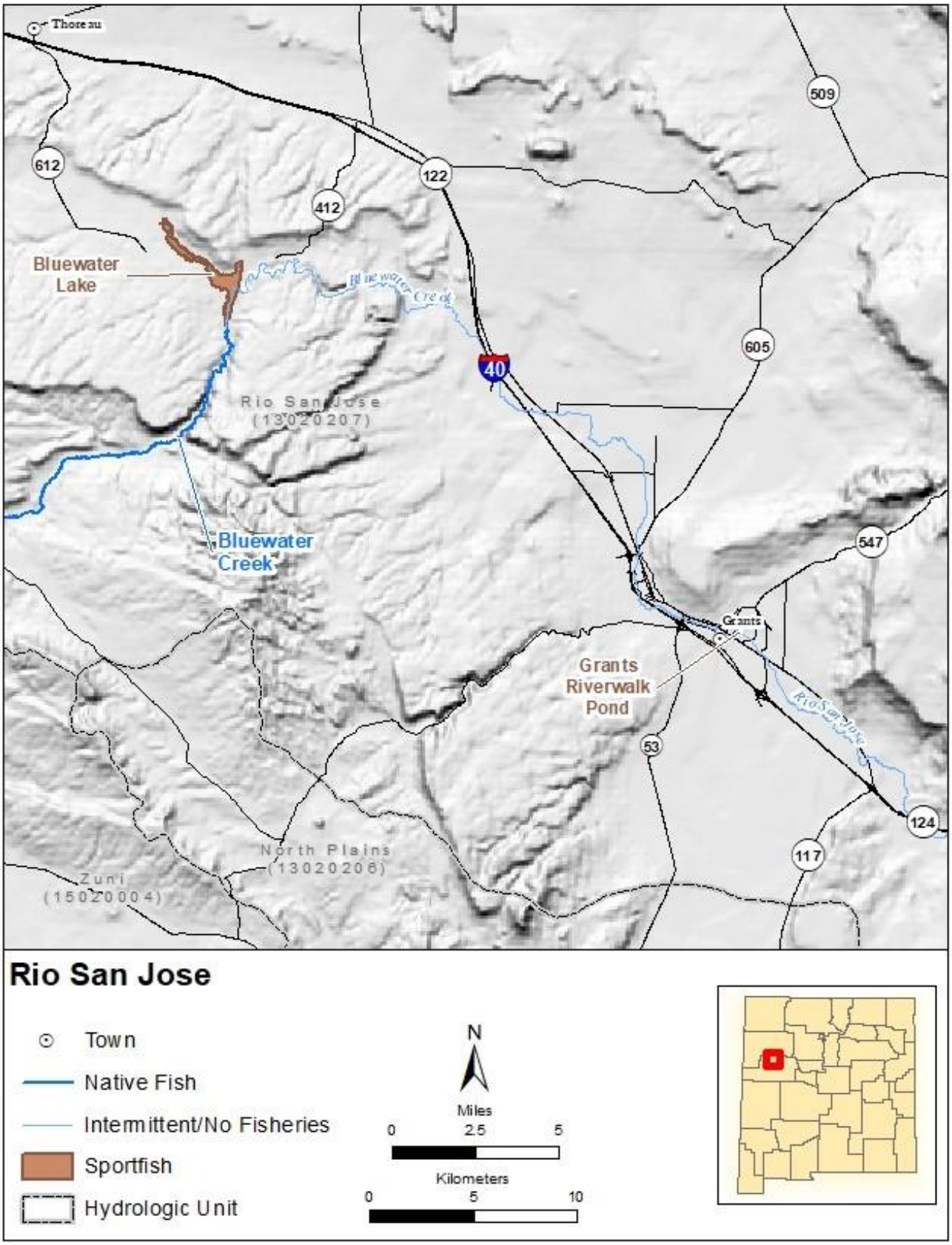

Figure 53. Rio San Jose

HUC 13020203 Rio Grande-Albuquerque, 13020211 Elephant Butte Reservoir, 13030101 Caballo and 13030102 El Paso-Las Cruces

Management Direction for HUC 13020203 Rio Grande-Albuquerque, 13050001 Western Estancia, 13020211 Elephant Butte Reservoir, Rio Grande from Cochiti Dam downstream to Elephant Butte Lake, 13030101 Caballo, and 13030102 El Paso-Las Cruces

Water	Fish Species	Management Type	Management Direction
Rio Grande (Cochiti Dam downstream to Elephant Butte Reservoir)	Rio Grande Silvery Minnow	Native Fish	Designated critical habitat for Rio Grande Silvery Minnow. Intensively managed via the Middle Rio Grande Collaborative Endangered Species Program for Rio Grande Silvery Minnow recovery
Tingley Beach	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout. Special Trout Water regulation (Red Chile Water) southernmost pond. One pond only open to anglers 11 years old and younger
	Largemouth Bass	Wild/ Supplemental stocking	Stock Largemouth Bass as necessary to supplement population
	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
Albuquerque Riverside Drain (Upper and Lower)	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
Upper Corrales Riverside Drain	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
Bernalillo Riverside Drain	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
Belen Riverside Drain	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
Peralta Riverside Drain	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
Escondida Lake	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
Manzano Lake	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout. Lease expired and ownership needs confirmation. Investigate Open Gate lease once ownership is confirmed

Management Direction for HUC 13020203 Rio Grande-Albuquerque, 13050001 Western Estancia, 13020211 Elephant Butte Reservoir, Rio Grande from Cochiti Dam downstream to Elephant Butte Lake, 13030101 Caballo, and 13030102 El Paso-Las Cruces			
Water	**Fish Species**	**Management Type**	**Management Direction**
Estancia Park Lake	Triploid Rainbow Trout	Put and Take	Winter Trout Water – Stock catchable triploid Rainbow Trout
	Channel Catfish	Put and Take	Special Summer Catfish Water – Stock catchable Channel Catfish
Alamosa Creek	Rio Grande Chub	Native Fish	Maintain distribution
	Rio Grande Sucker	Native Fish	Maintain distribution
Elephant Butte Reservoir	Largemouth Bass	Wild/ Supplemental stocking	Manage as Recreational Bass Water. Supplement Largemouth Bass population when available
	Smallmouth Bass	Wild	Maintain regulations to support Recreational Bass Water
	White Bass	Wild	Maintain regulations to support White Bass fishery
	Catfish (Channel, Blue, Flathead)	Wild	Maintain regulations to support catfish angling
	Striped Bass	Put, Grow, and Take	Stock striped bass at 45 fry/surface acre every other year. Maintain regulations to maintain trophy Striped Bass potential
Rio Grande (Elephant Butte Dam downstream to Caballo Lake)	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable Triploid Rainbow Trout
Caballo Lake	Largemouth Bass	Wild	Manage as a Recreational Bass Water
	White Bass	Wild	Maintain angling regulations to support White Bass fishery
	Walleye	Put, Grow, and Take	Stock Walleye at 500 fry/surface acre annually. Annual stocking varies with reservoir elevation
	Channel Catfish	Wild	Maintain regulations to support catfish angling
	Hybrid Striped Bass	Put, Grow, and Take	Investigate potential as a new recreational angling species in lake

Management Direction for HUC 13020203 Rio Grande-Albuquerque, 13050001 Western Estancia, 13020211 Elephant Butte Reservoir, Rio Grande from Cochiti Dam downstream to Elephant Butte Lake, 13030101 Caballo, and 13030102 El Paso-Las Cruces			
Water	**Fish Species**	**Management Type**	**Management Direction**
Ralph Edwards Park Pond	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout for fishing derbies
	Channel Catfish	Put and Take	Stock catchable Channel Catfish for fishing derbies
Las Animas Creek and Tributaries	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande Cutthroat Trout. Special Trout Water regulation (Red Chile Water) within Gila National Forest boundary
	Rio Grande Sucker	Native Fish	Maintain distribution
	Rio Grande Chub	Native Fish	Maintain distribution
Palomas Creek	Rio Grande Sucker	Native Fish	Maintain distribution
	Rio Grande Chub	Native Fish	Maintain distribution
Seco Creek	Rio Grande Chub	Native Fish	Maintain distribution
	Rio Grande Sucker	Native Fish	Maintain distribution
Young Pond	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
University Reservoir (Alumni Pond)	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
Burn Lake	N/A	N/A	Lake has been dry for several years and City reallocated land use. Stocking suspended
Rio Grande (Caballo Dam to State Line)	N/A	N/A	Dry most of the year

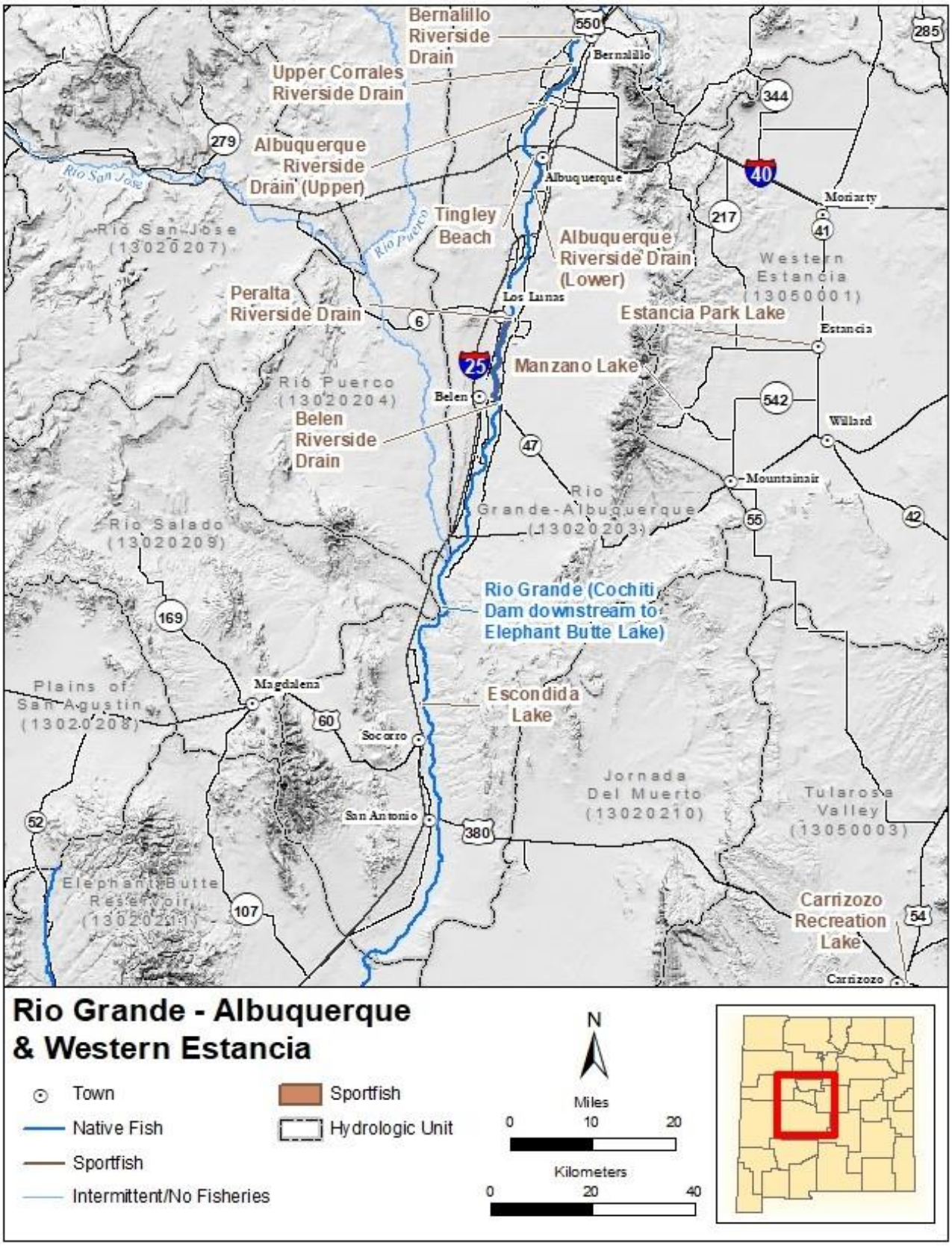

Figure 54. Rio Grande - Albuquerque & Western Estancia

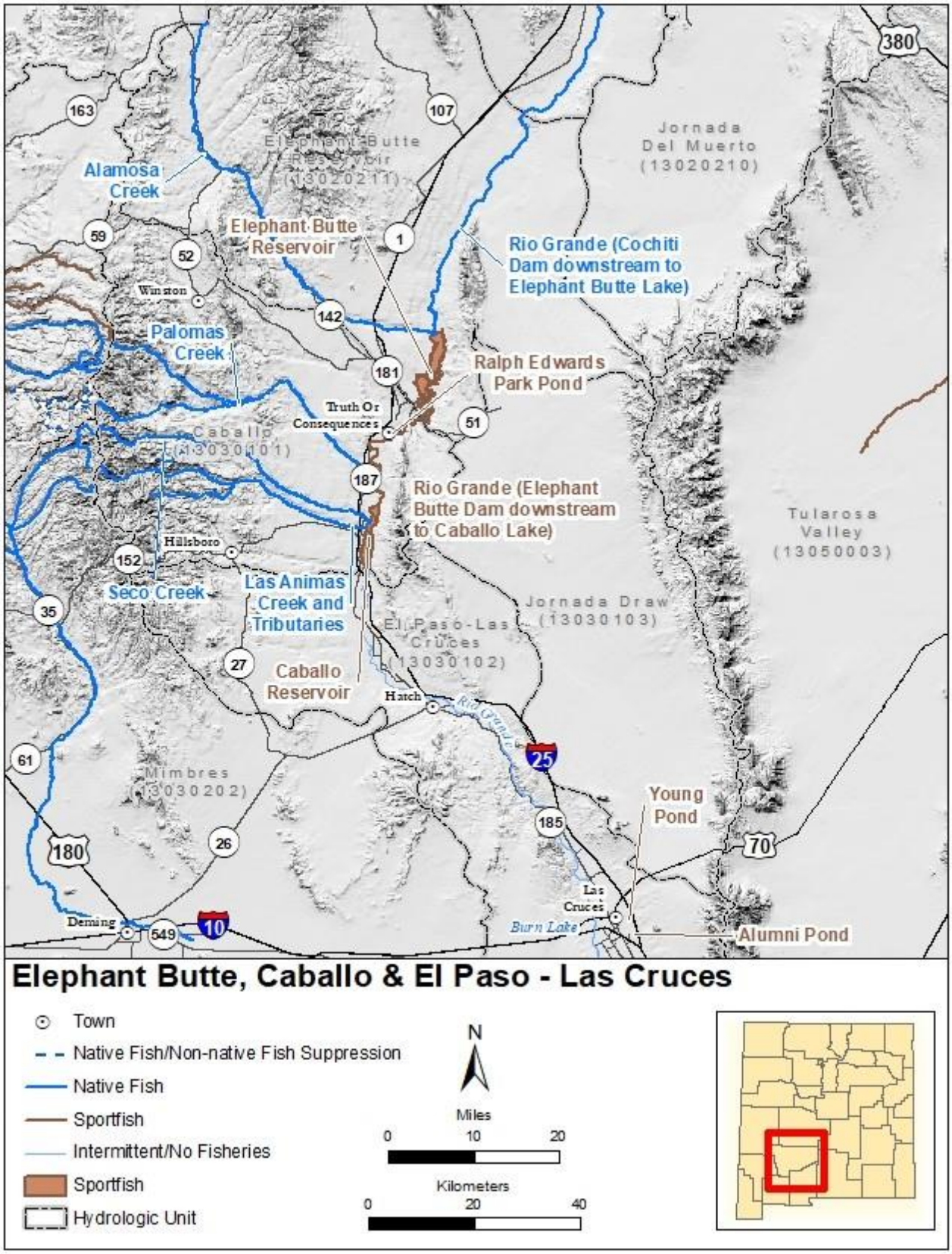

Figure 55. Elephant Butte, Caballo and El Paso - Las Cruces

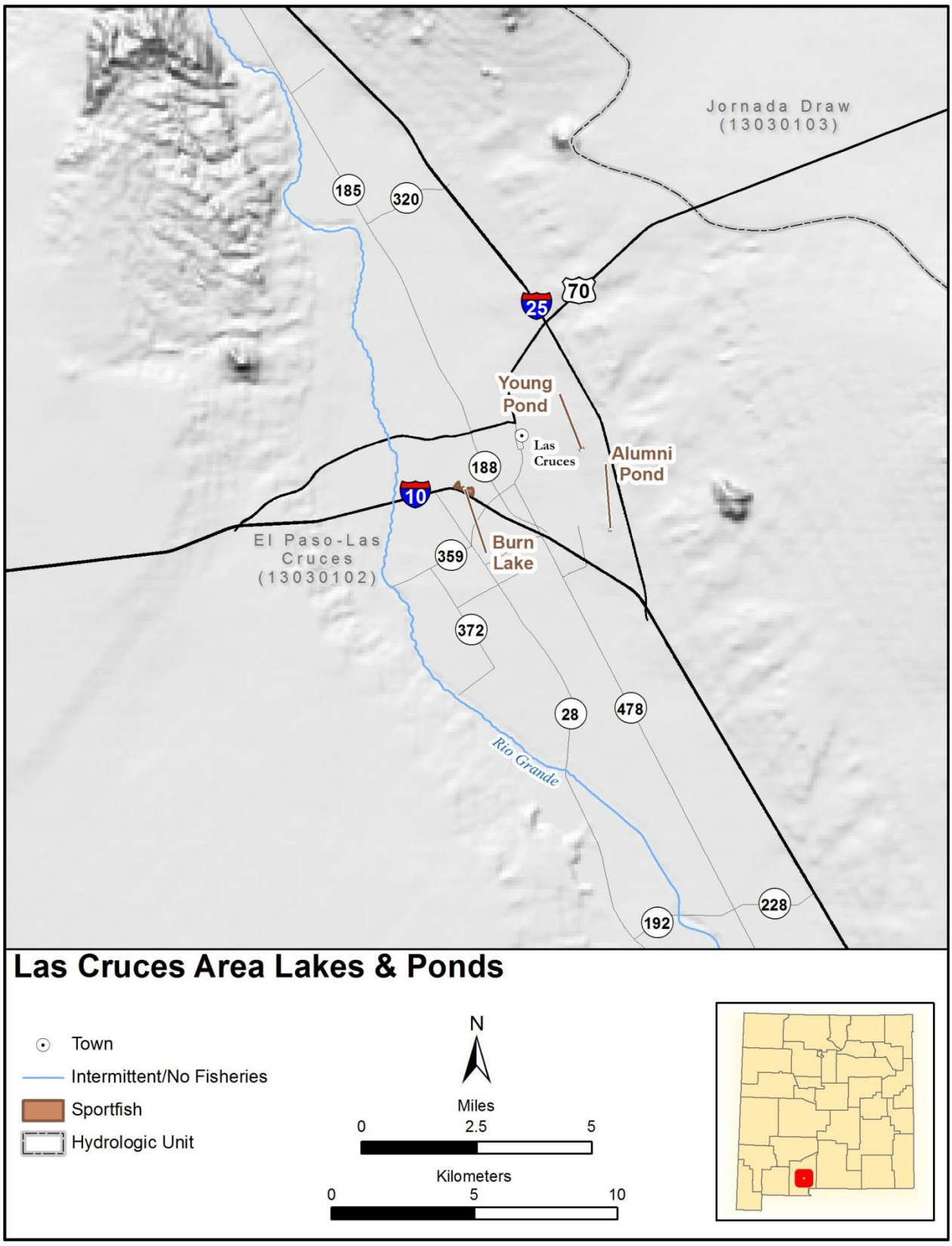

Figure 56. Las Cruces Area Lakes & Ponds

Mimbres Watershed

The Mimbres River occupies a small endorheic basin in Hidalgo, Luna, and Grant counties in southwest New Mexico. Headwaters are along west- and south-facing slopes of the Black Range, flow southward, and dissipate onto the desert north of Deming. Much of the permanently watered portion of the river is in the Mimbres Valley, where the system is more cienega in character than riverine. Uplands are largely under Forest Service jurisdiction and valley lands are largely privately owned. Although rural, the valley has been subdivided into numerous small tracts, many of which have dwellings with private wells and septic systems. On private lands, the river channel is frequently mechanically realigned and woody riparian vegetation removed. The Nature Conservancy and Department manage small tracts along the river, which provide some protection for aquatic habitats.

Due to the small size of the Mimbres Watershed, fisheries management is limited. Bear Canyon Reservoir and Trees Lake provides recreational fishing opportunities including Largemouth Bass, Channel Catfish, and seasonally stocked Rainbow Trout. The federally threatened Chihuahua Chub inhabits perennial warmwater reaches of the Mimbres River.

HUC 13030202 Mimbres

Management Direction for HUC 13030202 Mimbres

Water	Fish Species	Management Type	Management Direction
Mimbres River and Tributaries	Chihuahua Chub	Native Fish	Proposed Critical Habitat. Stock Chihuahua Chub as needed to maintain population and expand range with intention of creating a self-sustaining population(s)
	Rio Grande Sucker	Native Fish	Maintain distribution
Bear Canyon Reservoir	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
	Channel Catfish	Put and Take	Stock catchable Channel Catfish as available
	Largemouth Bass	Wild	Manage as a Recreational Bass Water. Investigate potential as a Trophy Bass Water
River Ranch Pond	Chihuahua Chub	Native Fish	Recently constructed (2021) pond for Chihuahua Chub refugia
Trees Lake	Triploid Rainbow Trout	Put and Take	Winter Trout Water-Stock catchable triploid Rainbow Trout
	Channel Catfish	Put and Take	Special Summer Catfish Water- Stock catchable Channel Catfish

Figure 57. Mimbres

Gila Watershed

The Gila River watershed lies within southwestern New Mexico, and is comprised of two major streams, the Gila and San Francisco rivers. Headwater streams of the Gila join to form three forks (West, Middle, and East) in the Mogollon Mountains. From their juncture, the Gila River flows westerly and exits the Mogollon Mountains just east of Gila. Along its mountain course, the river is bordered by Arizona sycamore, Arizona walnut, boxelder, cottonwood, juniper, piñon, and ponderosa.

The primary land uses along the river in the Cliff-Gila Valley are livestock grazing and some irrigated cropland. Water is seasonally diverted from the river. At the western end of the valley, the river is narrowly confined as it flows through the Middle Box. Downstream of the Middle Box, the Gila River flows across desert grasslands and shrublands to exit New Mexico.

Livestock grazing is the primary land use in the lower reaches of Gila River in New Mexico, but some irrigated cropland is present near Virden. The US Forest Service administers mountainous portions of the Gila Watershed. Substantial portions of this watershed are within the Gila and Aldo Leopold wildernesses. The Bureau of Land Management and Forest Service administer portions of the lower watershed, but most lands are privately owned. The Department also owns several properties including the Heart Bar and Red Rock Wildlife Management Areas. The Gila River is the last mainstem river in New Mexico without a major water development.

Historical fisheries management in the Gila River Basin has focused primarily on traditional sportfish management though significant resources have been expended on Gila Trout recovery efforts. Popular coldwater fisheries have included reaches within the Gila Wilderness and Snow Lake. The Department ceased stocking Rainbow Trout in streams and rivers within the Gila River Basin in the early 2000's due to conflicts with native fish populations but continues to stock Rainbow Trout seasonally in lakes. Five wild Gila Trout populations have been opened to fishing since 2006 and excess Gila trout from the Mora National Fish Hatchery and the Glenwood State Fish Hatchery are stocked in other select waters. Popular warmwater fisheries include Lake Roberts, Bill Evans Lake, East Fork of the Gila River, and the wilderness reach of the Gila River between Grapevine Campground and Turkey Creek. Warmwater fisheries management within river reaches was primarily regulated via angling rules with little active management over the past decade (i.e., no stocking).

Five species of fish are federally protected in the Gila River while seven are state protected. Designated critical habitat for Spikedace and Loach Minnow is widely distributed throughout the Gila River Watershed though the current distribution of these fish is significantly less than the critical habitat designation. Predatory sportfish such as Smallmouth Bass and Flathead and Channel catfish have been partially implicated in the overall decline of rare Gila Basin fishes

such as Spikedace and Loach Minnow. As a result, sportfish and native fish management routinely conflict. While all conflicts cannot be easily resolved, reach designations with focal species management will at least help to identify Departmental priorities. The Department expects to continue with Gila Trout restoration within reaches identified below. The Department also plans to focus conservation efforts in reaches designated as Native Fish which could include active suppression or removal of non-native fishes or regulations intended to encourage suppression of predatory fish via angling.

HUC 15040001 Upper Gila

Management Direction for HUC 15040001 Upper Gila

Water	Fish Species	Management Type	Management Direction
White Creek (Above Barrier)	Gila Trout	Native Fish	Gila Trout recovery stream. Impacted by the Whitewater-Baldy wildfire in 2012 and Johnson wildfire in 2021. Stock with Gila Trout once stream habitat is recovered
Whiskey Creek (Unnamed tributary to West Fork Gila River)	Gila Trout	Native Fish	Prior to the 2012 Whitewater-Baldy wildlife was a Gila Trout recovery stream and contained a relict population. Currently contains Rainbow Trout. Restore Whiskey Creek lineage Gila Trout upon restoration of the West Fork Gila River above waterfall near White Creek cabin
Langstroth Creek (Above Barrier)	Gila Trout	Native Fish	Gila Trout recovery stream. Gila Trout were salvaged from the stream after the Johnson wildfire in 2021. Restock once stream habitat is recovered
West Fork Gila River and Tributaries (Headwaters to waterfalls near White Creek Cabin)	Gila Trout	Native Fish	Potential Gila Trout recovery streams. Waterfall would need to be augmented or barrier constructed prior to renovation
West Fork Gila River (Waterfalls near White Creek Cabin downstream to Hells Hole Canyon)	Gila Trout	Put, Grow, and Take	Gila Trout recreation water. Investigate potential for Gila Trout recovery stream
	Trout	Wild	Brown and Rainbow trout present. Maintain regulations to support angling for wild trout

Management Direction for HUC 15040001 Upper Gila			
Water	**Fish Species**	**Management Type**	**Management Direction**
West Fork Gila River (Hells Hole Canyon downstream to Heart Bar WMA)	Gila Trout	Put, Grow, and Take	Gila Trout recreation water. Investigate potential for Gila Trout recovery stream. A barrier and renovation would be required for repatriation of Gila trout
	Trout	Wild	Brown and Rainbow trout present. Maintain regulations to support angling for wild trout
	Loach Minnow	Native Fish	Designated critical habitat for Loach Minnow and currently occupied
	Spikedace	Native Fish	Designated critical habitat for Spikedace and currently occupied
	Roundtail Chub	Native Fish	Maintain distribution
West Fork Gila River (Heart Bar WMA)	Gila Trout	Put and Take	Gila Trout recreational water. Stock with catchable Gila Trout.
	Non-native Fish	Suppression	Annually conduct non-native removals to maintain native endangered fishes
	Loach Minnow	Native Fish	Designated critical habitat for Loach Minnow and currently occupied
	Spikedace	Native Fish	Designated critical habitat for Spikedace and currently occupied
	Roundtail Chub	Native Fish	Maintain distribution
West Fork Gila River (Heart Bar WMA downstream to East Fork Gila River)	Gila Trout	Put and Take	Stock with catchable Gila Trout
	Loach Minnow	Native Fish	Designated critical habitat for Loach Minnow and currently occupied
	Spikedace	Native Fish	Designated critical habitat for Spikedace and currently occupied
Little Creek (Above Barrier)	Gila Trout	Native Fish	Gila Trout recovery stream
Little Creek (Below Barrier)	Brown Trout	Wild	Maintain regulations to support angling for wild trout

Management Direction for HUC 15040001 Upper Gila			
Water	**Fish Species**	**Management Type**	**Management Direction**
Snow Lake	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout. Dam spillway needs repair, dredging sediment from lake would improve reservoir conditions. Investigate suppression and/or eradication of Green Sunfish and Common Carp. Investigate feasibility for Put, Grow, and Take trout fishery
	Gila Trout	Put and Take	Replace some Rainbow Trout stocking with Gila Trout with long-term goal of switching entirely to Gila Trout, if possible
Gilita Creek (Headwaters downstream to Snow Creek confluence)	Brown Trout	Suppression	Maintain unlimited harvest regulation for Brown Trout to promote recruitment potential for Gila Trout
	Gila Trout	Put and Take	Gila Trout recreational water. Special Trout Water regulation (X-mas Chile Water) for entire reach. Stock catchable Gila Trout
Willow Creek and Tributaries	Gila Trout	Native Fish	Gila Trout recovery stream. Special Trout Water regulation (X-mas Chile Water)
	Brown Trout	Suppression	Maintain unlimited harvest regulation for Brown Trout to promote recruitment potential for Gila Trout. Brown Trout may be extirpated
Iron Creek (Above Barrier)	Gila Trout	Native Fish	Gila Trout recovery stream and relict population. Maintain angling closure
Iron Creek (Below Barrier)	Brown Trout	Wild	Maintain regulations to support wild trout fishery. Investigate potential for incorporating Iron Creek into a native fish restoration effort in the Middle Fork Gila River
Middle Fork Gila River and Tributaries	Gila Trout	Native Fish	Investigate native fish restoration to include both coldwater and warmwater habitats with barrier construction
	Roundtail Chub	Native Fish	Maintain distribution
	Spikedace	Native Fish	Designated critical habitat for Spikedace and currently occupied
	Loach Minnow	Native Fish	Designated critical habitat for Loach Minnow and currently occupied
	Non-native Fish	Suppression	Investigate regulations to promote harvest of non-native predators
Main Diamond Creek	Gila Trout	Native Fish	Gila Trout recovery stream and relict population. Maintain angling closure

Management Direction for HUC 15040001 Upper Gila			
Water	**Fish Species**	**Management Type**	**Management Direction**
South Diamond Creek	Gila Trout	Native Fish	Gila Trout recovery stream and relict population. Maintain angling closure
Black Canyon (Above Barrier)	Gila Trout	Native Fish	Gila Trout recovery stream. Special Trout Water (Red Chile Native Trout Conservation Water) upstream of waterfall barrier - Open July 1 to October 31. Investigate extending angling season. Investigate Open Gate opportunities for improved angler access
	Brown Trout	Suppression	Brown Trout extirpated by Silver wildfire in 2013. Maintain unlimited angler harvest regulation for Brown Trout to promote recruitment potential for Gila Trout
Black Canyon (Below Barrier)	Gila Trout	Put and Take	Stock catchable Gila Trout
East Fork Gila River and Tributaries	Smallmouth Bass	Wild	Maintain regulations to support Smallmouth Bass angling. Designated critical habitat for Loach Minnow and Spikedace but not currently occupied. Investigate Open Gate opportunities for improved angler access
	Channel Catfish	Wild	Maintain regulations to support catfish angling
Gila River (East Fork confluence downstream to Mogollon Creek)	Smallmouth Bass	Wild	Maintain regulations to support Smallmouth Bass angling. Designated critical habitat for Loach Minnow and Spikedace
	Catfish	Wild	Channel and Flathead catfish present. Maintain regulations to support catfish angling
Lake Roberts	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid Rainbow Trout
	Gila Trout	Put and Take	Stock catchable Gila Trout
	Channel Catfish	Put and Take	Stock catchable Channel Catfish as available
	Largemouth Bass	Wild	Manage as a Trophy Bass Water and investigate regulations to attain trophy potential

Management Direction for HUC 15040001 Upper Gila			
Water	**Fish Species**	**Management Type**	**Management Direction**
Sapillo Creek and Tributaries (Lake Roberts to Gila River)	Gila Trout	Put and Take	Gila Trout recreational water. Stock with catchable and subcatchable Gila Trout. Investigate Open Gate opportunities to increase angler access
	Trout	Wild	Maintain angling regulations to support wild trout angling. Brown and Rainbow trout present
	Rio Grande Sucker	Native Fish	Maintain distribution
Trout Creek	Rainbow Trout	Wild	Potential Gila Trout recovery stream. Habitat assessment needed and renovation would be required to repatriate Gila Trout
Cow Creek	Rainbow Trout	Wild	Potential Gila Trout recovery stream that has perennial water and a barrier at lower end. Renovation would be required to repatriate Gila Trout
Sheep Corral Canyon	Gila Trout	Native Fish	Gila Trout recovery stream
Turkey Creek and Tributaries	Roundtail Chub	Native Fish	Roundtail Chub recovery stream. Barrier construction is needed to inhibit migration of non-native fish from the Gila River
	Gila Trout	Native Fish	Potential for Gila Trout restoration. Currently occupied by Rainbow Trout
Mogollon Creek and Tributaries (Headwaters downstream to West Fork Mogollon)	Gila Trout	Native Fish	Gila Trout recovery stream. Special Trout Water regulation (Red Chile Water) from barrier waterfalls to confluence of Trail Canyon - Open July 1 to October 31. Upstream of Trail Canyon is closed to angling. Investigate potential for opening entire stream to angling or extending season
West Fork Mogollon	Gila Trout	Native Fish	Potential Gila Trout recovery stream. Investigate potential for Gila Trout restoration. Currently occupied by Rainbow Trout
Rain Creek	Gila Trout	Native Fish	Potential Gila Trout recovery stream. Investigate potential for Gila Trout restoration. Currently occupied by Rainbow Trout
Sapillo Creek (Headwaters to Lake Roberts)	N/A	N/A	Intermittent throughout reach. No current data
Rocky Canyon	Rio Grande Sucker	Native Fish	Maintain distribution

Management Direction for HUC 15040001 Upper Gila			
Water	**Fish Species**	**Management Type**	**Management Direction**
Skates Canyon	Rio Grande Sucker	Native Fish	Maintain distribution
Mogollon Creek (West Fork Mogollon confluence to Gila River)	N/A	N/A	Intermittent throughout reach. No current data

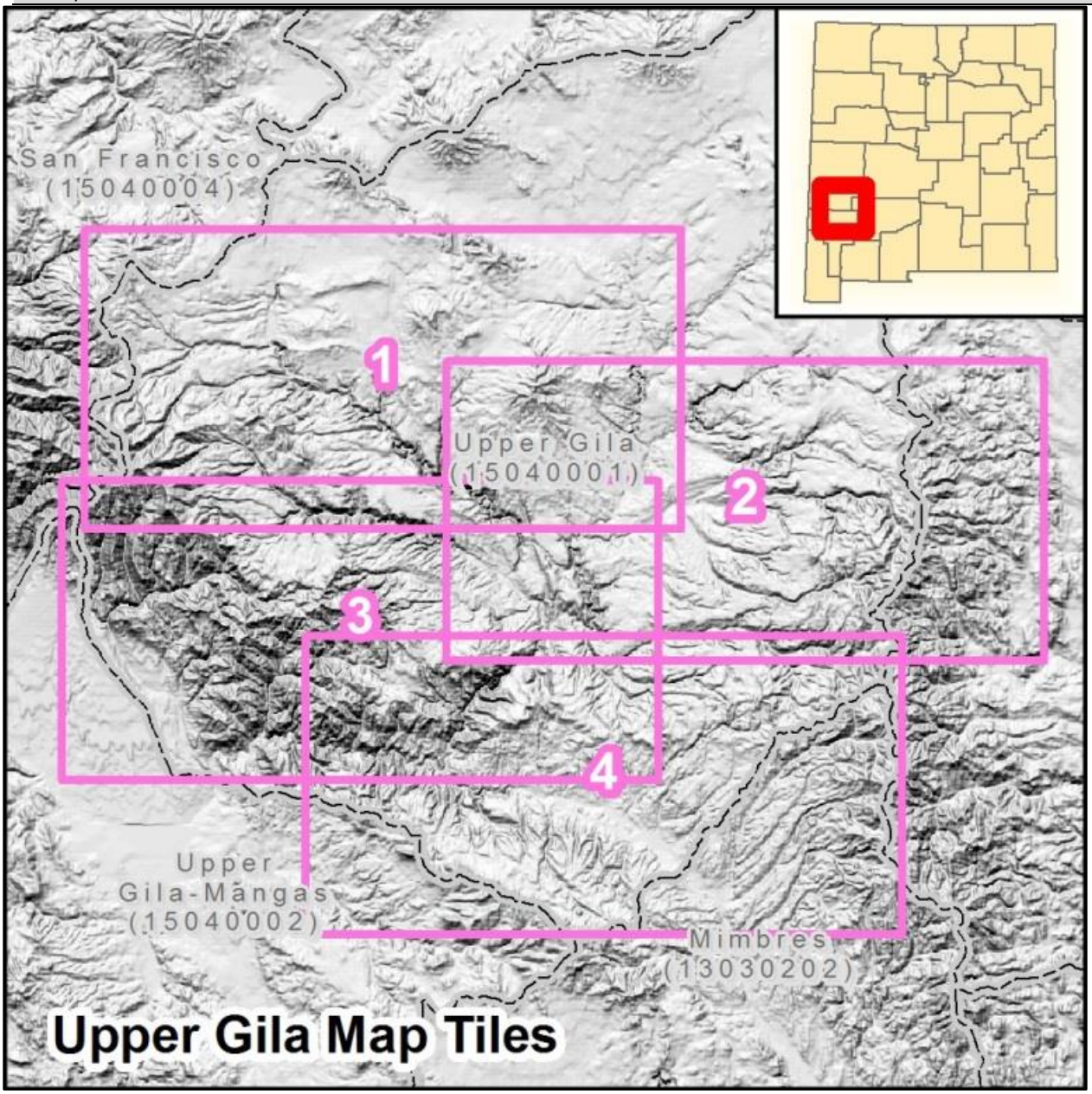

Figure 58. Upper Gila Map Tiles

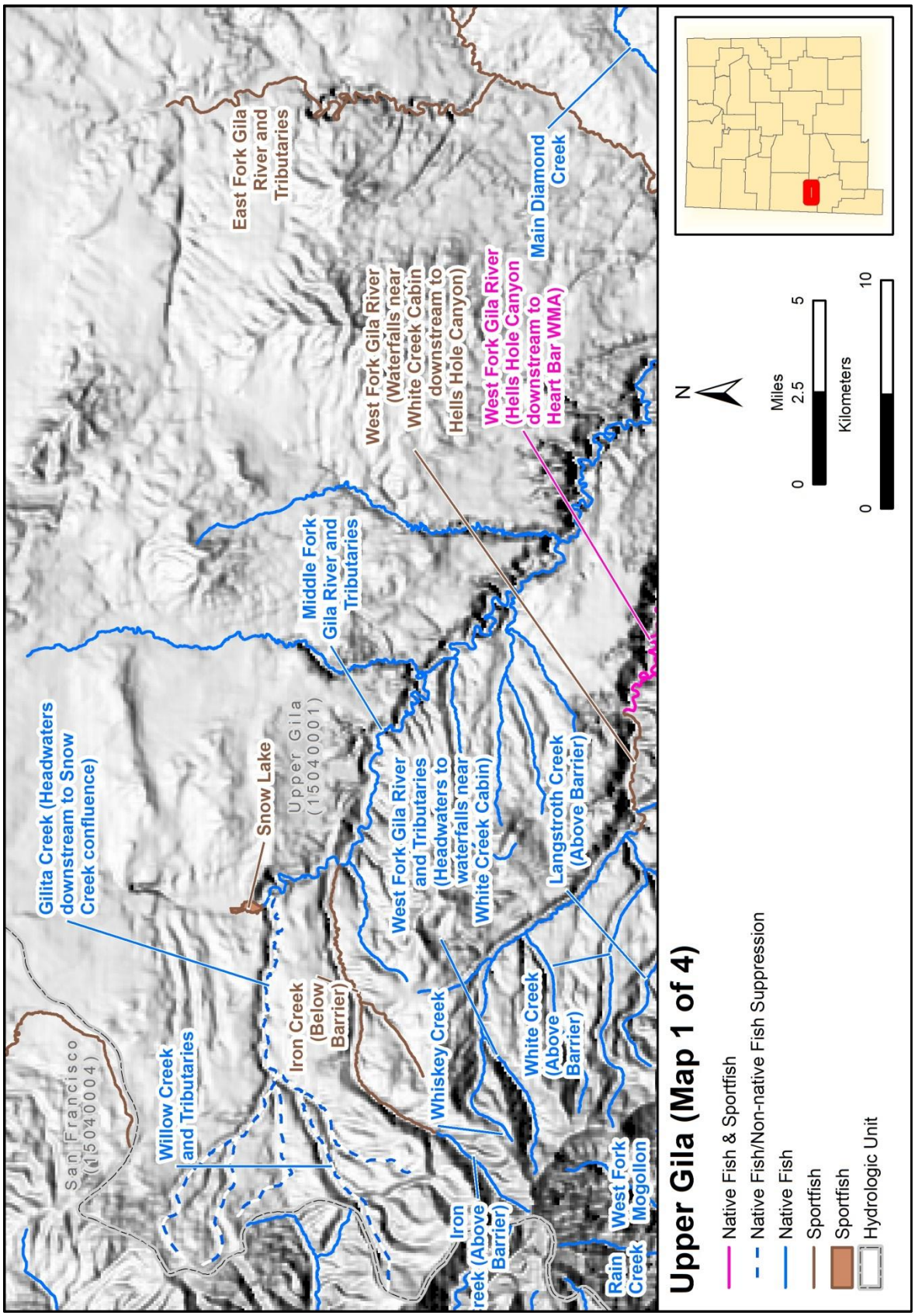

Figure 59. Upper Gila (Map 1 of 4)

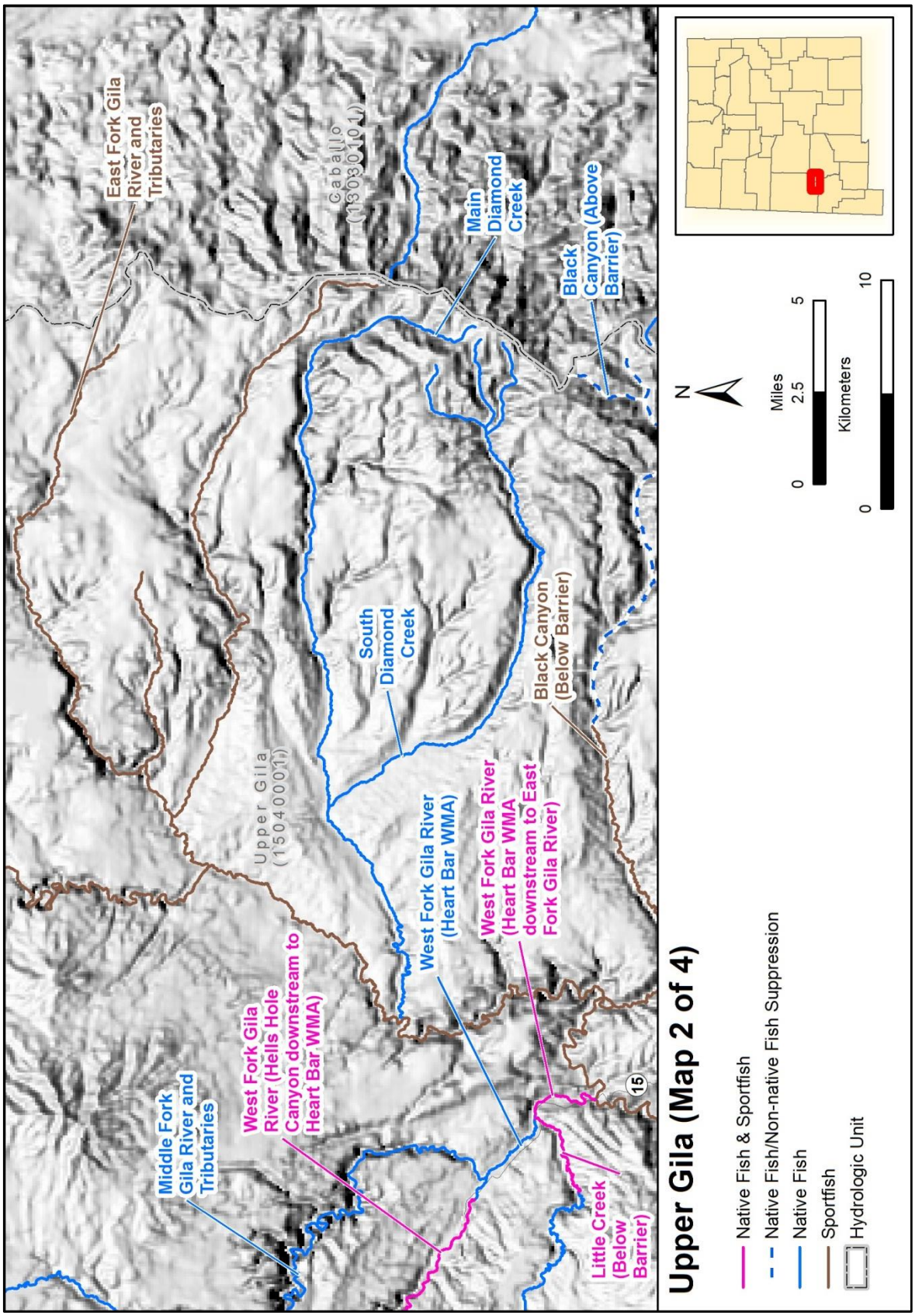

Figure 60. Upper Gila (Map 2 of 4)

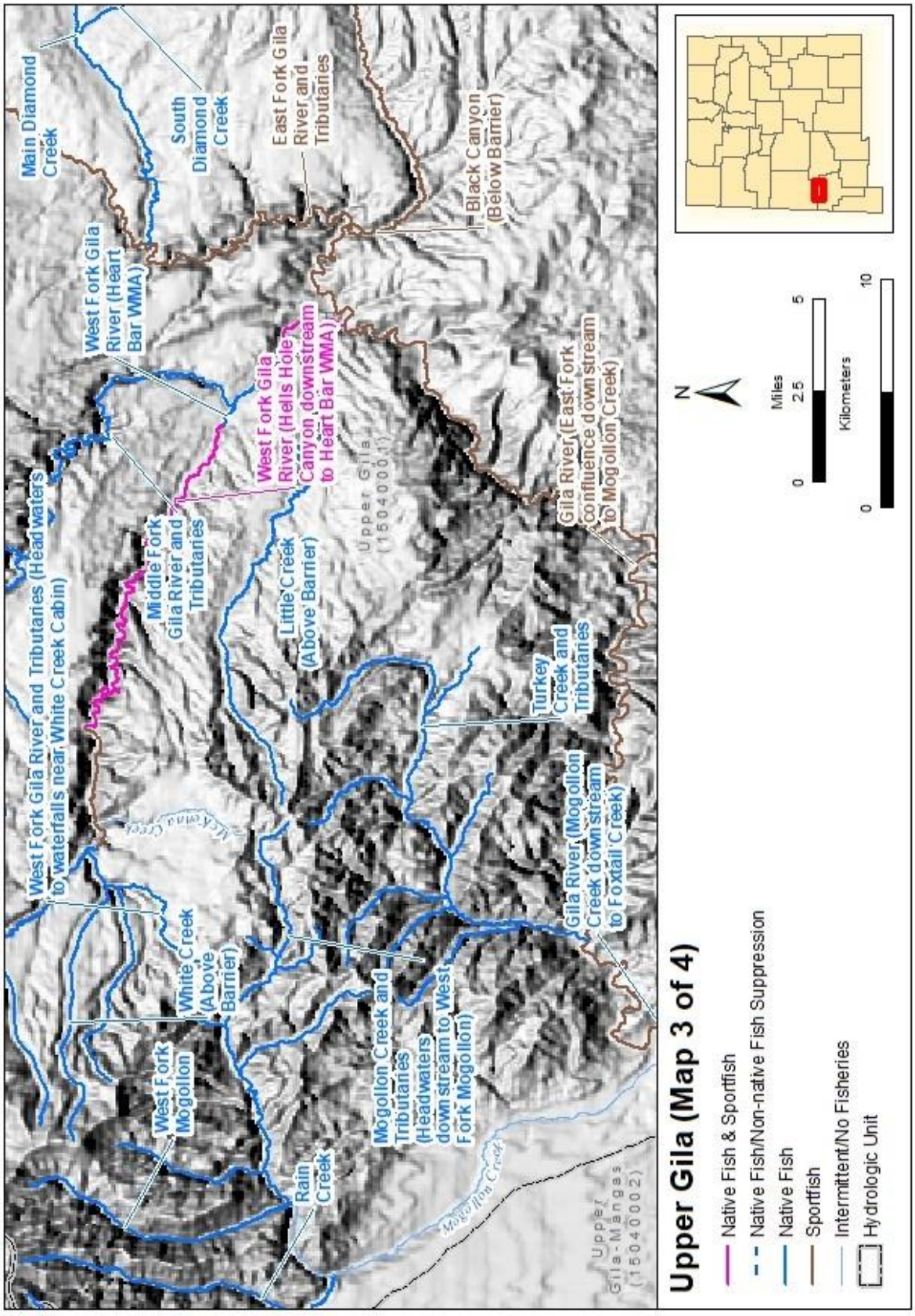

Figure 61. Upper Gila (Map 3 of 4)

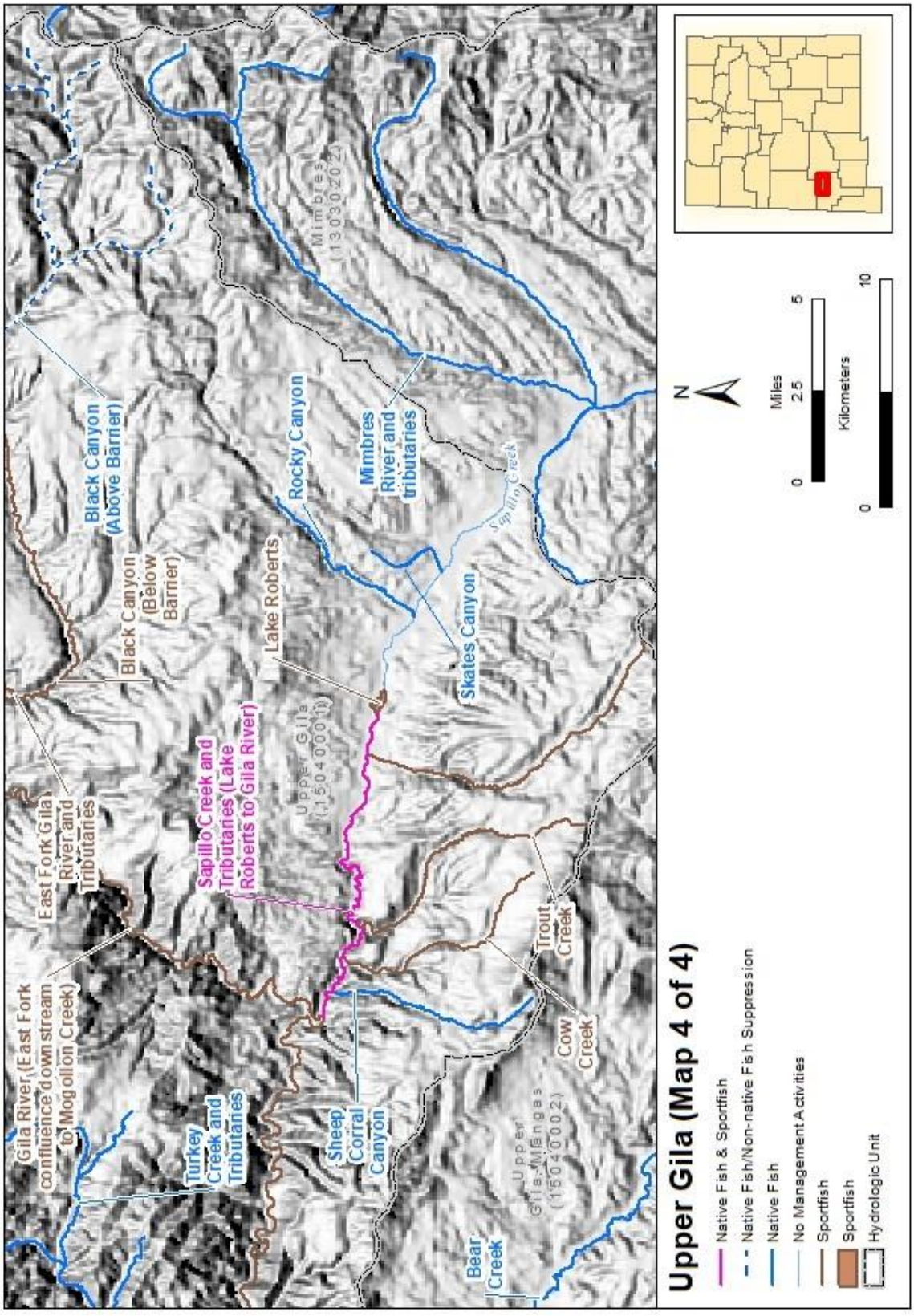

Figure 62. Upper Gila (Map 4 of 4)

HUC 15040002 Upper Gila - Mangas

Management Direction HUC 15040002 Upper Gila - Mangas

Water	Fish Species	Management Type	Management Direction
Gila River (Mogollon Creek downstream to Foxtail Creek)	Loach Minnow	Native Fish	Designated critical habitat for Loach Minnow and currently occupied
	Spikedace	Native Fish	Designated critical habitat for Spikedace and currently occupied
	Non-native fish	Suppression	Investigate regulations to promote harvest of non-native predators up to and including unlimited take
Bear Creek	Loach Minnow	Native Fish	Designated critical habitat for Loach Minnow and currently occupied
Mangas Creek	Loach Minnow	Native Fish	Designated critical habitat for Loach Minnow. Almost entirely on private land
Bill Evans	Channel Catfish	Put and Take	Stock catchable Channel Catfish as available. Investigate Special Summer Catfish program potential
	Largemouth Bass	Wild	Manage as a Trophy Bass Water and investigate regulations to attain trophy potential
	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout between November and March
Gila River and Tributaries (Foxtail Creek downstream to State Line)	Catfish	Wild	Channel and Flathead catfish present. Maintain regulations to support catfish angling
	Spikedace	Native Fish	Designated critical habitat for Spikedace
	Loach Minnow	Native Fish	Designated critical habitat for Loach Minnow
Duck Creek and Tributaries	N/A	N/A	Intermittent throughout reach. No current data
Red Rock Pond	Roundtail Chub	Native Fish	Establish refuge population of Roundtail Chub
	Gila Topminnow	Native Fish	Establish refuge population of Gila Topminnow

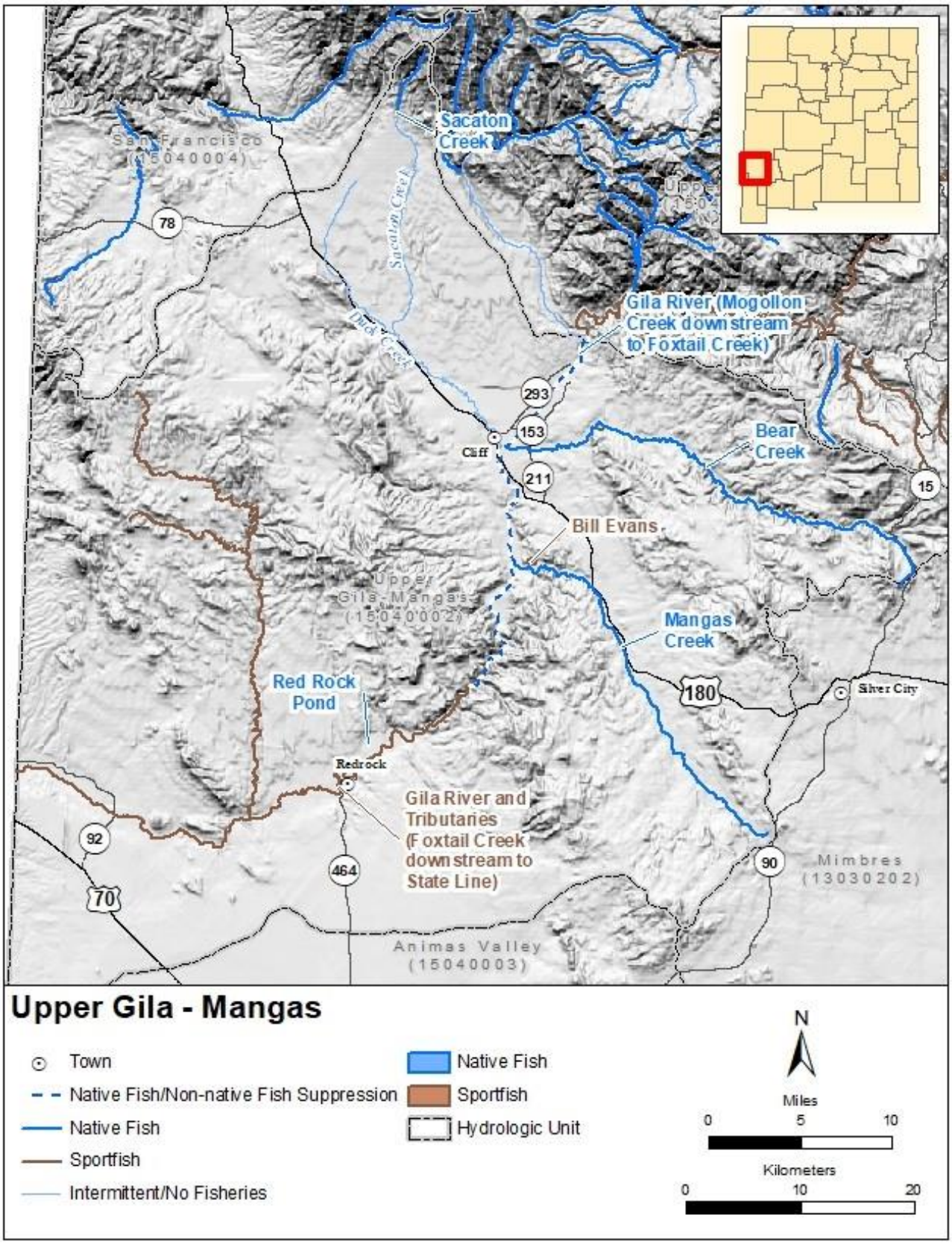

Figure 63. Upper Gila - Mangas

HUC 15040004 San Francisco

Management Direction for HUC 15040004 San Francisco

Water	Fish Species	Management Type	Management Direction
Tularosa River	Loach Minnow	Native Fish	Designated critical habitat for Loach Minnow and currently occupied in some reaches
Lower Negrito Creek	Loach Minnow	Native Fish	Designated critical habitat for Loach Minnow and currently occupied
Upper Negrito Creek	Triploid Rainbow Trout	Put and Take	Stocking ceased in 2003 due to low water conditions. Resume spring stocking as conditions permit
Saliz Canyon	Loach Minnow	Native Fish	Maintain distribution
San Francisco and Tributaries (Headwaters downstream to Pleasanton Diversion)	Loach Minnow	Native Fish	Designated critical habitat for Loach Minnow and currently occupied
	Spikedace	Native Fish	Designated critical habitat for Spikedace and currently occupied
	Rio Grande Sucker	Native Fish	Maintain distribution
Mineral Creek	Gila Trout	Native Fish	Gila Trout recovery stream. Special Trout Water regulation (Green Chile Water) for entire reach
Whitewater Creek and Tributaries (Headwaters to Catwalk)	Gila Trout	Native Fish	Gila Trout recovery stream. Special Trout Water regulation (X-mas Chile Water) for entire reach
Glenwood Pond	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout annually. Initiate stocking Gila Trout in Glenwood Pond
Big Dry Creek	Gila Trout	Native Fish	Gila Trout recovery stream
Spruce Creek	Gila Trout	Native Fish	Gila Trout recovery stream and relict population. Maintain angling closure
Mule Creek	Roundtail Chub	Native Fish	Roundtail Chub recovery stream
San Francisco River and Tributaries (Pleasanton Diversion downstream to Stateline)	Catfish	Wild	Channel and Flathead catfish present. Maintain regulations to support catfish fishery. Includes designated critical habitat for Loach Minnow and currently occupied. Designated critical habitat for Spikedace and currently occupied
	Smallmouth Bass	Wild	Maintain regulations to support Smallmouth Bass fishery

Management Direction for HUC 15040004 San Francisco			
Water	**Fish Species**	**Management Type**	**Management Direction**
Blue River and Tributaries	Loach Minnow	Native Fish	Designated critical habitat for Loach Minnow
	Spikedace	Native Fish	Designated critical habitat for Spikedace

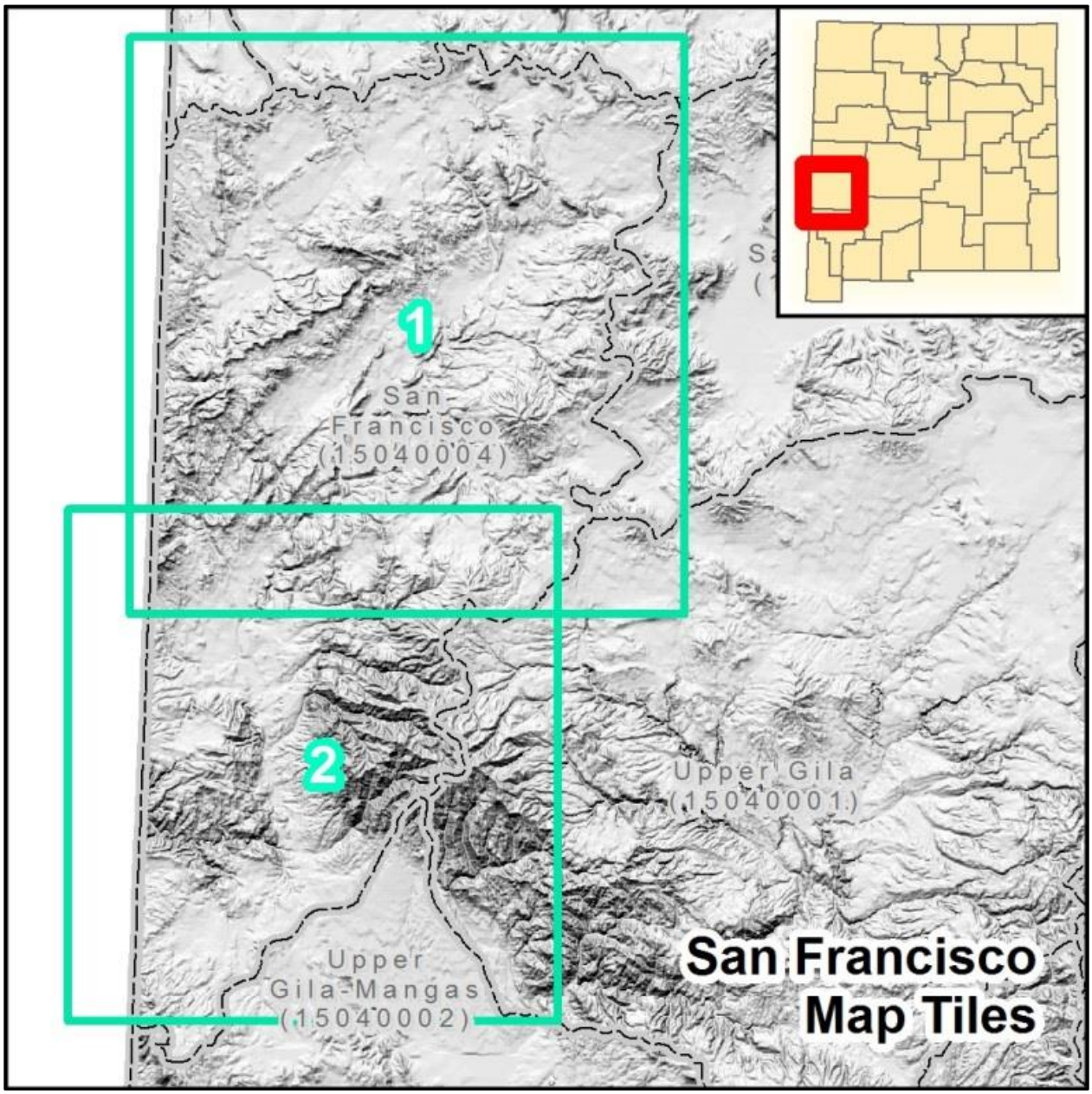

Figure 64. San Francisco Map Tiles

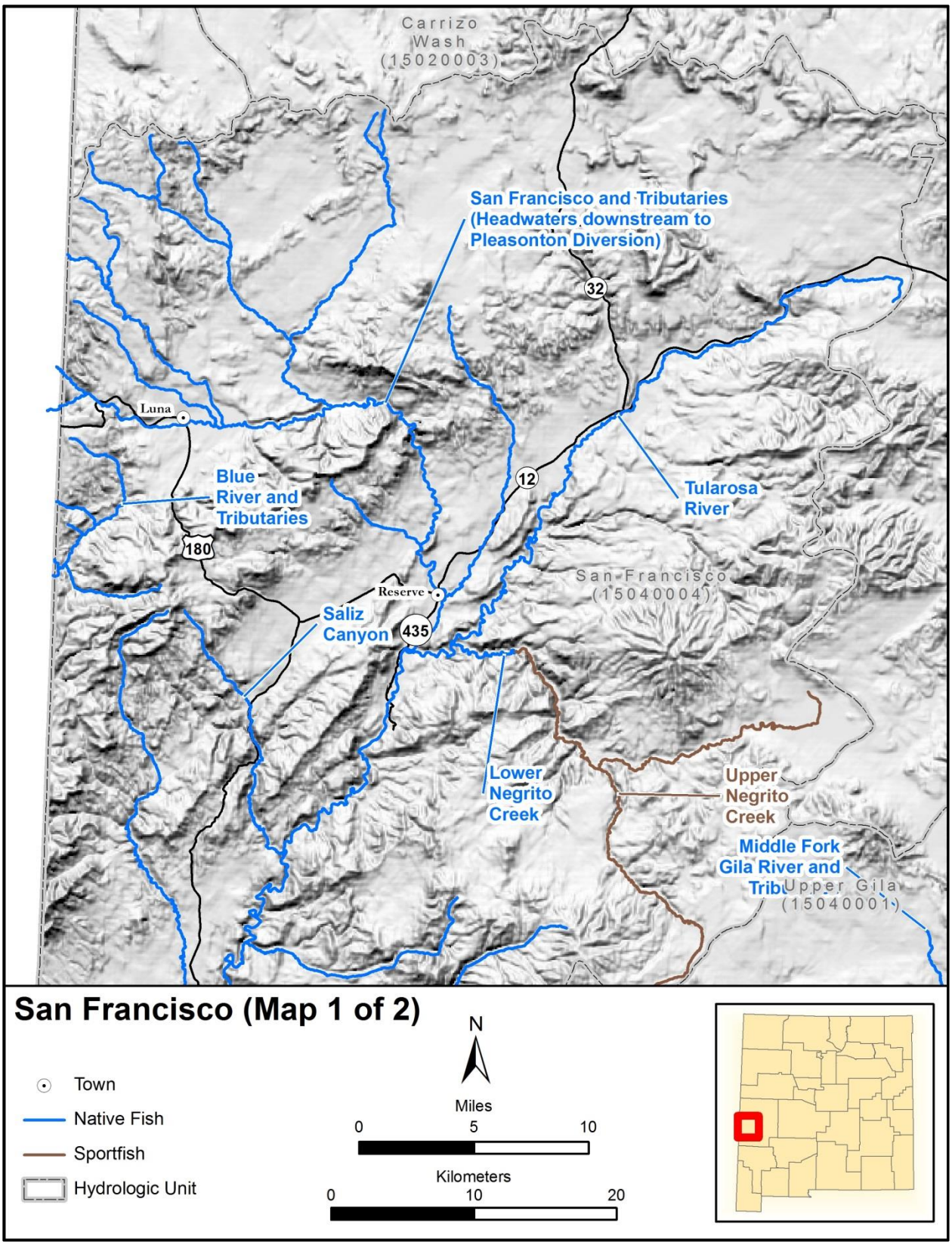

Figure 65. San Francisco (Map 1 of 2)

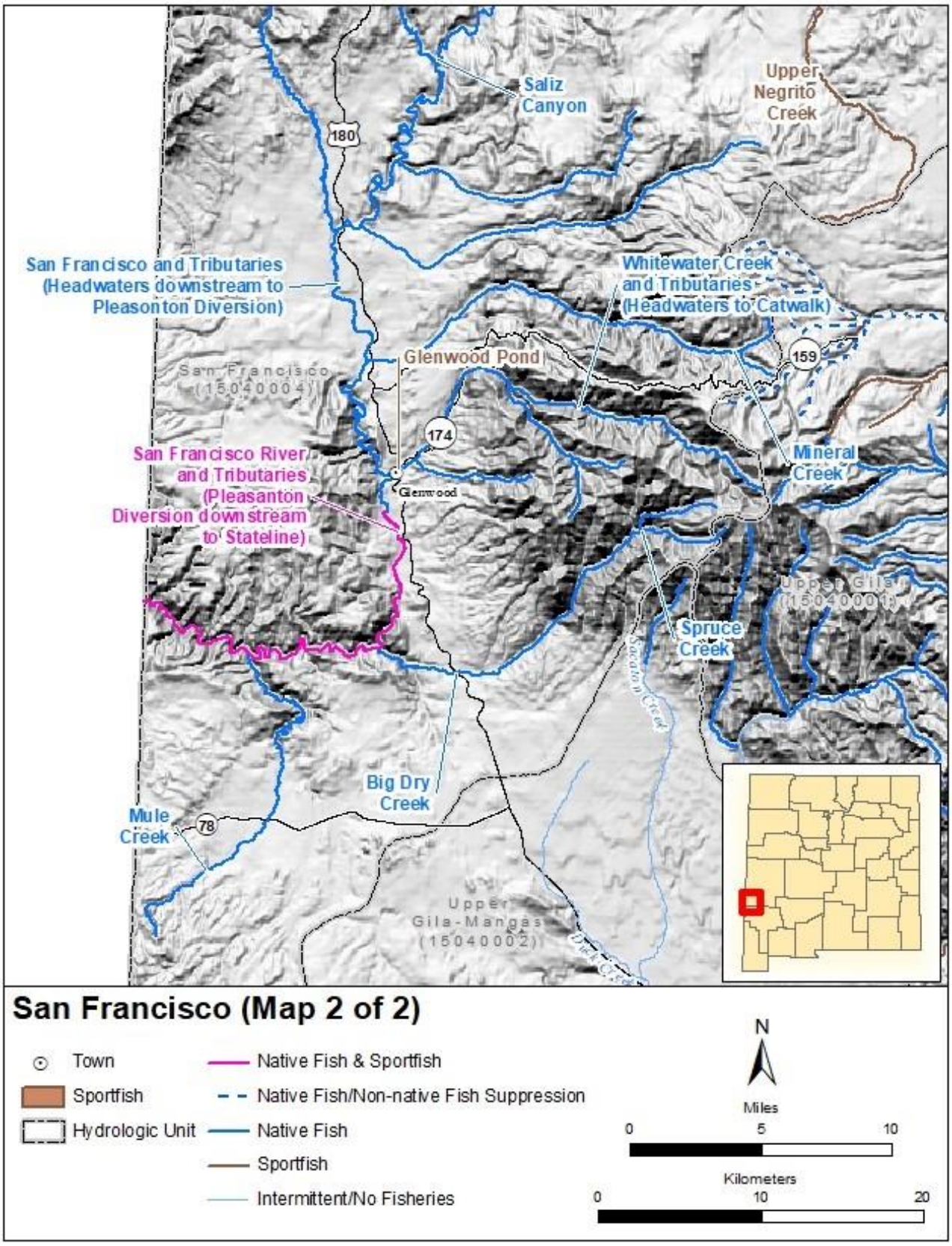

Figure 66. San Francisco (Map 2 of 2)

San Juan Watershed

In New Mexico the San Juan River Watershed occurs almost entirely within San Juan County. The San Juan River originates in the San Juan Mountains of southwestern Colorado, enters New Mexico northeast of Farmington, and flows westward for about 93 miles to exit the state near the Four Corners area. Navajo Dam impounds the upper 19 miles of the river in New Mexico. From Navajo Dam downstream to Farmington the river is restricted to a single, moderately incised channel and habitats are mainly cobbled riffles, moderately deep runs, and large pools. Gradient diminishes as the river progresses downstream from Farmington to Shiprock, but flow remains mostly in a single channel. Downstream of Shiprock the channel is frequently divided among two, three, or four courses. Habitat diversity increases with channel complexity. In addition to habitats common in upstream reaches, backwaters, embayments, shoals, and secondary channels (having their own mix of habitats) are present. The San Juan River within New Mexico is permanently-watered, but permanently flowing tributaries are currently limited to the Navajo, Animas, and Mancos rivers. The San Juan River upstream of Four Corners drains about 6.9 million acres including portions of the system in Colorado. The Bureau of Land Management administers much of the watershed upstream of Farmington and large portions of the watershed are within Navajo Nation and Jicarilla Apache jurisdiction.

Aquatic habitats of the San Juan Watershed are influenced by regulated flows, channelization, water diversion, runoff from municipalities, roads, row-cropped agricultural lands, and petroleum-extraction activities. Currently, Navajo Reservoir is operated to balance the needs of sensitive fish with water development per conditions of a Biological Opinion issued to Bureau of Reclamation by the US Fish and Wildlife Service. Considerable data on water quality and habitats of the main stem of the San Juan River are available in various reports produced by the San Juan River Basin Recovery Implementation Program. Hypolimnetic releases from Navajo Dam maintain coldwater habitats downstream until approximately the Hammond Diversion upstream of Bloomfield.

Two major sport fisheries exist within the San Juan watershed, Navajo Reservoir and the San Juan tailwater trout fishery. Navajo Reservoir provides opportunities for a variety of warmwater and coldwater fish species. The Special Trout Water reach of the San Juan River is world-renowned for both the density and size of both Brown and Rainbow trout.

Critical habitat for the federally endangered Colorado Pikeminnow (also state endangered) and Razorback Sucker includes currently occupied reaches between Farmington and the Navajo Nation boundary. The Department actively participates in recovery program activities for both endangered species including annual monitoring activities and development of research projects that could assist with their recovery. The Department is also a signatory to the Rangewide Conservation Agreement for Roundtail Chub, Bluehead Sucker, and Flannelmouth Sucker.

Activities under this agreement primarily include sharing of data and coordination among signatory agencies.

HUC 14080101 Upper San Juan, 14080104 Animas, 14080105 Middle San Juan

Management Direction HUC 15040001 Upper San Juan, 15040002 Animas, 15040004 Middle San Juan

Water	Fish Species	Management Type	Management Direction
Los Pinos River /Pine River	Kokanee	Put, Grow, and Take	Kokanee run out of Navajo Reservoir into the Pine River. Historical kokanee broodstock water
	Brown Trout	Wild	Maintain regulations to support wild trout fishery
Navajo Reservoir	Triploid Rainbow Trout	Put, Grow, and Take	Stock subcatchable triploid Rainbow Trout. An additional 80,000 fingerling triploid Rainbow Trout stocked by USFWS as mitigation, annually. Due to USFWS hatchery priority shifts, future of mitigation stocking uncertain. Fulfill stocking rates with Department raised triploid Rainbow Trout
	Smallmouth Bass	Wild	Manage as a Recreational Bass Water
	Kokanee	Put, Grow, and Take	Stock fingerling kokanee. Historical kokanee broodstock water. Whirling disease detected in 2020 which may affect brood potential
San Juan River (Navajo Dam downstream 3.5 miles to end of Special Trout Water)	Triploid Rainbow Trout	Put, Grow, and Take	Stock subcatchable triploid Rainbow Trout annually. Managed as a Trophy Trout Water. Special Trout Water (Red Chile Water)
	Brown Trout	Wild	Manage as a Trophy Trout Water
San Juan River (Downstream Boundary of Special Trout Water downstream to Hammond Diversion)	Triploid Rainbow Trout	Put, Grow, and Take	Stock catchable and fingerling triploid Rainbow Trout annually
	Brown Trout	Wild	Maintain regulations to support Wild Trout Water
San Juan River (Hammond Diversion downstream to Animas River confluence)	Roundtail Chub	Native Fish	Investigate the potential for restoring Roundtail Chub as identified in the Colorado River Basin Chubs Recovery Plan
	Mottled Sculpin	Native Fish	Investigate the status of Mottled Sculpin in this reach
Jackson Lake	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout

Management Direction HUC 15040001 Upper San Juan, 15040002 Animas, 15040004 Middle San Juan			
Water	**Fish Species**	**Management Type**	**Management Direction**
Lake Farmington	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Smallmouth Bass	Wild	Manage as a Low Density Bass Water
	White Bass	Wild	Maintain regulations to support White Bass fishery
Aztec Pond	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
Tiger Park Pond	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
La Plata River	Roundtail Chub	Native Fish	Investigate the potential for restoring Roundtail Chub as identified in the Colorado River Basin Chubs Recovery Plan
	Bluehead and Flannelmouth sucker	Native Fish	Investigate potential for restoring habitat to benefit native fishes in the San Juan Basin on Department owned Wildlife Management Areas
Animas River	Mottled Sculpin	Native Fish	Investigate the status of Mottled Sculpin in this reach
	Roundtail Chub	Native Fish	Investigate the potential for restoring Roundtail Chub as identified in the Colorado River Basin Chubs Recovery Plan
	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
San Juan River (Animas River downstream to State Line)- Reaches below Hogback Diversion within jurisdiction of Navajo Nation	Colorado Pikeminnow	Native Fish	Designated critical habitat for Colorado Pikeminnow and currently occupied. Participate in the San Juan River Basin Implementation Program (SJRIP) activities
	Razorback Sucker	Native Fish	Designated critical habitat for Razorback Sucker and currently occupied
	Roundtail Chub	Native Fish	Investigate the potential for restoring Roundtail Chub as identified in the Colorado River Basin Chubs Recovery Plan
	Non-native Fish	Suppression	Participate in non-native fish removal efforts in collaboration with the SJRIP program. Target species are primarily Channel Catfish and Common Carp though all non-native species are removed in this reach. Maintain regulations to suppress non-native fish

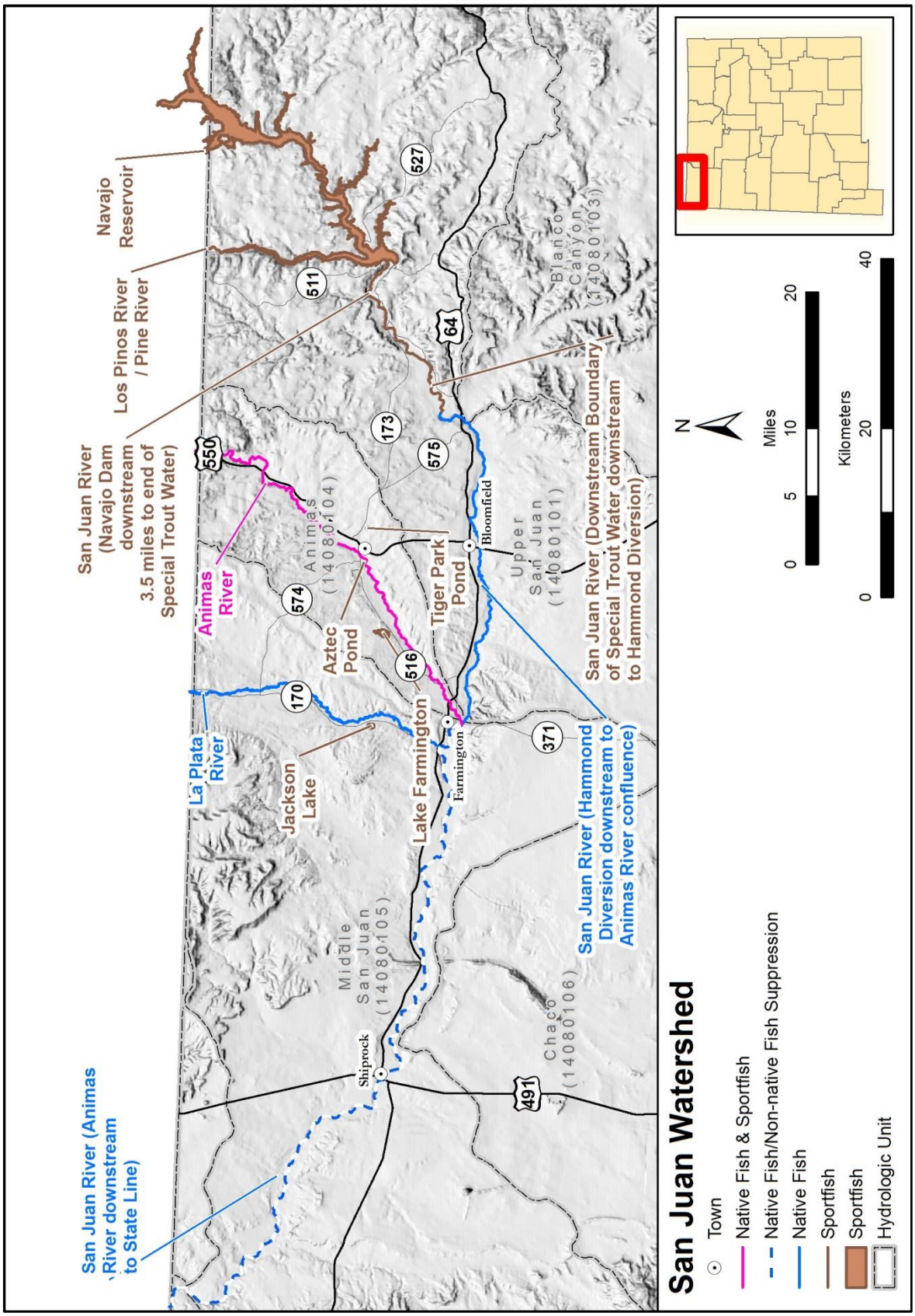

Figure 67. San Juan Watershed

Zuni Watershed

The Zuni River drains about 800,000 acres as it flows from its headwaters in west-central New Mexico to the Little Colorado River in Arizona. Continuous flow is absent from the headwaters downstream to the Arizona/New Mexico border and surface flow is generally only continuous during heavy spring run-off. Many stream reaches are dry except near perennial springs. Headwaters of the Zuni River watershed include 1st and 2nd order streams such as Rio Nutria and Tampico Draw. Lower areas of the watershed include the main stem of the Zuni River, a 3rd and 4th order system, and associated impoundments such as Black Rock Reservoir. Landownership is primarily private and Forest Service in the upper watershed and tribal in the lower areas. Limited water within the watershed has resulted in minimal fisheries activity within the drainage. The federally and state endangered Zuni Bluehead Sucker inhabits perennial reaches in the upper watershed. The only sport fishery within the drainage is McGaffey Lake. Quemado Lake is located in the Carrizo Wash HUC and provides exceptional trout and tiger muskie angling opportunities.

HUC 15020003 Carrizo Wash, 15020004 Zuni

Management Direction for HUC 15020003 Carrizo Wash, 15020004 Zuni

Water	Fish Species	Management Type	Management Direction
Zuni River and Tributaries	Zuni Bluehead Sucker	Native Fish	Maintain distribution. Rio Nutria, Tampico Draw, and a private property reach are occupied by Zuni Bluehead Sucker. Significant portions of the watershed are on private and Zuni Pueblo land
	Green Sunfish	Suppression	Periodically remove Green Sunfish to reduce predation on Zuni Bluehead Sucker. Investigate other means to remove Green Sunfish from the drainage
McGaffey Lake	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Channel Catfish	Put and Take	Special Summer Catfish Water - Stock catchable Channel Catfish
Quemado Lake	Triploid Rainbow Trout	Put and Take	Stock catchable triploid Rainbow Trout
	Tiger Muskie	Put, Grow, and Take	Maintain target density of 4 fish/acre to maximize growth, suppress unwanted Goldfish, and provide a quality tiger muskie fishery. Stock fingerling tiger muskie annually (possibly less often) to attain target density

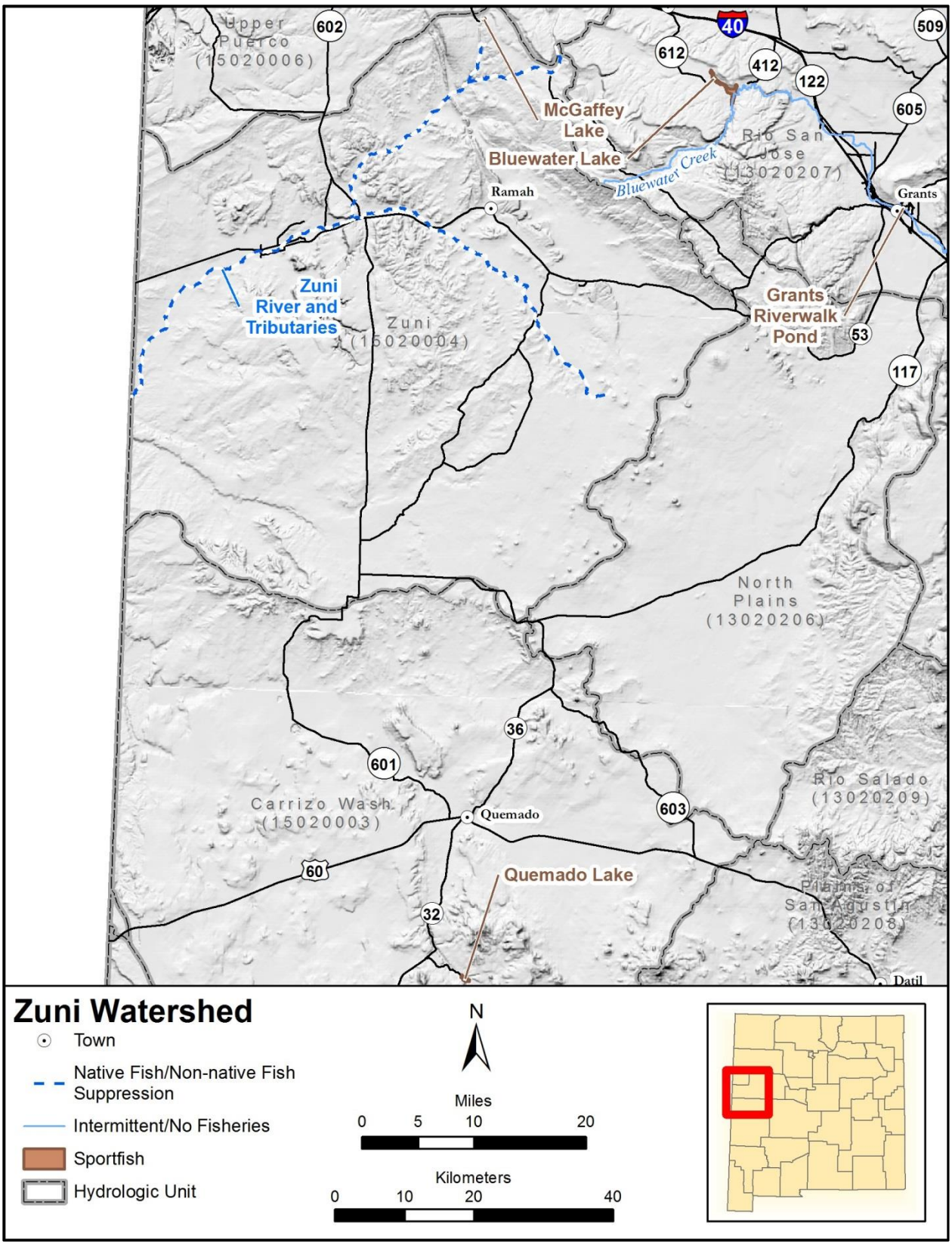

Figure 68. Zuni Watershed

Waterbody Index

Appendix A- Fish Parameter Updates from the 2016 Plan

The 2016 Statewide Fisheries Management Plan identified numerous objective parameters for a range of fisheries. After five years of implementation those parameters were reviewed for the 2022 update. Many parameters remain unchanged between the versions but some warranted updates and a few were removed entirely. This appendix identifies the changes and explains the reasons for them.

The parameters below that have been updated are displayed with a ~~strikethrough~~ for deletions, additions in *italics,* and accompanying justification in blue font following each change.

Catfish Parameters

~~Big Cat Waters and Put and Take~~

Put and Take and Summer Catfish Waters

- Average ~~angler catch~~ *Harvest* rate of ~~0.5~~ *1* fish/angler ~~hour~~ *day* during stocking season (late May to early September)
  - Average angler catch rate of .5 fish/ angler hour changed to Angler Harvest Rate: 1 fish/angler day during stocking season to maintain consistency with catchable trout goals, provide a goal that is easier to measure and more realistic
  - Big Cat Waters were changed to Summer Catfish Waters. Parameters are the same as those listed under Big Cat Waters

~~*Put, Grow, and Take*~~

  - Parameters for Put, Grow, and Take Catfish Waters were removed. Stocking juvenile catfish proved this strategy unsuccessful in providing a Channel Catfish fishery in most waters tested. The Put, Grow, and Take stocking strategy will likely only be used on a limited or experimental basis in the future and specific parameters will not be needed

- ~~Catch Per Unit Effort: 7 fish/set night (i.e. number of nets set for a night)~~
- ~~Mean length of 11 inches by Age 3~~
- ~~Multiple size classes of adults~~

Black Bass Parameters

Trophy Bass Waters (Largemouth Bass only)

- Catch Per Unit Effort: > 5 fish/hour of electrofishing that are > than 20 inches in length

- Recruitment: ~~> 20 Age-1~~ *>10 Age-2 bass*/hour of electrofishing
    - This parameter was amended to replace Age-1 with Age-2 bass. Age-1 bass are not as susceptible to our capture methods and are often underrepresented in our surveys. Age-1 bass generally occupy shallow habitat areas, different from where we survey, and due to their small size they are not as susceptible to electric frequencies used to survey adult bass. Age-2 bass are generally captured in our surveys and will be a better representation of recruitment
- Size Structure: Proportional Stock Density between 50 and 70
- Growth: Mean length of ~~Age-3~~ *Age 4* bass > 14 inches
    - This parameter was amended to a more reasonable growth goal for New Mexico waters. The original growth goal was based upon Florida strain largemouth bass in their native range and is not feasible for New Mexico's reservoirs
- *Body condition: Average relative weight of at least 90*
    - This new parameter was added since body condition reflects available prey base and can be used as indicator of appropriate stocking rates

Recreational Bass Waters

- Catch Per Unit Effort: 20 to 40 fish/hour of electrofishing (minimum size=7 inches for Smallmouth Bass, 8 inches for Largemouth Bass)
- Recruitment: ~~10 to 20 Age-1~~ *>5 Age-2 bass*/hour of electrofishing
    - This parameter was amended to replace Age-1 with Age-2 bass. Age-1 bass are not as susceptible to our capture methods and are often underrepresented in our surveys. Age-1 bass generally occupy shallow habitat areas, different from where we survey, and due to their small size, they are not as susceptible to electric frequencies used to survey adult bass. Age-2 bass are generally captured in our surveys and will be a better representation of recruitment
- Size Structure: Proportional Stock Density between 40 and 60
- *Body Condition: Average relative weight of at least 80*
    - This new parameter was added since body condition reflects available prey base and can be used as indicator of appropriate stocking rates

Low Density Bass Waters

- Catch Per Unit Effort: 0 to 20 fish/hour electrofishing (minimum size= 7 inches for Smallmouth Bass, 8 inches for Largemouth Bass)
- *Body Condition: Average relative weight of at least 80*
    - This new parameter was added since body condition reflects available prey base and can be used as indicator of appropriate stocking rates

Striped Bass Parameters at Elephant Butte Reservoir

- Catch Per Unit Effort: 1 fish/net night
- Size Structure: Proportional Stock Density between 50 and 70
- *Body Condition: Average relative weight of at least 85*
  - This new parameter was added since body condition reflects available prey base and can be used as indicator of appropriate stocking rates

Walleye Parameters

- Catch Per Unit Effort: minimum of 4 fish/net night
  - This parameter was amended by adding "minimum of" in front of "4 fish/net night". The old parameter suggested that if the catch per unit effort was greater than 4 fish/net night the population would not be meeting goals. This parameter is meant as a minimum abundance and not as a cap
- ~~Size Structure: Proportional Stock Density between 40 and 60~~
  - This parameter was removed since walleye populations have consistently been above the Proportional Stock Density (PSD) range which normally means the smaller size classes are missing. The high PSD in New Mexico Walleye populations is not a reflection of an out of balance population but a result of rapid growth
- *Body Condition: Average relative weight of at least 80*
  - This new parameter was added since body condition reflects available prey base for adult fish and can be used as indicator of appropriate stocking rates

Tiger Muskie Parameters

- Density: ~~Minimum of~~ 4 fish/surface acre (*10-year average of surface area*) ~~of habitat~~
  - This parameter was amended by removing "minimum" since 4 fish/surface acre is the actual goal and densities above this goal are too high to sustain a healthy population. Also, the area is now based on a 10-year rolling average since water levels fluctuate significantly changing densities without changes to the actual total population number

- Unwanted Fish ~~Density~~ *Catch Per Unit* of effort: ~~Maintain low abundance of unwanted Goldfish and White Suckers~~ *<20 fish/ hour electrofishing of goldfish and white suckers in target waters.*
    - This parameter was amended by adding a measurable goal for abundance of unwanted fish species. This abundance will ensure these species are controlled and still provide ample prey base for tiger muskie
- *Average body condition (relative weight) of at least 90 for fish ≥30 inches*
    - This new parameter was added since body condition reflects available prey base and can be used as indicator of appropriate stocking rates

<u>Trout Parameters</u>

Put and Take:

- Angler ~~Catch~~ *Harvest* Rate: ~~0.5~~ *1* fish/angler day during stocking season
    - This parameter was amended by replacing "catch" with "harvest" since our actual goal is 100 percent utilization in Put and Take waters and harvest more accurately reflects utilization
- Stocking Rate: Stock *at least* 1 fish/angler day
    - This parameter was amended by adding "at least" since, based on creel surveys, some waters need to be stocked with more than 1 fish/angler day to meet angler expectations

Put, Grow, and Take:

Kokanee

- Catch Per Unit Effort: 20 fish/net night with *pelagic set nets*
    - This parameter was amended by adding the capture technique for clarification

Appendix B- Progress Towards 2016 Identified Priority Projects and Needs for Further Investigation and Research

The 2016 Plan identified a number of programmatic fisheries priorities including evaluation of hatchery stocking, habitat restoration, AIS monitoring and prevention, species recovery efforts, and statewide fisheries management. Substantial progress has been made on many of those priorities in the intervening years. Below are the priorities listed in the 2016 version of the plan with progress made and accomplishments in italics.

Evaluation of Hatchery Stocking

Trout

- Continue to evaluate allocation of catchable and subcatchable trout
    - *In 2020 the Department engaged New Mexico State University in a collaborative research project to analyze stocking efficacy of fingerling and subcatchable trout in Eagle Nest Lake to develop stocking strategies for mitigating Northern Pike predation. Results are anticipated in 2022*
    - *Since 2016 the Department has conducted angler utilization and harvest surveys on twelve individual waterbodies stocked with catchable trout to ensure proper and equitable distribution of stocking among Winter Trout Waters*

- Investigate potential for reducing or eliminating stocking of catchable trout from some river systems which support wild trout and reallocate to higher use systems
    - *Since 2016 some discussions and considerations have occurred, however at this time no specific waters have formally been identified to reduce or eliminate catchable trout stocking*

- Continue to investigate areas where native trout, surplus to recovery efforts, can be used to increase angling opportunities for native trout
    - *Since 2016 the Department has evaluated 10 waterbodies stocked with surplus Rio Grande Cutthroat Trout (e.g., Clear Creek, East Fork Jemez River, Horseshoe Lake, Middle Fork Lake, Rio Cebolla, Rio Chama below El Vado, Rio Guadalupe, Rio Grande Gorge, San Antonio Creek, and Trampas Lakes) and adjusted stocking strategies including adding several waterbodies (e.g., Canjilon Lakes, El Rito, Fenton Lake, Goose Lake, Hopewell Lake, Lagunitas Lakes, Nutrias Lakes, and San Gregorio Lake)*
- Monitor and adjust kokanee stocking strategies in accordance with varying reservoir levels and differing spawning success

- *Since 2016 the Department has conducted annual population surveys on Heron and Navajo reservoirs to evaluate population status and adjust stocking strategies appropriate to current water levels. Water levels, especially at Heron Reservoir, have receded significantly since 2016 and stocking rates have been reduced to accommodate reduced habitat*

Catfish

- Investigate use of subcatchable and fingerling Channel Catfish instead of catchable catfish, where appropriate
    - *Since 2016 the Department has evaluated 10 waterbodies stocked with fingerling and/or subcatchable Channel Catfish and determined stocking subcatchable Channel Catfish can provide marginal angling opportunity in very few waters. Stocking fingerling Channel Catfish in waters was not successful. Stocking of subcatchable and fingerling Channel Catfish has been discontinued*

Walleye

- Evaluate the benefit of utilizing fingerling (advanced fry) Walleye in certain lakes to improve Walleye fisheries
    - *This priority was discontinued due to change in Rock Lake State Fish Hatchery focus to Largemouth Bass. Preliminary research showed fingerling Walleye survive better than fry but increased survival does not outweigh cost of raising Walleye to fingerling size compared to stocking additional fry*

Habitat Restoration

- Working with partners and volunteers, design and implement instream and riparian habitat restoration efforts on Commission owned Wildlife Management Areas including properties in the Rio de Los Pinos, Pecos, Red River, Rio Chama, Chamita, Gila and Mimbres watersheds
    - *Since 2016 the Department has made great strides restoring instream, riparian, and reservoir habitat on Commission owned Wildlife Management Areas including projects in the Rio de Los Pinos (2.0 miles), Pecos River (2.1 miles), Rio Chamita (0.5 miles), Mimbres River (0.8 miles and a 0.2-acre pond), and Bill Evans Lake (60.0 acres)*

- Working with partners and volunteers, design and implement instream, riparian, and reservoir habitat restoration efforts on non-Commission owned properties

- *Since 2016 the Department has partnered with several federal, state, and non-government organizations restoring instream and riparian habitat including projects in the San Juan River (1.5 miles), Rio Chama (2.0 miles), Mimbres River (1.6 miles) and the Costilla Creek (4.0 miles)*

Aquatic Invasive Species

- Coordinate and conduct intervention efforts to prevent the introduction of zebra and quagga mussels into New Mexico waters.
  - *Continued with education/outreach, early detection monitoring and prevention activities; to date over 243,955 conveyances have been inspected of which 1,147 have received a hot water decontamination*
  - *In July 2017 the State Game Commission amended AIS rules to include mandatory watercraft inspections for out of state conveyances; removal of hull plugs and advanced notice of arrival for conveyances 26 ft. or more in length*
  - *276 samples collected for early detection of zebra and quagga mussels using quantitative polymerase chain reaction analysis*
  - *Responded to an alert of zebra mussels detected in moss balls being sold in pet stores in 2021. Implemented a rapid response including detection, removal from pet stores, and a disinfection and disposal protocols that were distributed directly to pet stores and to the public through social media*

- Improve the current understanding of fish pathogen distribution in waters and hatcheries in New Mexico
  - *Fish health inspections were conducted annually at all Department Hatchery facilities in order to maintain fish health certifications*
  - *Conducted health inspections of wild fish populations used for spawning activities including Rio Grande Cutthroat Trout, Walleye, and kokanee*

Species Recovery Efforts

Native Trout Restoration

- Rio Grande Cutthroat Trout restoration in the Costilla Creek and Rio las Animas watersheds (ongoing) as well as the Pecos River watershed (future)
  - *The Costilla Creek Rio Grande Cutthroat Trout Restoration Project entered its final phase, treatment of lower Comanche Creek and the Costilla Creek downstream to the terminal fish barrier, in 2020. Non-native fish removal is expected to conclude in 2022 and restocking will commence thereafter. Rio Grande Cutthroat Trout have been restored to the Rio las Animas and a project to*

restore them to Willow Creek in the Pecos River drainage began in 2020 and will be completed in 2022

- *The restoration activities above have also created opportunities to restore Rio Grande Chub and Rio Grande Sucker. The Department plans to stock both species into Costilla Creek in 2022*
- *Rio Grande Cutthroat Trout were also restored to Rito de Los Frijoles and Capulin Creek post fire due to habitat recovery*

- Gila Trout restoration in the Gila River Basin (ongoing)
    - *Gila Trout have been stocked and self-sustaining populations have become established in Willow, Mineral, White, and Langstroth creeks. A piscicide treatment in Whitewater Creek was completed in fall 2019 and Gila trout were stocked into the creek in 2020. Gila Trout will continue to be stocked annually until at least 2022 after which self-sustaining population is expected to become established*

- Install, enhance, and maintain fish migration barriers used to protect restored and existing populations of native trout
    - *In order to protect a newly established Gila trout population, a fish migration barrier was completed in Willow Creek (Gila Drainage) in summer 2016*
    - *In anticipation of restoration of Rio Grande Cutthroat Trout, fish migration barriers were constructed in Costilla Creek in 2017 and in Willow Creek (Pecos Drainage) in 2020*

- Investigate potential use and effects of supermale trout to aid in native trout restoration efforts
    - *In 2017 the Department engaged New Mexico State University in a collaborative research project to test the efficacy of using YY male (supermale) Brook Trout as a means of controlling non-native trout for native trout restoration. The project is ongoing but initial results are very promising*

- Incorporate other native fishes into restoration efforts including warmwater reaches, where possible. Examples include Rio Grande Sucker, Rio Grande Chub, Spikedace, and Loach Minnow
    - *There has not been an opportunity to incorporate other native fishes into restoration efforts; however, this remains a priority for the Division and we anticipate opportunities in the Rio Grande and Gila River drainages, in particular*

Rio Grande Chub and Rio Grande Sucker in the Costilla Creek drainage, in the coming years

Gila River Basin Warmwater Fishes

- Identify potential restoration and repatriation opportunities for Spikedace, Loach Minnow, and native chubs including the Middle Fork Gila River and possibly others
    - *Spikedace have been stocked and become established in the San Francisco River and Loach Minnow have been stocked and become established in Saliz Canyon*

- Incorporate native trout into restoration efforts to compliment coldwater reaches and other sensitive or listed taxa recovery efforts, where possible
    - *There has not been an opportunity to incorporate native trout restoration efforts in warmwater fish restoration; however, this remains a priority for the Division*

San Juan River Basin Fishes

- Investigate the importance of Roundtail Chub for successful recovery of Colorado Pikeminnow
    - *Investigation of the importance of Roundtail Chub for successful recovery of Colorado Pikeminnow has not been completed; however, planning for Roundtail Chub investigations and possible repatriations is underway*

- Investigate potential use and effects of supermale fish to aid non-native fish removal efforts
    - *The Division conducted preliminary investigations into the potential use and effects of YY male Channel Catfish to aid non-native removal efforts in the San Juan River Basin and this remains a priority*

Lower Pecos Aquatics

- Texas hornshell mussel and gray redhorse repatriation to the Delaware River (ongoing)
    - *Adult mussels were repatriated to the Delaware River in 2016 and streamside inoculations of mussels were conducted in 2016, 2017 and 2018 in order to establish mussel populations. Gray redhorse was repatriated to the Delaware River in 2017. Unfortunately, river drying that exposed mussel beds occurred in 2019 and 2020 and mussels were collected and removed. Until perennial flow can be secured for the Delaware, it is unlikely the river will be a suitable stream for repatriation of Texas hornshell mussel or Gray Redhorse*

- Protection of Pecos Pupfish from further expansion of Sheepshead Minnow in New Mexico
    - *Two fish migration barriers were completed at the BLM Overflow Wetlands in 2019 to protect Pecos Pupfish populations from invasion by Sheepshead Minnow*

Statewide Fisheries Management

- Investigate amendments to regulations and develop management actions (including consistent stocking sources of Largemouth Bass) to enhance black bass angling opportunities including Trophy waters
    - *Trophy Bass Waters regulations were adopted by the State Game Commission for Clayton Lake, Lake Roberts, and Bill Evans Lake in 2018. Regulations include a reduced harvest limit in Trophy Bass Waters. These waters are stocked annually with subcatchable Largemouth Bass. Regulations and stocking strategies are focused on protecting and managing for larger sized bass*

- Evaluate and consider amendments to Special Trout Water regulations throughout the state
    - *The Special Trout Water system has been simplified to four basic regulation packages with a New Mexico chile theme. These regulations were tailored to improve angler understanding, facilitate native trout restoration, and maximize biotic potential in these trout fisheries*

- Investigate optimal densities of tiger muskie that suppress unwanted fish populations yet provide trophy angling opportunities
    - *About four fish per acre appears to be the ideal density for maintaining a tiger muskie population in concert with a Rainbow Trout fishery. This density was achieved at Bluewater in 2020. This density was sustained at Quemado Lake until a complete fish kill in 2018. Tiger muskie have been restocked at Quemado Lake*

- Work to encourage expanded youth angling opportunities
    - *Since 2016 the Department has spent significant effort supporting and hosting numerous angling educational events by stocking fish, providing fishing equipment (e.g., rods, reels, tackle, etc.), and providing personnel. In addition, angling regulations at age restricted waters were streamlined to reduce confusion and promote angling opportunities for young anglers. New youth angling opportunities were created by opening the ponds at Pecos Watershed*

Education Center, working with City of Ruidoso to create a new Kid's Fishing Pond at Alto Lake, and expanding Rio Grande Cutthroat Trout angling at Seven Springs Kid's Pond

Appendix C- Summary of Public Involvement and Comments

Public review of the draft Statewide Fisheries Management Plan Update was initiated by presenting the purpose and need of the Plan Update to the State Game Commission at a regular meeting on March 4, 2022. A draft plan was subsequently published on the Department website with the initial comment period running through April 8, 2022. A specific email address was established to send written comment on the plan. Public meetings were held virtually on March 23rd and March 24th. A total of 16 members of the public signed in and provided contact information at these meetings. Department staff took notes on public comments at each of these meetings. Members of the public were encouraged to submit any questions they had during the meeting to the email address provided. The Department received four written comment letters and identified 67 comments within those letters. Substantive comments, a brief response, and how the final plan update was amended to address the comments are summarized below.

Commentor Name/ Organization	Comment	Response
Gila-Rio Grande Trout Unlimited Chapter	Comment 1.1 The updated indexes and active links to specific watersheds throughout the plan enhance the utility of the document, and the summary of the progress towards the priority projects and the list of the division's major accomplishments since 2016 are commendable.	Comment noted
	Comment 1.2 Include a section describing the issues of climate change and drought, how the Department maintains awareness of these threats, and the plans for responding to protect fish populations when these issues occur.	Climate change along with cyclical drought, episodic drought, wildfire, flood, changing land use patterns, aquatic invasive species, and increasing demand for municipal, commercial, and agricultural water are among the many broad-scale threats to the fisheries of New Mexico. In many cases, these threats are linked and can be additive, compounding, or synergistic in their effects on aquatic communities. Climate change, drought, and other threats are addressed in substantial detail in conservation documents for specific species, like The Rio Grande Cutthroat Trout Conservation Agreement and Strategy and the Gila Trout Recovery Plan, as referenced on page 31 of the Plan Update. Specific references to climate change were added on pages 5, 6, 34, and 90 but a section detailing climate change, drought, and other threats would distract from the primary purpose of the Plan Update, to provide details on recent accomplishments and near-term management direction for every fishery in the state, and therefore was not added.

	Comment 1.3 We strongly support the regulated opportunities to fish for the threatened native Gila trout that were made possible with implementation of the 4(d) rule of the Endangered Species Act.	Comment noted
	Comment 1.4 The addition of more information and details describing the 4(d) rule in Draft Plan (page 28) would be appreciated here, as this is an excellent venue for informing the public and drawing attention to the critical role of the Division in monitoring these populations.	More information regarding monitoring of Gila Trout streams that are open to angling can be found in the Department's Framework for Management of Gila Trout Angling (2015).
	Comment 1.5 The Plan would also be strengthened by more detailed description of the protocols and procedures that are used for monitoring the status of Gila trout populations, and how these results could stimulate changes in existing angling regulations or closures of selected streams.	See response to comment 1.4
	Comment 1.6 The restoration of Gila trout to the ~24 miles of the Whitewater Creek watershed highlighted on page 31 is an incredible accomplishment!	Comment noted
	Comment 1.7 The management directions of "X-mas" and "Green Chile" that allow take are problematic, and we advocate that the Division investigate the potential for managing Mineral Creek, and Whitewater Creek above the natural waterfall barrier entirely as catch and release waters with a change to Red Chile Native trout conservation.	See response to comment 1.8
	Comment 1.8 Include the assessment of the impacts of harvest/take on Gila trout streams under the statewide fisheries priorities and investigate the feasibility of expanding catch & release "Red Chile" designations for native Gila trout waters to ensure healthy self-sustaining populations.	In many cases healthy, self-sustaining populations can and do support harvest through regulated angling. Providing a range of angling opportunity, including multiple gear types and harvest strategies is important for building and maintaining public support for conservation measures like removing non-native trout in support of native trout. The Department places the highest value on self-sustaining populations of Gila Trout in recovery waters and continuously assess the status of these fisheries. Current data indicate that self-sustaining populations are present in all recovery streams open to angling. This plan is not part of the rule making process for fisheries management in New Mexico, however, the specific recommendations made in comments 1.7, 1.8, 1.9, and 1.16 have been added to our list of suggestions for future rule making. We encourage the commentors to submit comments during the next fisheries rule cycle.

	Comment 1.9 The management type “Native Fish” for Willow Creek is appropriate; however, we have concerns that the designation of the “X-mas Chile” management direction that allows take is not sustainable and urge the division to investigate possible changes in regulations.	See response to comment 1.8
	Comment 1.10 Provide more information on the specific role of Glenwood hatchery and the plans for using hatchery-raised Gila trout need to be described in more detail. It is important to clarify the possible role of the Glenwood hatchery in providing Gila trout for streams with designated “Native Trout” Management Types.	See response to comment 4.7
	Comment 1.11 We would like to see a statement citing the scientific evidence that stream-born fish are healthier and more fit than hatchery-raised fish and recognizing that while hatchery-raised Gila trout should be appropriate for stocking waters designated “Put and Take” and “Put, Grow and Take”, the “Native Trout” management model should strive for self-sustaining stream-born populations. The Plan needs to include statement recognizing the superiority of stream-born vs hatchery fish.	The intent of this comment is unclear. The goal for all Gila Trout Recovery Waters is to establish fully self-sustaining populations. In most cases restored populations are established from hatchery sources that have been certified to be free of common pathogens and are descended from relict Gila Trout lineages. When founding populations our goal is to provide sufficient genetic diversity during stocking for the population to persist and adapt to their new environment.
	Comment 1.12 While the hatchery-raised Gila trout should be appropriate for stocking waters designated “Put and Take” and “Put, Grow and Take” and locations such as Snow Lake, Lake Roberts, and Glenwood Pond, etc. that can support allowed take, we encourage the Division to assess streams such as Whitewater Creek, Mineral Creek, and Willow Creek for management of stream-born native fish with catch & release regulations and regularly scheduled monitoring to quantify the health of these Gila trout populations.	Hatchery-produced Gila Trout are used to establish new recovery populations and are typically stocked for three consecutive years to ensure establishment of a self-sustaining population. Thereafter, streams are generally not stocked. If monitoring indicates that a population is not self-sustaining, we will investigate the causes and adjust regulations as warranted. Current data indicate that self-sustaining populations are present in all recovery streams open to angling,
	Comment 1.13 We were not able to determine from the Draft Plan if the Division intends to use the Glenwood hatchery to stock waters designated for “Native Trout” Management Types or not, and we believe that it is important to provide this clarification.	Gila Trout Recovery Waters (e.g., Native Fish management type) are not routinely stocked. Fish from Glenwood Hatchery will be used primarily to stock non-recovery put and take or put, grow, and take management types.
	Comment 1.14 While we recognize that recommendations for fisheries rule making changes to the “Chile” designations occur in a separate process, we encourage the Division to broadly assess the issue of	See response to comment 1.8

	take/harvest on Gila trout streams under the statewide fisheries priorities and investigate expansion of catch & release managed populations of Gila trout.	
	Comment 1.15 We also encourage the Division's interest and investigational efforts towards expanding Gila trout populations into the West Fork of the Gila, Rain Creek, West fork of Mogollon Creek, lower Black Canyon on the East Fork, the Middle Fork and tributaries such as Iron Creek, Gilita Creek and other waters where suppression regulations allowing removal of non-native trout are appropriate.	Comment noted
	Comment 1.16 We would support the Division's investigation of opportunities and prioritization of habitat improvement projects to enhance angling opportunities in places like the Heart Bar WMA, and the Catwalk section of Whitewater Creek that have strong potential as accessible recreational Gila trout fisheries.	Comment noted
Sara Ricklefs	Comment 2.1 It is important to recognize the presence of virile crayfish *F. virilis* (invasive species) in the Pecos watershed and take actions to curb this invasive species.	The Department recognizes that the Virile Crayfish or Northern Crayfish (*Faxonius virilis*) is non-native to New Mexico; however, the species is most widespread crayfish species in New Mexico, and it has occurred in every drainage in the state for decades. In addition, addressing the spread of invasive species is outside of the purview of this Plan, and is included in our New Mexico Aquatic Invasive Species Management Plan.
	Comment 2.2 Update New Mexico law to remove the virile crayfish from bait eligibility. Enacting a public outreach campaign to discourage actions that contribute to further translocations could be delivered similarly to or in conjunction with already successful zebra mussel/quagga mussel outreach efforts.	Currently, state statutes or rules do not restrict the use of crayfish as bait by individual anglers. The standing rule known as 19.31.9 Hunting and Fishing Regulation-Commercial Use of Fish, that defines which crayfish species can be legally sold by licensed bait dealers in New Mexico, includes Virile Crayfish. Virile Crayfish are included as a legal crayfish species to sell due to their widespread distribution in New Mexico. Our annual angler survey show crayfish use as bait by anglers is very low compared to other live bait. Based upon the low use by anglers and widespread distribution of the species, risk of translocations is low.
USDA Forest Service	Comment 3.1 The USFS supports and looks forward to partnering with the Department in its efforts to manage a variety of fisheries throughout the state to both support native fish communities and angling opportunities.	Comment noted

	Comment 3.2 Arizona has promoted angling for Roundtail Chub, has the Department investigated if there is any demand in NM for this opportunity?	The Department has not specifically investigated the potential development of Roundtail Chub fisheries in New Mexico, in part, due to the ongoing uncertainty over the ESA listing status of specific populations and the species as a whole. The April 2022 USFWS decision that the Lower Colorado Distinct Population Segment of Roundtail Chub as not warranted for listing under ESA may allow further consideration of this topic.
	Comment 3.3 Several non-native Sportfish species such as Catfish and Smallmouth Bass and Non-Native Salmonids are causing declines in the native fish communities and are the main drivers on why some of these species are at risk. We commend the many programs that the Department supports to conserve and protect native species. To further support this in the Management Plan we would support having a management category that describes the areas where these fish may be undesirable to support native fish populations.	The Plan identifies waters where non-native fish are being suppressed or otherwise controlled for the benefit of native species
	Comment 3.4 Barriers on both Tanques and Tio Grande creeks need improvement, in addition there is likely a need for some type of protection for the pure RGCT in San Antonio Creek.	Comment addressed in the table on page 92
	Comment 3.5 The management of non-native sportfish in the warmwater sections of the Gila and San Francisco Rivers is inconsistent with the designation of Critical Habitat especially in the East Fork Gila, Mainstem Gila, and Lower San Francisco River. Management designed to support trophy Smallmouth Bass fisheries is having devastating impacts to native species populations in those areas, especially the East Fork of the Gila which historically supported both Spikedace and Loach Minnow and still maintains a limited population of Roundtail Chub and native suckers. The USFS would support investigating ways to decrease densities of these species in the East Fork, not continuation of management of high densities of Catfish and Smallmouth Bass.	There is no “Trophy Bass Water” designation in the Gila or San Francisco rivers. Both locations are managed under statewide regulations for bass and catfish with bag limits of 5 and 15 fish per day respectively. The Department’s aim is to balance angling opportunity with native fish conservation across the state. This is particularly difficult in the Gila River Basin given the limited opportunities for angling and the presence of numerous federally listed native fish. On the Department’ Heart Bar Wildlife Management Area nonnative fish are actively suppressed but other factors, like drought, wildfire, and flood, appear to be substantially stronger ecological drivers of both native and nonnative fish populations. Broadscale suppression of Smallmouth Bass and catfish across the Gila and San Francisco rivers would be cost prohibitive and unlikely to achieve significant results for native fish while also alienating anglers. The Department may consider site specific, partner-led native fish conservation projects that include non-native fish suppression on a case-by-case basis.

	Comment 3.6 Is there adequate information to understand the demand for angling for non-native species in those streams to support Trophy designation?	During the development of the 2016 Plan there was significant public interest to develop a Trophy Bass Water for Smallmouth Bass in the Gila River drainage. The Department has not pursued this management nor changed regulations for these river reaches. There continues to be significant interest for fishing opportunities in these river reaches. The Department will maintain regulations and management approaches to support angling opportunity for Smallmouth Bass in these reaches. The tables have been updated in the Plan Update.
	Comment 3.7 Would there be any support to manage for Roundtail Chub and potentially support limited angling opportunities for that species instead of the non-native sportfish.	See response to Comment 3.2
	Comment 3.8 The Forest Service is also supportive of efforts to reintroduce chub into portions of the San Francisco River drainage to support recovery of that species.	Comment noted
	Comment 3.9 The Forest Service is supportive of efforts to improve fisheries habitat in the reservoirs managed by the Department on the Gila National Forest.	Comment noted
	Comment 3.10 Snow Lake and Lake Roberts would benefit from major restoration projects that might include dredging.	Comment noted
	Comment 3.11 The Forest Service is looking forward to partnering with the Department and other partners on upcoming projects to improve Gila Trout habitat in Willow Creek, Whitewater Creek, and Black Canyon.	Comment noted
Trout Unlimited	Comment 4.1 Identify primary threats to statewide fisheries and aquatic habitat. We ask that you include a new section highlighting and briefly describing specific threats to fisheries and aquatic habitat that apply across the state. We are asking for an acknowledgement of the major threats and a brief description of their current and potential impact on fisheries, but we do not expect you to do this specific to individual watersheds or species. Specifically, we ask that you mention climate change, issues related to surface water availability and management, and water quality impairments including temperature.	See response to Comment 1.2

	Where appropriate, inclusion of strategies that Game and Fish can use to address these threats would also be appreciated.	
	Comment 4.2 Account for climate change in fisheries management. The final plan should acknowledge the impacts of a changing climate on native fish conservation and sportfishing opportunities, and the revenue it generates.	See response to Comment 1.2
	Comment 4.3 Address issues related to water management and surface water availability. We believe there is an appetite to see the Department more engaged in water planning processes occurring around the state (e.g., Rio Grande Basin Study, 50-year State Water Plan) and advocating for trout and fisheries in the context of water management discussions. We ask that you mention the importance of maintaining and restoring adequate water levels in New Mexico's streams and reservoirs to benefit native fish conservation and sportfishing opportunities. We are not asking for bold new actions at this time, but we do ask that our state's Fisheries Management Plan both acknowledge this reality and consider how the Department may respond.	The Department recognizes the importance of water availability and quality for fisheries conservation and angling. We routinely engage and share information with state and federal water management entities including the Office of the State Engineer/Interstate Stream Commission, New Mexico Environment Department, Bureau of Reclamation, and US Army Corps of Engineers. We intend to continue this engagement to the extent practical while acknowledging the Department holds no direct jurisdiction over surface or ground water availability or quality.
	Comment 4.4 Identify concrete steps for transitioning fisheries management toward wild and native trout. We encourage the Department to identify concrete steps for managing more fisheries for native and wild trout populations while reducing reliance on hatchery-raised trout. Please elaborate on strategies that could move that state in the direction of sustainable wild trout fisheries and a reduced reliance on hatcheries in the future.	The subject of this comment is in the investigation phase. Addition of concrete steps or strategies at this time would be premature. The Department intends to work with partner agencies, NGO's, and the public to identify potential locations for experimental implementation in the future. Parameters for wild trout populations can be found on page 28 of the Plan Update.
	Comment 4.5 Identify action items related to increased enforcement of existing fishing regulations. Please include an action item(s) specific to the issue of enforcement within the plan, and consider mentioning enforcement challenges as a specific threat to fisheries if you feel it is warranted.	The Department recognizes law enforcement as a cornerstone to fisheries management, however, enforcement is outside the scope and purview of the Plan Update. The enforcement of existing wildlife, fish, and other state and federal statutes and rules is covered within the Department's Strategic Plan. We would encourage the commentors to report specific concerns regarding enforcement issues to the Department.

	Comment 4.6 Fisheries management needs to account for increased angling pressure and recreational impacts. We'd like to better understand Department's plan for managing wild and native fisheries in the face of increased angling pressure, including how this is being monitored on certain stream segments (i.e., not just relying statewide trends).	Tracking angler use on every water in New Mexico would be cost prohibitive. We currently use several tools to monitor changes in angler use including our biannual angler use and harvest survey. These tools detect broad-scale changes in angler use but are limited in their ability to detect change at the reach level. To address this limitation we occasionally implement on-the-ground creel surveys or ask water specific questions in email surveys. As the Department investigates areas where we could reduce use of hatchery fish in favor of wild trout we foresee implementation of direct angler surveys of those locations. We encourage the commentors to communicate specific areas of concern to the Department.
	Comment 4.7 Consider providing a brief, one paragraph description that includes the location, management objectives, and rearing capacity for each of New Mexico's fish hatcheries. While some of these details are provided, a succinct paragraph for each would more clearly distinguish each hatchery, its specific contribution to native fish and sportfish, as well as how those hatcheries can or will be utilized to achieve the objectives described in this plan.	This comment has been addressed by the addition of information on pages 8-9.
	Comment 4.8 Consistent with our overarching native and wild trout focus, Trout Unlimited applauds the Department's use of hatcheries to rear Gila trout and Rio Grande cutthroat trout for conservation and recreational angling purposes. We support and encourage more hatchery resources towards these ends, and specifically would like to see more recreational native fisheries supported by the state's hatcheries.	Comment noted
	Comment 4.9 Consider other metrics in the future (in addition to populations) to assess fishery health more comprehensively, such as age class and fish biomass, and metrics relevant to carrying capacity.	Comment noted
	Comment 4.10 Regarding divisional priority 6, we would appreciate seeing specific resource concerns addressed in this management plan through actions associated with changing conditions. For example: "In response to increasing stream temperatures, DGF may do the following....".	See response to Comment 1.2

	Comment 4.11 We appreciate the discussion on funding and funding sources. This section would benefit from the inclusion of dollar values for the various programs and funding sources. It may also be beneficial to list the annual revenue derived from angling license sales and matching federal funds.	The Division's total budget for Fiscal Year 2021 was $8.8 million. This information was added to the caption for Figure 5 of page 18. Revenue generated from fishing license sales is difficult to accurately estimate because many resident license buyers purchase combination annual Game-hunting & Fishing licenses.
	Comment 4.12 Statewide, funding from outside partners is utilized towards mutually beneficial projects that promote many of the goals and objects listed in the fisheries management plan. We suggest an attempt at quantifying the resources provided by outside sources which go to benefit the state's fisheries.	The Department recognizes and appreciates the significant direct and indirect contributions of our many partners toward the conservation of fish and their habitats across the state. Quantifying the dollar value of those contributions, while a laudable goal, would be extremely challenging and is beyond the scope of the Plan Update. A statement recognizing these contributions was added to the Funding section on page 18.
	Comment 4.13 The plan references New Mexico's *quality and trophy trout waters.* We are interested in seeing a list of these waters if one exists. Please also consider including a list in the plan.	Currently, the San Juan River tailwater reach is the only designated Trophy Trout Water. Since the original Plan's publication several waters have been identified that meet or likely could be improved to meet the Quality Trout Water parameter, including the Cimarron River, Pecos River, Red River, Rio de los Pinos, Rio Chama, Rio Costilla, Rio Guadalupe, Rio Grande gorge, and San Antonio Creek. The Plan Update didn't specifically mention these as Quality Trout Waters and the tables have been updated to reflect this designation for specific river reaches.
	Comment 4.14 We applaud DGF's fish habitat improvement efforts on 14.5 stream miles of trout water. While this may not seem like much, we understand the logistical, funding, and implementation challenges involved, and we are prepared to provide support for your efforts to upscale restoration work in the coming years.	Comment noted
	Comment 4.15 A worthwhile goal would be to increase the pace and scale of restoration over the next five years of the plan. You might also describe barriers to increasing restoration efforts somewhere in the plan so the challenges are clearly stated and can be tackled in partnership with stakeholders. These barriers are becoming more apparent considering recent increases to state and federal funding.	The intent of this comment is unclear. Increasing the pace of restoration efforts would require additional human resources, funding, and budget which are all issues outside of the scope of this Plan Update.

	Comment 4.16 We commend the Department for its research efforts regarding YY technology to reduce non-native impacts to native trout.	Comment noted
	Comment 4.17 Regarding native trout restoration, we suggest including a statement that the Department will remain vigilant and flexible regarding spontaneous opportunities to enhance and restore native trout, per relevant documents such as the RGCT Conservation Strategy and the Gila Trout Recovery Plan.	Comment addressed on page 34 of the plan
	Comment 4.18 In Appendix B, regarding the objective to stock surplus native trout in waterbodies to improve angling opportunities for native trout, please consider listing the 10 waterbodies where this has occurred, as well as the additional waters you reference, unless there is a good reason not to. We support this goal carrying over to the new plan and suggest that it could be improved by a metric by which you measure success.	The 10 waterbodies have been added to Appendix B along with the additional waters stocked with surplus Rio Grande Cutthroat Trout. The Plan Update has a parameter for measuring success of stocking Rio Grande Cutthroat Trout for recreational purposes page 28
	Comment 4.19 The plan carries over an objective to "*Investigate potential for reducing or eliminating stocking of catchable trout from some river systems which support wild trout and reallocate to higher use systems*." We strongly support this objective, but suggest modifying it to include a metric of success – set a goal of *identifying a minimum number of river systems and/or specific stream segments where this could occur*. Trout Unlimited is committed to helping DGF achieve this priority.	See response to comment 4.4
	Comment 4.20 As written, the plan includes a priority to stock native trout, surplus to recovery efforts, for angling opportunities. Consider a complementary objective where DGF will identify how to increase rearing capacity of native fish specifically for recreational stocking, not just utilizing fish surplus to recovery efforts. This could include an investigation of put and take fisheries that will transition to native trout in the future, or better yet, identifying such streams.	A priority has been added on page 34 to address this comment
	Comment 4.21 We appreciate the Department's intention to work with partners to achieve restoration objectives. In addition to the priorities laid out, we ask that you also work with partners to develop shared priorities to identify and plan future habitat restoration projects,	Comment noted

	and to work with partners to leverage additional funding and resources for fisheries focused projects.	
	Comment 4.22 Aside from geomorphic habitat considerations, water quantity and quality should be habitat metrics. Regarding habitat restoration, we encourage the Department to investigate opportunities to improve water quantity and quality for the betterment of New Mexico's fisheries.	Water quality impairments are outside of the Department's jurisdiction, however, many of the Department's fish habitat improvement projects are founded in approaches to reduce stream temperatures, improve sediment transportation, increase riparian vegetation/shading, and reduce unstable stream banks.
	Comment 4.23 Identify priority areas for targeted mechanical suppression of non-native trout that currently threaten populations of Rio Grande cutthroat and Gila trout. We believe, based on evidence, that mechanical removal can benefit native trout populations and we encourage more of this tactic, especially in partnership with groups like Trout Unlimited.	Suppression of non-native species is identified in the plan with the management type "Suppression". Additional specific management actions are identified in conservation planning documents for Gila and Rio Grande Cutthroat trout.
	Comment 4.24 We suggest investigating the use of electronic fish barriers in addition to the traditional constructed barriers.	Electric fish barriers have been repeatedly considered by the Department for use in native fish conservation projects, however, concerns over logistic constrains, reliability, and safety have precluded their use to date.
	Comment 4.25 We encourage the Department to investigate tools and strategies that can be utilized to maintain or enhance stream flows in priority streams. This should include an assessment of existing authorities under which Game and Fish could lease or acquire water to benefit native fish conservation and sportfishing opportunities.	Comment noted
	Comment 4.26 Explore opportunities to work with water managers to enhance reservoir and river management procedures to benefit or minimize impacts to fish and aquatic habitat.	Department staff continually work with water managers to make recommendations on reservoir and river management procedures to benefit fish populations.
	Comment 4.27 Explore how Game and Fish can help address water quality impairments, including temperature impairments, in priority streams in the coming years.	See response to comment 4.22
	Comment 4.28 We appreciate the priority to work with NGOs on conservation projects with direct volunteer involvement. As mentioned elsewhere, it would also be helpful to identify statewide barriers to increasing	See response to comment 4.15

	the pace and scale of restoration projects by state agencies and partner organizations.	
	Comment 4.29 We suggest a general statement pertaining to stream access acknowledging that the Department is prepared to monitor impacts to fisheries for rivers and streams running through private land that may become publicly accessible pending the written opinion by the State Supreme Court. While this is a controversial issue, many are looking to the Department to ensure the health of our fisheries under any legal scenario.	The Department's 2022-23 Fishing Rules and Information Booklet states "In March 2022, the New Mexico Supreme Court ruled that the Landowner Certification of Non-Navigable Water Rule (19.31.22 NMAC) was unconstitutional. By means of this Court order, all watercourses in the state, that can be legally accessed, are open for public recreational use. Public recreationists are reminded that private property damage remains illegal." The Department is awaiting issuance of the Supreme Court's written opinion in the case in order to formulate future management approaches. We encourage the commentors to identify specific areas of concern and communicate them with the Department.
	Comment 4.30 Consider changing regulations for Xmas Chile Special Trout Waters to include tackle restrictions to lessen harm to fish that are not kept. With a two trout bag limit, the expectation is many smaller fish are being caught and released, so changing tackle restrictions could reduce fish mortality. Because there is already a reduced bag limit, tackle should be managed to cause less harm to fish, thereby improving the overall health of the fishery.	The Xmas Chile Water designation offers additional protection, with a reduce bag limit, while still allowing the use of all legal fishing tackle to avoid alienating any angling group.
	Comment 4.31 We suggest the Department address any necessary barrier issues on Jack's Creek as soon as possible.	Comment noted
	Comment 4.32 We suggest the Department consider genetic sampling in Pecos Wilderness lakes where RGCT purity may be uncertain. For example, Trampas Lakes are reputed to be RGCT fisheries but are inhabited by Snake River cutthroats as well.	Comment noted. The Department began stocking these lakes with Rio Grande Cutthroat Trout to continue recreational angling opportunities yet also align with wilderness values desired by the Forest Service. We do not consider the populations within wilderness lakes as Conservation Populations.
	Comment 4.33 We suggest brown trout suppression action on Rio Chiquito above Borrego Crossing.	Comment noted
	Comment 4.34 To improve the quality of fishing and move toward managing for wild trout, investigate designating the Rio Grande from Taos Junction Bridge to Velarde as special trout water – Xmas Chile.	Proposing and adopting new Special Trout Waters is an independent process from the Plan Update. Currently, the Department isn't considering adding or removing any waters from Special Trout Water designation. We encourage anglers to engage the Department during the next four-year Fisheries Rule review with suggestions on regulation changes.

	Comment 4.35 Investigate upgrading the Special Trout Water designation on the Chama River below Abiquiu Dam for approximately two miles. This stretch of river has experienced significant increases in fishing pressure in recent years, yet regulations remain unchanged. Modifying regulations to reduce the bag limit and restrict bait fishing could improve fishing given the increased angling pressure.	This reach of the Chama River is currently designated as Xmas Chile Water. This designation already offers a reduced bag limit of two trout per day. "Upgrading" the designation would make this reach catch-and-release only. The trout fishery in this reach is primarily supported by a Put and Take Rainbow Trout stocking strategy. The current regulation ensures equitable distribution of stocked fish without alienating any angling group. Also, similar to response to comment 4.34, proposing and adopting Fishing Rule changes is an independent process from the Plan Update.
	Comment 4.36 We share previously expressed concerns over allowing take on portions of Whitewater and Mineral Creeks where Gila trout recovery is still underway. Please investigate changing regulations to limit take where appropriate until recovery populations are secured.	See response to comment 1.8
	Comment 4.37 We are concerned for the negative impacts of drought, temperature, and management strategies on native trout, and recognize that changes in angling regulations or short-term stream closures may be necessary responses when monitoring reveals decreasing populations. We would appreciate a better understanding of how Gila trout populations are being monitored, and how the results of monitoring inform management decisions and regulations.	See response to comment 1.4
	Comment 4.38 We suggest a statement that the Department is prepared monitor conditions and to develop a management strategy for the San Juan River below the town of Navajo Dam to the downstream bridge on Highway 64, which is a quality wild trout fishery running through private land that may become publicly accessible pending legal opinions.	The Department monitors trout populations throughout the San Juan tailwater reach, including downstream of the town of Navajo Dam. Our monitoring allows the Department to detect any significant impacts or changes and make necessary management changes.