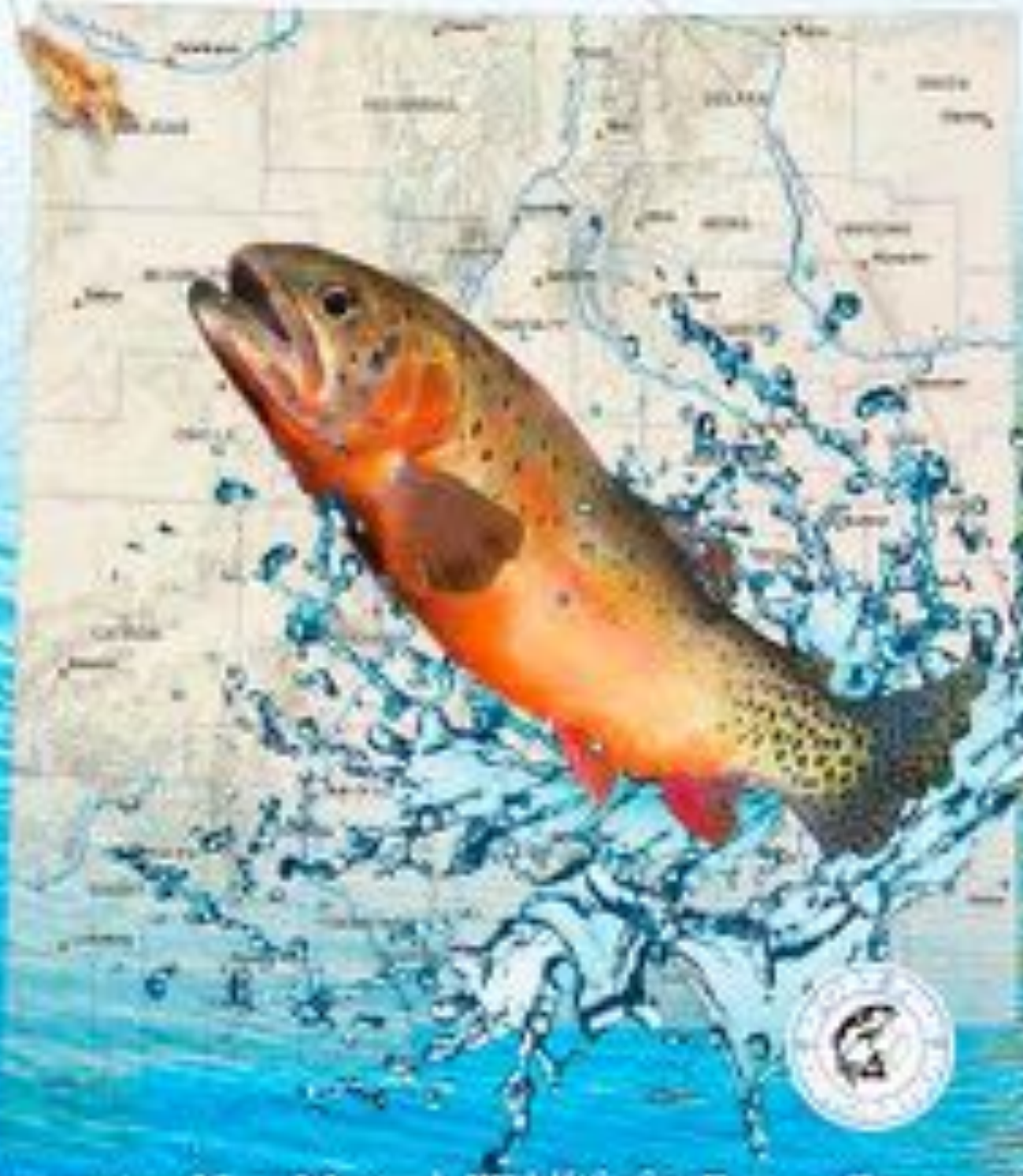
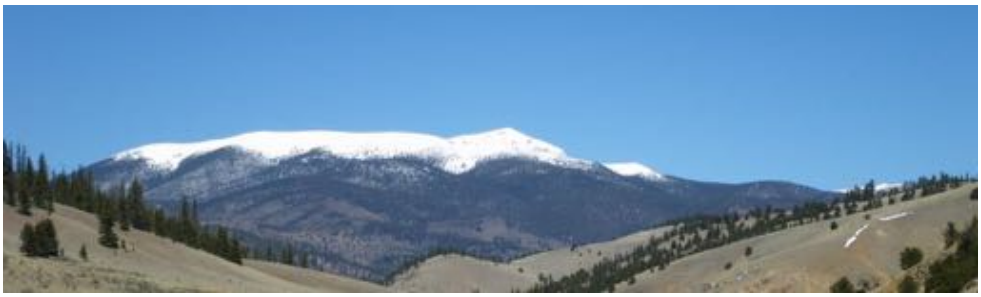
New Mexico Department of Game and Fish

2015 Statewide Fisheries Management Plan



Conserving New Mexico's Wildlife for Future Generations



Welcome to the Fisheries of New Mexico!

New Mexico offers abundant angling opportunities for the public to enjoy. We have isolated mountain lakes, montane meadow streams, the rugged Rio Grande Gorge, large reservoirs with monster striped bass or lake trout, and the list goes on and on. New Mexico also supports a unique and diverse native fish fauna. Despite this diversity and the Department's long contributions to wildlife conservation efforts, the Department has never developed a comprehensive plan which describes overarching vision for contemporary and future management for all fisheries in the state. Considering the modern challenges and conflicts within natural resource management, the Department recognized a clear need to better communicate with anglers, resource users, and the general public how we plan to manage a particular lake, stream, or river. I believe this Statewide Fisheries Management Plan does just that.

While this is the first ever plan of such comprehensive scope in New Mexico, it really is a summary of the conventional knowledge, vision, and decades of work by the Department and its partners who work to conserve our aquatic resources. Our collective knowledge and vision is now readily available to all interested individuals. By being available to the general public, this document will help to explain the "why" behind our activities.

I hope you find it useful to join the Department in conserving New Mexico's wildlife for future generations.

-Alexandra Sandoval, Director

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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, many 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 160,000 anglers spend nearly 2.4 million days fishing in New Mexico and contribute approximately $268 million to our state's economy. The New Mexico Department of Game and Fish (Department) is the 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. Population growth, resource development, habitat alteration, competing resource interests, and conflicting management directions all create programmatic challenges at a statewide level. In addition, competing species, hybridization, aquatic invasive species, illegal bait bucket introductions, and the occurrence of threatened or endangered species present challenges for management of individual waters or 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 water to ensure continued angling opportunities, 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 conservation for native fisheries. This balance will assist the continued economic and cultural vitality of the State by maintaining angling opportunities and working to recover or stabilize state or federally protected species and prevent the need for new listings. 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 has never adopted a comprehensive fisheries management plan which considers all native and non-native fishes in New Mexico. The Department's last operational plan for aquatic management and non-game management lapsed in 1995 and was limited to sportfishing. With the approval of the New Mexico State Game Commission, this plan

will provide a clearer picture of what to expect in particular waters to secure New Mexico's fishery resources now and into the future.

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 intends to identify areas which have been or may be considered for expanding sportfishing opportunities or to implement federal or state recovery plans for fishes in New Mexico. 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. 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 sole jurisdiction of tribes, nations, or pueblos. 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 pueblos, tribes and nations 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 are listed for some species to demonstrate desired population abundance or angler catch rates for some sportfisheries, where appropriate. The Department can 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 rates, 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 intentions for management within a particular water or water segment.

Overview of NMDGF 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.*). In addition, generally protected species are limited to trout, pike, catfish, striped and white bass, sunfish, black bass, walleye, and perch, typically known as game or sportfish, and hereinafter referred to as sportfish. Specific fishing regulations 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 regulation by the State Game Commission on a four year cycle with the most recent version taking effect on April 1, 2014.

The 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 Wildlife Conservation Act also prescribes a listing or delisting process, a biennial review process to evaluate species status, and drafting of state recovery plans.

NMDGF 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. The Lisboa Springs, Los Ojos, Red River, Glenwood, and Rock Lake State Hatcheries all rear rainbow trout to provide both annual and seasonal trout angling

throughout the state. The vast majority of rainbow trout produced exceed nine inches in length and are considered a “catchable” sized fish. 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 Rock Lake State Hatchery was expanded in the mid-2000s to provide warmwater rearing capabilities. Los Ojos Hatchery produces Kokanee fry to stock in large coldwater reservoirs. Warmwater species reared at the Rock Lake State Hatchery include channel catfish, largemouth bass, tiger muskie, and walleye. The Seven Springs State Hatchery is dedicated to rearing New Mexico’s state fish, the Rio Grande cutthroat trout, for conservation and angling purposes.

The Research and Management Section is divided into teams of sportfish biologists, native fish biologists, aquatic invasive species biologists, 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 invertebrates such as Gila chub, Arkansas river shiner, Texas hornshell (a freshwater mussel), and Rio Grande cutthroat trout. The Sportfish and Native Fish Programs are currently composed of ten and eight full-time permanent employees, respectively. Current aquatic invasive species intervention efforts include education and outreach, coordination of intervention efforts, seasonal watercraft inspection and decontamination, and statewide fish health testing. Coordination of aquatic invasive species intervention at the state and regional levels helps to protect New Mexico fisheries as well as significant water resources infrastructure; this is a benefit to all New Mexicans. Annual fish health testing is completed at all hatcheries to ensure they are free of significant fish pathogens such as whirling disease and bacterial kidney disease, among others. Fish health testing for wild fish is completed on select waters when fish or eggs are transported among watersheds or to a hatchery facility. 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. Together, and in coordination with federal and state agencies, non-governmental organizations, and the general public, 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 2013). Identified Objectives and Strategies specifically relevant to the Fisheries Management Division include:

- That by 2018, 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 2018 (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 2018 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 2018 (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 2018 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 2018 (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 2018, 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 rainbow trout, Rio Grande cutthroat trout, channel catfish, striped bass, and tiger muskie. Future schedules will include largemouth bass and Gila trout. 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, and maximize angler catch rates, and ensure equitable distribution of fish. Examples of such investigations include fingerling versus catchable channel catfish or rainbow trout in appropriate waters, 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 Aquatic Invasive Species and prevent the spread or negative effects from previously established fish pathogens. The introduction or spread of species such as zebra or quagga mussel, rocksnot, 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 has expended significant resources restoring and augmenting riparian habitats for the benefit of fish and wildlife. Specific examples include habitat enhancement in the San Juan River tailwater fishery, wildlife management areas on the Pecos River, and the Red River. 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 or phone surveys. Since 2000, annual phone surveys of resident and non-resident anglers have been completed. The purpose of

these surveys is to assess annual angler satisfaction, seek input on current topics, and refine existing management programs. New web-based surveys will be employed in the near future to measure annual angler effort on all waters statewide. 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 only approximately 20% preferring solely warmwater species (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 pursued over other coldwater species (http://www.wildlife.state.nm.us/fishing/fisheries-management/). Black Bass, Catfish, and Walleye are the most preferred species of warmwater fish. Since 2007, an average of 48% of anglers release most of the fish they catch compared to 34% who prefer to harvest most of their catch (Figure 2). Similar proportions of anglers pursue stocked fish compared to wild produced 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.

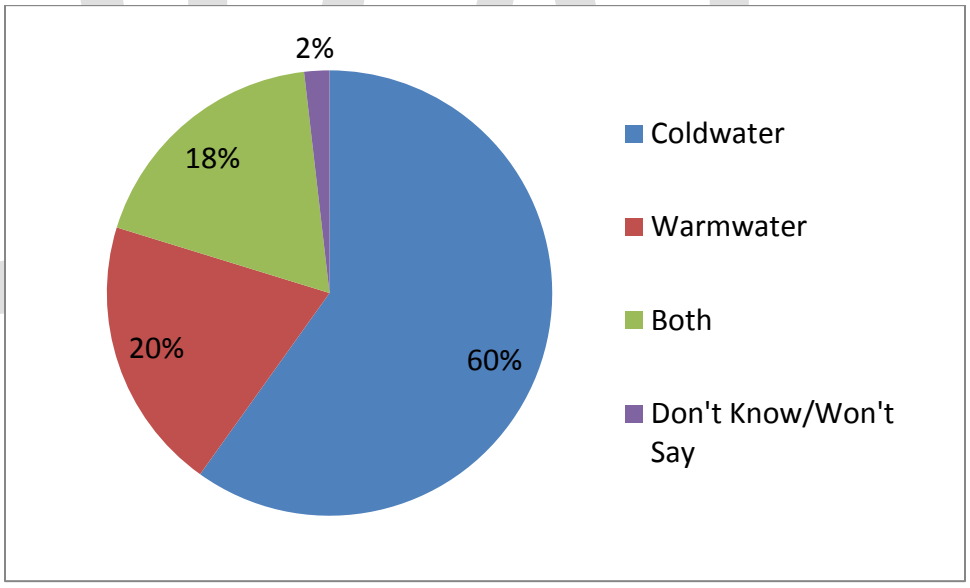

Figure 1. Summary of New Mexico angler preferences for coldwater (e.g. trout and salmon) or warmwater (bass and catfish) angling in the state. Percentages represent a mean derived from annual angler phone surveys, 2000 to 2014.

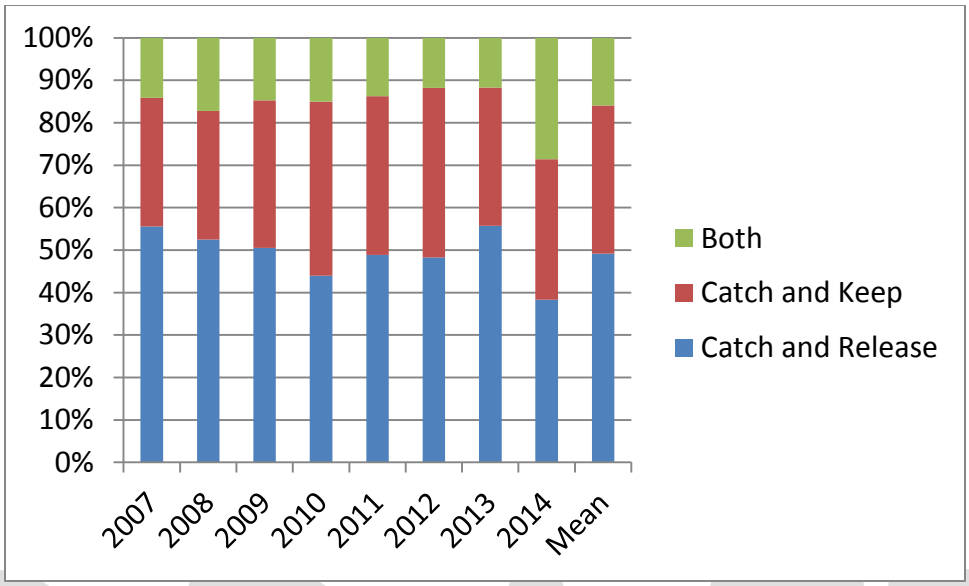

Figure 2. Summary of New Mexico angler preference for harvesting game species derived from annual angler phone surveys, 2007 to 2014.

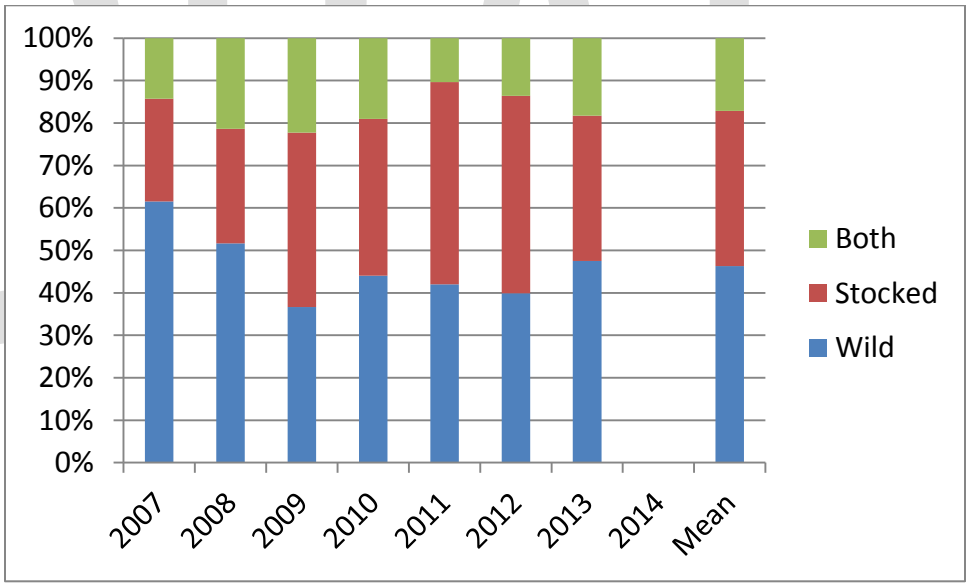

Figure 3. Summary of New Mexico angler preference for fishing in areas they expect to find stocked fish, wild fish, or both, 2007 to 2014. This question was not asked in 2014.

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. 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, aquatic invasive species outreach and education, Gila and Rio Grande cutthroat trout conservation efforts, habitat restoration, and fish health investigations.

Various federal grant programs also provide cost share opportunities for recovery efforts of sensitive, as well as state or federally threatened and endangered 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 Section 6 funding from the U.S. Fish and Wildlife Service 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 to support conservation programs for Species of Greatest Conservation Need as identified in the Department's Comprehensive Wildlife Conservation Strategy. The total amount of State Wildlife Grant funds used by the Fisheries Management Division varies annually. The Department also supports several ongoing research efforts either through State Wildlife Grant or Section 6 funds. Lastly, the Department receives funding through different Bureau of Reclamation 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 loach minnow, spikedace, Colorado pikeminnow, Arkansas River shiner, Pecos pupfish, Texas hornshell, Socorro isopod, and dozens of others throughout the state.

In 2013, funding for the Fisheries Management Division was primarily derived from Sportfish Restoration Act and the unreimbursed Department costs such as administrative support staff salary and benefits charged to the Game Protection Fund (Figure 4). State Wildlife Grant and Section 6 funding provided 8% of the Fisheries Management Division's budget. Less than 2% of the budget was supported by other federal mitigation programs.

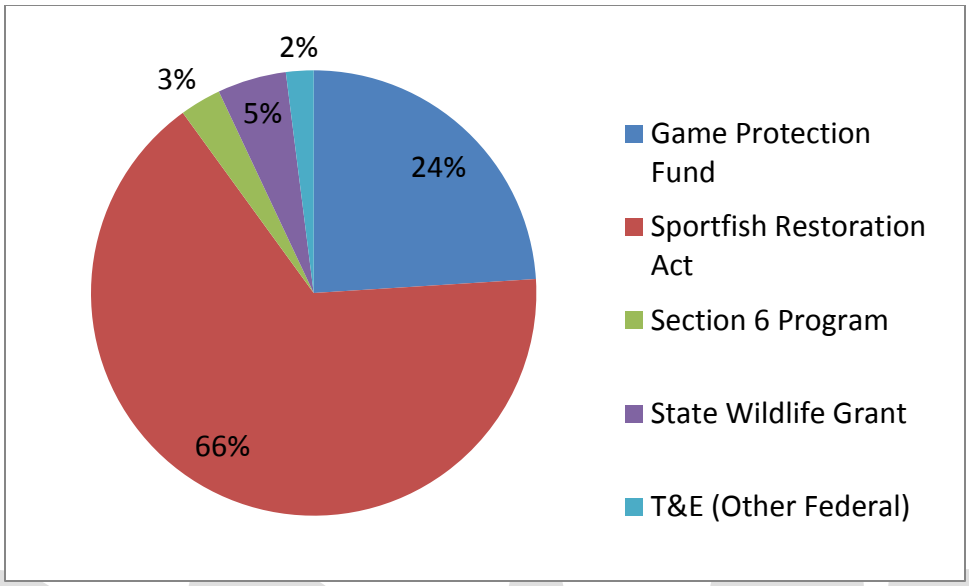

Figure 4. Summary of 2013 funding sources for the Fisheries Management Division.

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 criteria for measuring management success and possible indicators of challenges within a fishery. For some sportfish, individual demographic criteria 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. The Department's Comprehensive Wildlife Conservation Strategy (under revision to become a State Wildlife Action Plan) or other recovery plans provide in-depth information to assess the status of these species and are not restated here.

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 except the Tularosa basin. 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.

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, Big Cat Waters, and Put, Grow and Take waters. Wild catfish fisheries, which consist of channel, blue, or flathead catfish, are present in many large reservoirs and rivers around New Mexico. Some Wild populations are supplementally stocked with channel catfish. Put and Take consists of waters where catchable size channel catfish are stocked but are subject to statewide harvest regulations. Big Cat Waters, also referred to as Special Summer Catfish Waters, are small urban waters stocked with large, catchable channel catfish (approximately 17+ inches) multiple times per year (May to September) with harvest limited to two fish per day. Put, Grow and Take waters consist of medium size reservoirs stocked with small sub-catchable (6 to 8 inches in length) or fingerling (< 6 inches in length) 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. Channel catfish are acquired from other state and federal agencies, purchased from private producers, and grown at the Rock Lake State Fish Hatchery. Blue and flathead catfish are not stocked by the Department at this time.

Both Wild and Put, Grow and Take waters are typically managed with statewide bag limit of 15 fish per day. In some waters, channel catfish populations are purposefully suppressed to facilitate native species recovery (e.g., San Juan River downstream of Farmington, NM). Current suppression efforts are implemented with mechanical means (e.g., electrofishing) by recovery program and Department staff.

Management strategies for Put and Take waters and Big Cat 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 Put, Grow and Take and 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 Big Cat Waters relate to angler catch rates compared to

population statistics documented during Department monitoring efforts for Wild and Put, Grow and Take waters.

Channel Catfish Parameters:

Big Cat Waters and Put and Take

- Average angler catch rate of 0.5 fish/angler hour during stocking season (late May to early September)

Put, Grow and Take

- Catch Per Unit Effort of 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

Wild

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

Black Bass

Black bass collectively refers to a group of popular sportfish including largemouth bass, smallmouth bass, and various species or subspecies. In New Mexico, black bass include smallmouth bass, largemouth 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: the 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 lower Pecos drainage and possibly the Rio Grande drainage but have been introduced to all other basins in the state. Spotted bass were stocked into Lake Sumner and Cochiti Reservoir in the 1980s and currently exist in Lake Sumner, Brantley Reservoir, and Lake Carlsbad. 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 receive supplemental stockings when necessary and fish are available. 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. Largemouth bass populations are intermittently supplemented via stocking when fish are available. A brood population of largemouth bass is being raised at Rock Lake State Fish Hatchery but production is limited. Generally, smallmouth bass are not stocked by the Department except when obtained from other states. Spotted bass are not stocked by the Department at this time.

Statewide regulations vary for black bass among species and management direction. Harvest in all waters is limited to five fish per day. The minimum length limit for largemouth 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 Ute and Conchas Reservoirs. The purpose of this regulation is to protect fish from harvest until reaching a more desirable length.

The Department has four black bass management types: Trophy, Recreational, Low Density, and Urban Management. These management types were recently 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, for example, habitat manipulations, forage or other species management, or harvest regulations. Each parameter is used as an indicator for different aspects of overall population health and can be measured differently as indicated by the different measurement units. For example, overall abundance of bass is measured differently for Trophy waters (where overall abundance of larger fish is desired) compared to a larger proportion of the bass population in Recreational bass waters. Alternatively, parameters for recruitment are based upon the survey catch rate of Age-1 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 criteria developed for stream systems.

Trophy – 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. Management strategies will focus on promoting and protecting large fish.

Recreational - Recreational bass waters exhibit conditions for producing fish that reach legal length limits. In most instances these waters maintain self-sustaining populations, and are occasionally stocked. Management strategies will focus on maintaining suitable populations that provide satisfactory catch rates and sizes for anglers.

Low Density – Low density waters 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. Management strategies will follow statewide regulations.

Urban Management 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 Management waters.

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 bass/hour of electrofishing
- Size Structure: Proportional Stock Density between 50 and 70
- Growth: Mean length of Age-3 bass > 14 inches

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 bass/hour of electrofishing
- Size Structure: Proportional Stock Density between 40 and 60

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)

Temperate Basses

The temperate basses include striped bass and white 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 obtained from other state 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 white and striped bass are quite different due to differences in life history and “trophy” fish potential. The Department has managed the striped bass fishery at Elephant Butte Lake 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.

Striped Bass Parameters at Elephant Butte Reservoir

- Catch Per Unit Effort: 1 fish/net night
- Size Structure: Proportional Stock Density between 50 and 70

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 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 and a minimum length of 14 inches.

Walleye Parameters

- Catch Per Unit Effort: 4 fish/net night
- Size Structure: Proportional Stock Density between 40 and 60

Tiger Muskellunge and Northern Pike

Tiger muskellunge or "tiger muskie" are a sterile hybrid (i.e., cannot produce fertile offspring) 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 and a popular sport fishery has grown around the opportunity. Because tiger muskie is a sterile hybrid, the Department must continually stock them to maintain a population. Challenges with tiger muskie management include maintaining enough

tiger muskie to control unwanted fish, 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 unlimited and mandatory harvest by anglers. These regulations are intended to suppress the illegally introduced species 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 Lakes. 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 hopes to refine the balance between tiger muskie density, potential harvest, trophy fishing opportunities, and other recreational angling opportunities.

Tiger Muskie Parameters

- Density: Minimum of 4 fish/surface acre of habitat
- Unwanted Fish Density: Maintain low abundance of unwanted goldfish and white sucker in target waters

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 yellow perch, white and black crappie, and several species within the sunfish family such as bluegill and green sunfish. Active management specifically for these species is not common though 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. Where warranted, largemouth bass can be stocked to reduce sunfish density and increase growth rates. The Department does not typically rear these species at Rock Lake State Fish Hatchery but has obtained them from private or public hatcheries in the past. 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. 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 Pecos, Rio Grande, and Canadian River basins. Both species have declined considerably from their historic distribution and Gila trout are currently listed as "Threatened" under the federal Endangered Species Act and the New Mexico Wildlife Conservation Act. Colorado River cutthroat trout may have inhabited limited coldwater reaches within the San Juan drainage though are now considered extirpated from New Mexico.

Introduced species include rainbow trout, brown trout, brook trout, other subspecies of cutthroat trout, lake trout, and Kokanee. 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 Yellowstone cutthroat trout and Snake River cutthroat trout. Lake trout have been introduced to several lakes in New Mexico but currently inhabit Heron and El Vado lakes. Kokanee are inland sockeye salmon and have been introduced 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.

The Department employs three management strategies for all trout and salmon species. Management strategies include: Put and Take, Put, Grow and Take, and Wild waters. In some cases, different management strategies may be employed for different species within the same water. Put and Take trout waters involve stocking catchable (> 9 inches in length) rainbow trout to be immediately harvested by anglers especially where angler demand significantly exceeds natural production. Put and Take waters range from popular mountain streams with high angler use to large reservoirs and urban ponds. Winter Trout Waters are a subset of Put and Take trout waters where the Department stocks trout during cooler months when water temperatures are suitable for trout. 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 Rio Grande cutthroat trout are stocked. Gila trout that are surplus to recovery efforts have been stocked into select waters in the past, and the Department hopes to continue and possibly expand those efforts in the future. 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 involve stocking subcatchable (6 to 8 inches in length), fingerling or fry trout into waters with the expectation that the fish will grow to larger sizes within the receiving water. These 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 historic habitats. Waters managed as Put, Grow, and Take trout fisheries range from high mountain lakes, large coldwater reservoirs, to small streams. Kokanee, triploid rainbow trout, recreational Rio Grande cutthroat trout, and recreational Gila trout are managed as Put, Grow and Take species. 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 to Put and Take waters stocked with rainbow trout and Rio Grande cutthroat trout. 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 Quality Waters).

Wild trout waters include populations of trout that are maintained entirely via natural reproduction. Populations may be composed of a single species or include several species. Wild trout waters include rainbow trout, brook trout, brown trout, cutthroat trout, Gila trout, and lake trout. Recovery populations of Gila trout that are open to angling as well as Conservation Populations of Rio Grande cutthroat trout are also considered Wild trout waters. At this time, only two wild populations of Gila trout are open to angling in New Mexico compared to 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. Since Wild trout populations 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.

Waters managed with Special Trout Water regulations embody a set of waters with special regulations intended to manipulate the population through reduced bag limits, various length limits, and/or restrictions of allowable terminal tackle. Some Special Trout Waters are geared

towards producing trophy size trout such as the San Juan River quality waters. Special Trout Waters with prohibited harvest and limited terminal tackle (e.g. artificial lure or fly only, single barbless hook) include Gila trout recovery waters which are open to angling, select Rio Grande cutthroat trout waters, the quality waters of the San Juan River, or waters with special angling interests such as certain reaches of the Rio Guadalupe. Examples of Special Trout Waters where terminal tackle is restricted yet some harvest of larger fish is permitted include the Cimarron River and Shuree Ponds. Several waters have restrictive harvest yet any terminal tackle is permitted; in this case the regulations were created to distribute angling opportunity to more anglers. The overall success of meeting management goals for these waters depends upon the purpose of the regulations. The Department has begun to review many of the Special Trout Water regulations to determine whether the original goals were attained and whether it is appropriate to adjust existing regulations or restructure the Special Trout Water program.

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 waters and Wild populations 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 catch 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 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 criteria 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 Catch Rate: 0.5 fish/angler hour during stocking season
- Stocking Rate: Stock 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
- Age structure: Equal contribution of Age-3 and Age-4 fish in annual spawning population

Wild:

Brook Trout, Rainbow Trout, Brown Trout, Cutthroat Trout

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

Special Regulation Trout Waters:

Trophy Trout Waters

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

Quality Trout Waters

- Quality Potential: 5% of trout ≥ 12 inches
- Density: ≥ 400 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 historic levels due to a variety of factors and are protected under the New Mexico Wildlife Conservation Act or the federal Endangered Species Act. 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 White Sands pupfish or loach minnow. In some areas, there is significant interaction between conservation efforts for native fish and maintaining recreational angling for these unique native trout. The Department allocates significant resources to native fish conservation efforts for Rio Grande cutthroat trout, Gila trout, Gila River Basin native fishes, Colorado pikeminnow, and razorback sucker. Other active conservation efforts include native sucker, Texas hornshell (a native mussel), and Pecos pupfish in the lower Pecos River. The Department has proactively included species that are not currently protected by state law in ongoing projects such as Rio Grande sucker and Rio Grande chub. 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, 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.

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 in 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.

The Department is currently focusing on native trout and associated native fishes as well as native fishes in the Gila River and San Juan Basins. Department staff work specifically on native trout and native fishes in the Gila and San Juan Basins. Significant resources are also being allocated to native suckers and the Texas hornshell in the lower Pecos River Drainage. This list is certainly not exhaustive with other ongoing monitoring and conservation efforts across the state though these are the Departmental priorities for native fisheries at this time.

Gila trout is listed as threatened under the federal Endangered Species Act and the New Mexico Wildlife Conservation Act. The U.S. Fish and Wildlife Service 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 Endangered Species Act. 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). The Department plans to continue to conduct restoration

efforts including piscicide treatments, habitat protection via fish barriers, and development of angling regulations, in accordance with the recovery plan and future revisions.

Warmwater reaches of the Gila River Basin support several endemic species including the federally protected Gila chub, loach minnow, and spikedace. These species are negatively affected by non-native predators and their distribution has declined significantly from historic 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, nonnative fish removal via piscicide treatments, and habitat protection via fish barriers. The Department participates in various recovery activities for fish as described in the Colorado Basin Chub Recovery Plan, recovery plans for spikedace and loach minnow, and the Gila River Basin Native Fishes Recovery Program.

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 Endangered Species Act. The Department has been a signatory to the Rangewide Conservation Agreement for Rio Grande Cutthroat Trout since 2002 and recently signed a complimentary Conservation Strategy. 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 that described under Gila trout above. The current distribution, however, is significant enough to actively manage Rio Grande cutthroat trout through recreational stocking and angling. The Department has also included Rio Grande sucker and chub into restoration planning efforts to move towards restoring the 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 in which the Department participates. Management activities conducted as part of that program include annual monitoring, non-native fish suppression (catfish removal), and participation in the recovery program 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 other conservation plans, agreements, and state and federal recovery plans also guide Department actions for native fishes management and conservation. These include, but are not limited to:

- Colorado Basin Chub Recovery Plan (State)
- Colorado Pikeminnow Recovery Plan (Federal)
- Razorback Sucker Recovery Plan (Federal)
- Spikedace Recovery Plan (Federal)
- Loach Minnow Recovery Plan (Federal)
- Rangewide Conservation Agreement for Rio Grande Cutthroat Trout
- Gila Trout Recovery Plan (Federal)
- Conservation Agreement for Pecos Pupfish
- Conservation Agreement for White Sand Pupfish
- Conservation Agreement for Rountail Chub, Bluehead Sucker, and Flannelmouth Sucker
- Zuni Bluehead Sucker Recovery Plan (State)
- Texas Hornshell Recovery Plan (State)

Identified Priority Projects and Needs for Further Investigation and Research

Programmatic fisheries priorities include evaluation of hatchery stocking, habitat restoration, aquatic invasive species monitoring and prevention, species recovery efforts, and statewide fisheries management. Any one of these priorities could consume nearly all divisional resources considering the breadth of needs in each area. Implementation of each priority area in all waters listed in Watershed Descriptions and Fisheries Management below is impractical. As a result, the Department has identified priority projects and or topics for future consideration to serve as a guide for allocating Department resources and provides expectations for future activities. This list is not comprehensive but rather focused on realistic opportunities that could improve New Mexico's fishery resources. Actual development, approval, and implementation of projects in pursuit of these priorities will require significant input from members of the public and cooperating agencies as well as possible environmental compliance. Below are identified priority projects or topics to further refine expected activities by the Department.

Evaluation of Hatchery Stocking

Trout

- Continue to evaluate allocation of catchable and subcatchable trout
- Investigate potential for reducing or eliminating stocking of catchable trout from some river systems which support wild trout and reallocate to higher use systems

- Continue to investigate areas where native trout, surplus to recovery efforts, can be used to increase angling opportunities for native trout
- Monitor and adjust Kokanee stocking strategies in accordance with varying reservoir levels and differing spawning success.

Catfish

- Investigate use of subcatchable and fingerling channel catfish instead of catchable catfish, where appropriate

Walleye

- Evaluate the benefit of utilizing fingerling (advanced fry) walleye in certain lakes to improve walleye fisheries.

Habitat Restoration

- 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.
- Design and implement instream and riparian habitat restoration efforts on non-Commission owned properties.

Aquatic Invasive Species

- Coordinate and conduct intervention efforts to prevent the introduction of zebra and quagga mussels into New Mexico waters
- Maintain current understanding of the distribution of fish pathogens in waters and hatcheries in New Mexico

Species Recovery Efforts

Native Trout Restoration

- Rio Grande cutthroat trout restoration in the Rio Costilla and Rio las Animas watersheds (ongoing) as well as the Pecos River watershed (future)
- Gila trout restoration in the Gila River Basin (ongoing)
- Install fish migration barriers used to protect restored populations
- Investigate potential use and effects of supermale 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.

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.
- Incorporate native trout into restoration efforts to compliment coldwater reaches and other sensitive or listed taxa recovery efforts, where possible

San Juan River Basin Fishes

- Investigate the importance of roundtail chub for successful recovery of Colorado pikeminnow
- Investigate potential use and effects of supermale fish to aid non-native fish removal efforts

Lower Pecos Aquatics

- Texas hornshell mussel and gray redhorse repatriation to the Delaware River (ongoing)
- Protection of Pecos pupfish from further expansion of sheepshead minnow in New Mexico

Statewide Fisheries Management

- Investigate and enact regulations to enhance black bass angling opportunities including trophy waters
- Evaluate and consider amendments to Special Trout Water regulations throughout the state
- Investigate optimal densities of tiger muskie that suppress unwanted fish populations yet provide trophy angling opportunities

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. Activities such as monitoring or restoration will be focused on the focal species identified with potential community benefits for others when possible. 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. Suppression refers to actively removing unwanted fish via angling regulations or mechanical means such as electrofishing or nets. 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 (Appendix I) which may be modified over time. Stocking rates that vary by year or water levels is 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 ac (4.4 million ha) (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 Vermejo, Cimarron, Mora, and Conchas 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 back 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, Conchas Dam (constructed 1938) and Ute Dam on the Canadian River (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 walleye, smallmouth bass, and largemouth bass.

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 Eagle Nest, Cimarron River, Lake Maloya, and Morphy Lake. Primary sportfish in warmwater habitats include Ute and Conchas Lake. 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 Springer Lake and Morphy Lake.

Only one federally listed fish and four state listed fish inhabit the New Mexico reaches of the Canadian River watershed. Arkansas River shiner, federally threatened, inhabits the reach below Ute Dam to the stateline. The state endangered southern redbelly dace inhabit a small reach of Coyote Creek and is a disjunct population from other populations in the Mississippi River drainage. Other state threatened species are the suckermouth minnow and peppered chub. Given the lack of protected species in the watershed, there is limited conflict among sportfish and native fish management at this time. 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	Central stoneroller present in this reach.
	Creek Chub	Native Fish	Creek chub present in this reach.
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. The entire watershed is privately owned. Numerous Class A Lakes are managed for recreational trout angling on Vermejo Park Ranch.
	Central Stoneroller	Native Fish	Central stoneroller present in this reach.
	Creek Chub	Native Fish	Creek chub present in this reach.
	Brook Trout	Suppression	Periodically remove brook trout in collaboration with private landowner to maintain the Rio Grande cutthroat trout population. Unlimited brook trout harvest regulation.
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, Grow and Take	Stock channel catfish every 3rd year. Monitor to assess growth rate and recruitment.
	Yellow Perch	Wild	Known to grow large yellow perch. 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 from other sources 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, Grow and Take	Stock fingerling channel catfish every 3rd year. Monitor to assess growth rate and recruitment.
	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 from other sources when available during drought periods.
	Walleye	Put, Grow and Take	Stock walleye at 500 fry/surface acre. Actual stocking varies with reservoir elevation.
Maxwell Lake 14	Channel Catfish	Put, Grow and Take	Stock channel catfish. 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 from other sources when available during drought periods.
	Walleye	Put, Grow and Take	Stock walleye at 500 fry/surface acre. Actual stocking varies with reservoir elevation.
Laguna Madre	Channel Catfish	Put, Grow and Take	Stock channel catfish. 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 from other sources when available during drought periods.
	Walleye	Put, Grow and Take	Stock walleye at 500 fry/surface acre. Actual stocking varies with reservoir elevation.

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 (one trout, > 16 inches, artificial fly or lure, single, barbless hook) from east end of Tolby Campground downstream 1.4 miles to the first Highway 64 bridge. Investigate effectiveness of Special Trout Water regulation and alternatives.
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	Central stoneroller present in this reach. Significant portions of this area are on private land.
	Creek Chub	Native Fish	Creek chub present in this reach.
Eagle Nest Lake	Triploid Rainbow Trout	Put, Grow and Take	Stock fingerling triploid rainbow trout. Consistently monitor to document effects of northern pike.
	Kokanee	Put, Grow and Take	Stock fry Kokanee. Consistently monitor to document effects of northern pike.
	Yellow Perch	Wild	Yellow perch source for transplants to other waters.

Management Direction for HUC 11080001 Canadian Headwaters

Water	Fish Species	Management Type	Management Direction
	Northern Pike	Suppression	Unlimited and mandatory harvest on northern pike to manage as unwanted species. Illegally introduced into the lake and could negatively affect trout and salmon fishery.
Springer Lake	Channel catfish	Put, Grow and Take	Stock fingerling channel catfish annually. Monitor to assess growth rate and recruitment.
	Northern Pike	Wild	Maintain regulations to support northern pike fishery.
	Largemouth Bass	Wild/Supplemental stocking	Manage as Low Density Bass water and maintain statewide bass regulations. Supplement largemouth bass from other sources as necessary during drought periods.
Ponil Creek and Tributaries	Trout	Wild	Maintain regulations to support angling for wild trout.
	Creek Chub	Native Fish	Creek chub present in this reach.
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 (catch and release, artificial fly or lure, single, barbless hook).
	Creek Chub	Native Fish	Creek chub present in this reach.
Rayado Creek	Creek Chub	Native Fish	Creek chub present in this reach. Trout present in headwaters on Philmont Scout Ranch.
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 (two fish > 15 inches, artificial fly or lure, single barbless hook). One pond reserved for anglers under 12 years of age.
Middle Ponil Creek (Headwaters downstream to Shuree Creek)	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande cutthroat trout.
North Ponil Creek	Rio Grande Cutthroat Trout	Native Fish	Thermal barrier present at Seally Canyon confluence. Core Conservation Population of Rio Grande cutthroat trout present from McCrystal Creek downstream to FS Road 1950.
	Creek Chub	Native Fish	Creek chub present in this reach.

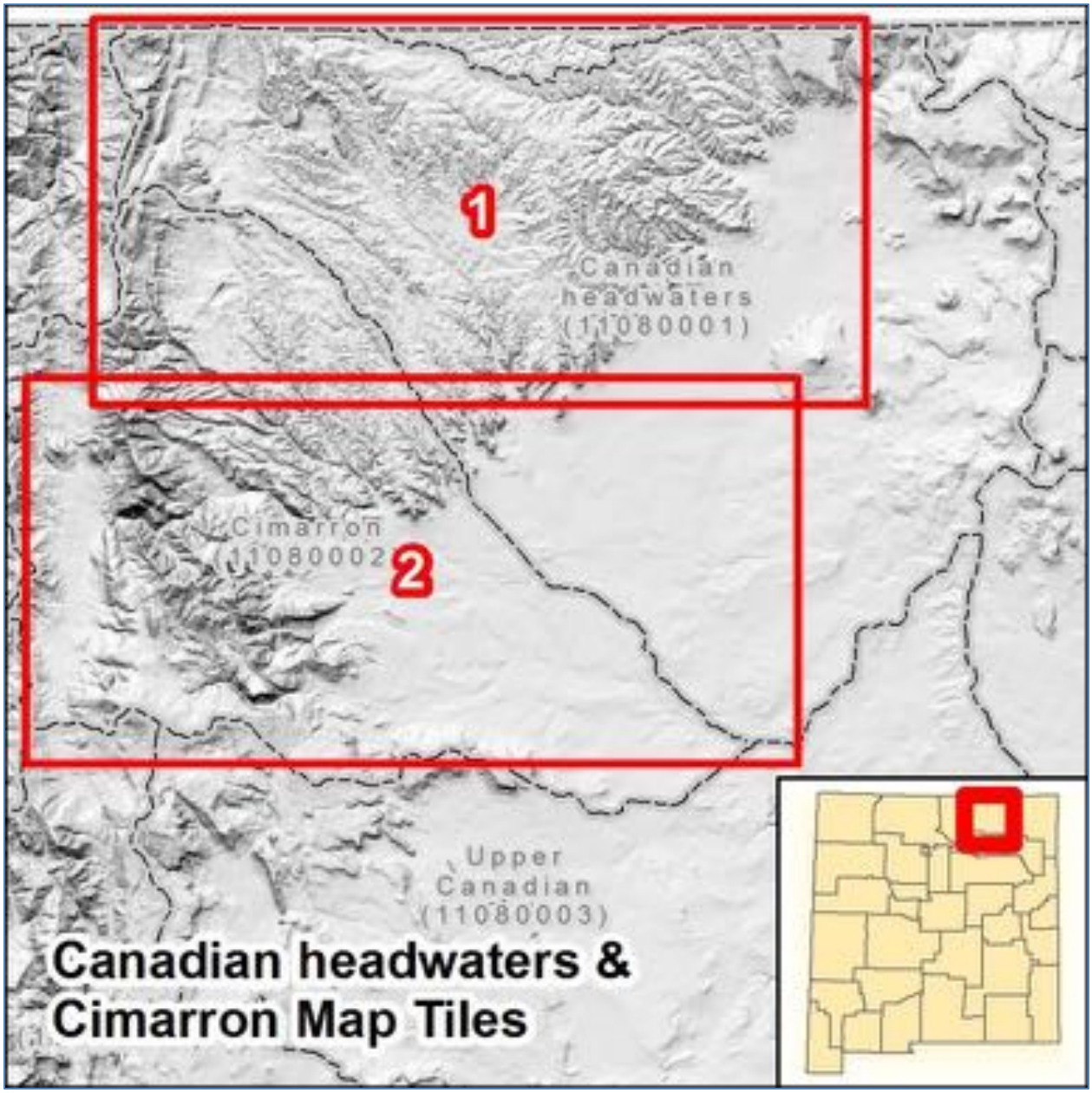

Figure 5. Canadian Headwaders and Cimarron Map Tiles

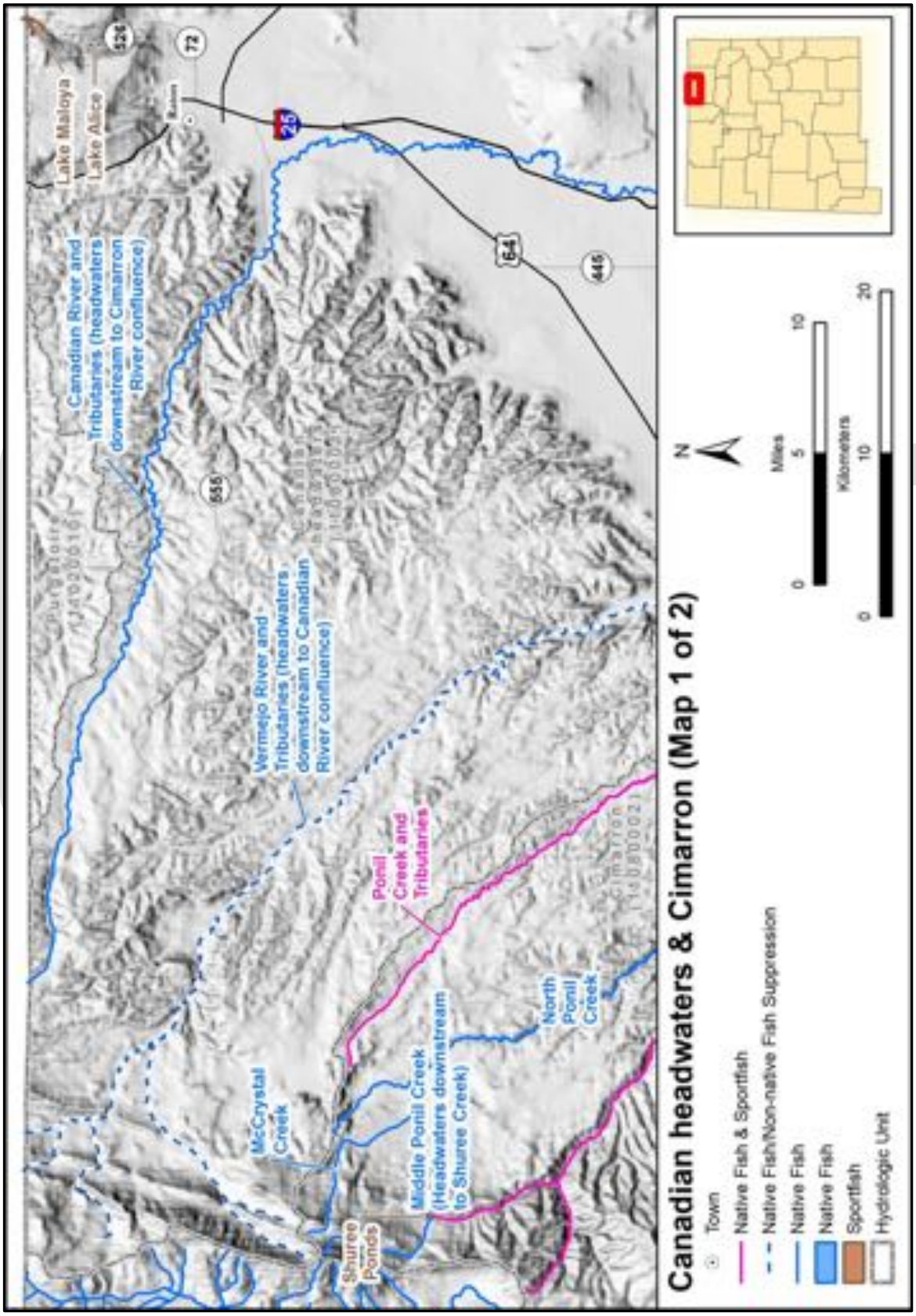

Figure 6. Canadian headwaters and Cimarron (Map 1 of 2)

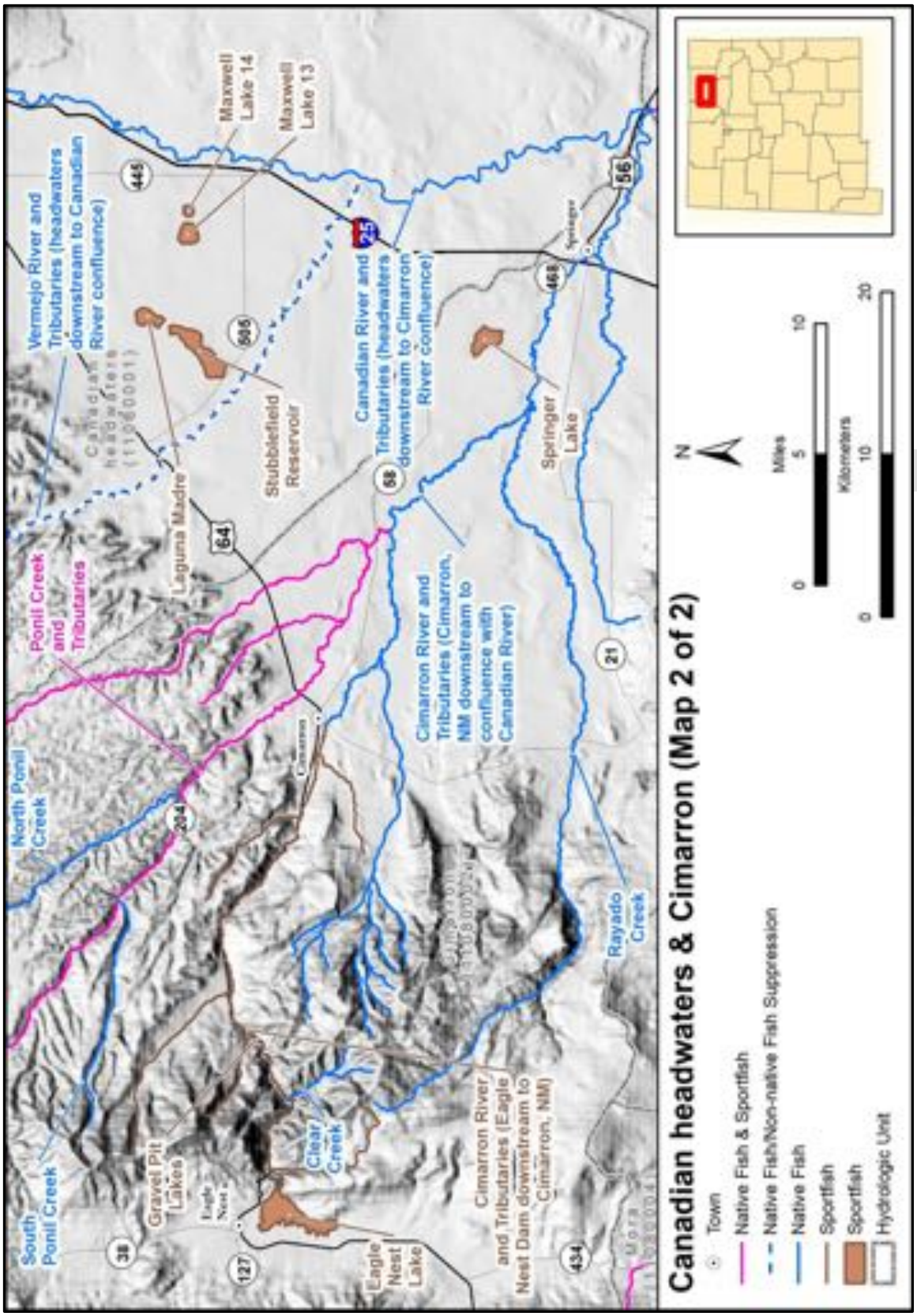

Figure 7. Canadian headwaters and Cimarron (Map 2 of 2)

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	Sand shiner present in this reach.
	Suckermouth Minnow	Native Fish	Suckermouth minnow present in this reach.
Ocate Creek and headwaters	Brown Trout	Wild	Almost entirely on private land. Maintain regulations to support angling for wild trout.
	Creek Chub	Native Fish	Creek chub present in this reach.
	Central Stoneroller	Native Fish	Central stoneroller present in this reach.
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	Investigate the potential for stocking walleye in the future.
Conchas Lake	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. 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.

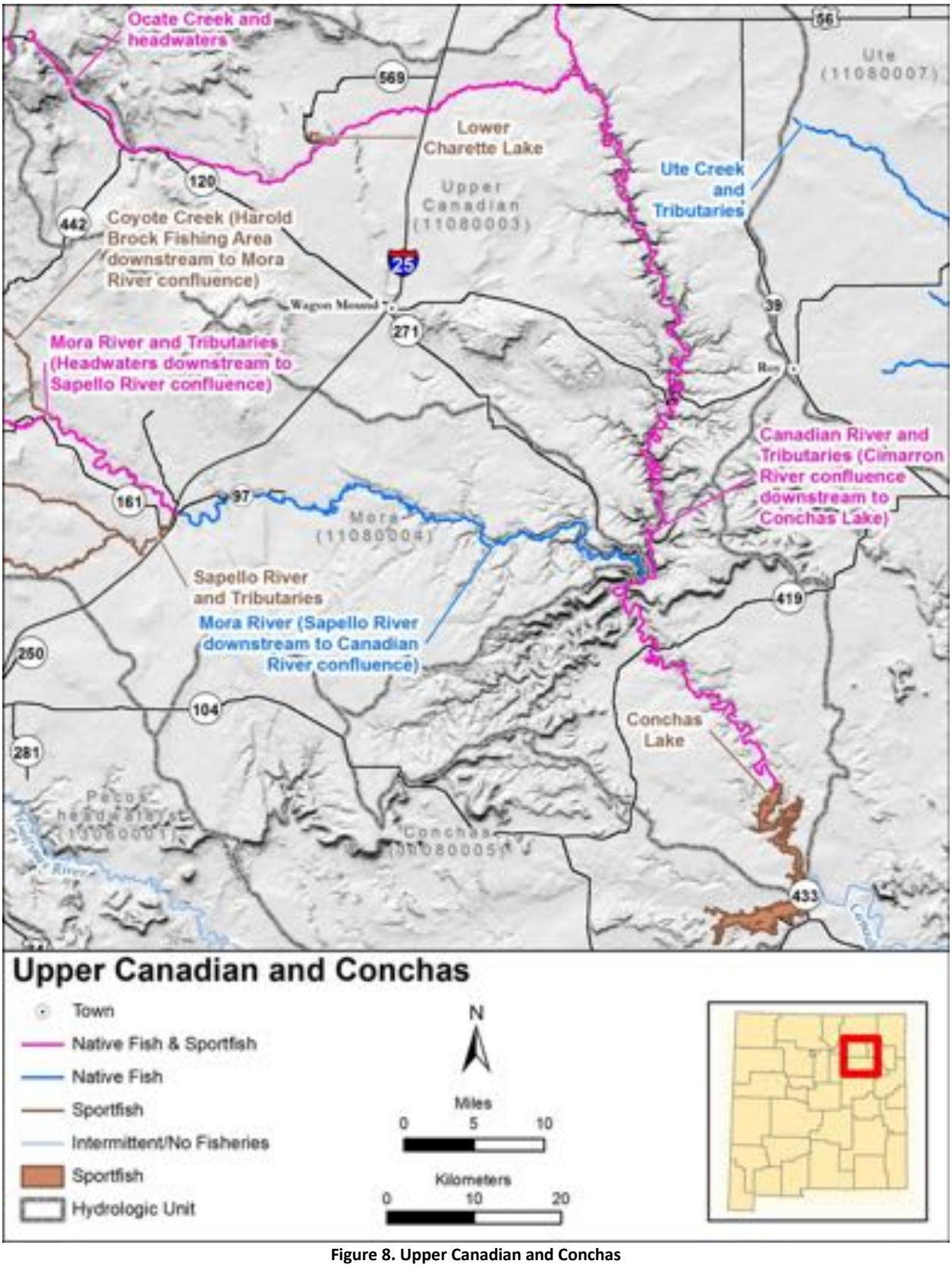

Figure 8. Upper Canadian and Conchas

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.
	Brown Trout	Suppression	Periodically remove brown trout to maintain the Rio Grande cutthroat trout population.
Mora River and Tributaries (Headwaters downstream to Sapello River confluence)	Brown Trout	Wild	Predominantly on private land with the exception of extreme headwaters. Maintain regulations to support angling for wild trout.
	Central Stoneroller	Native Fish	Central stoneroller present in this reach.
	Creek Chub	Native Fish	Creek chub present in this reach.
	Sand Shiner	Native Fish	Sand shiner present in this reach.
Sapello River and Tributaries	Brown Trout	Wild	Maintain regulations to support angling for wild trout.
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.
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.

Management Direction for HUC 11080004 Mora			
Water	**Fish Species**	**Management Type**	**Management Direction**
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	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.

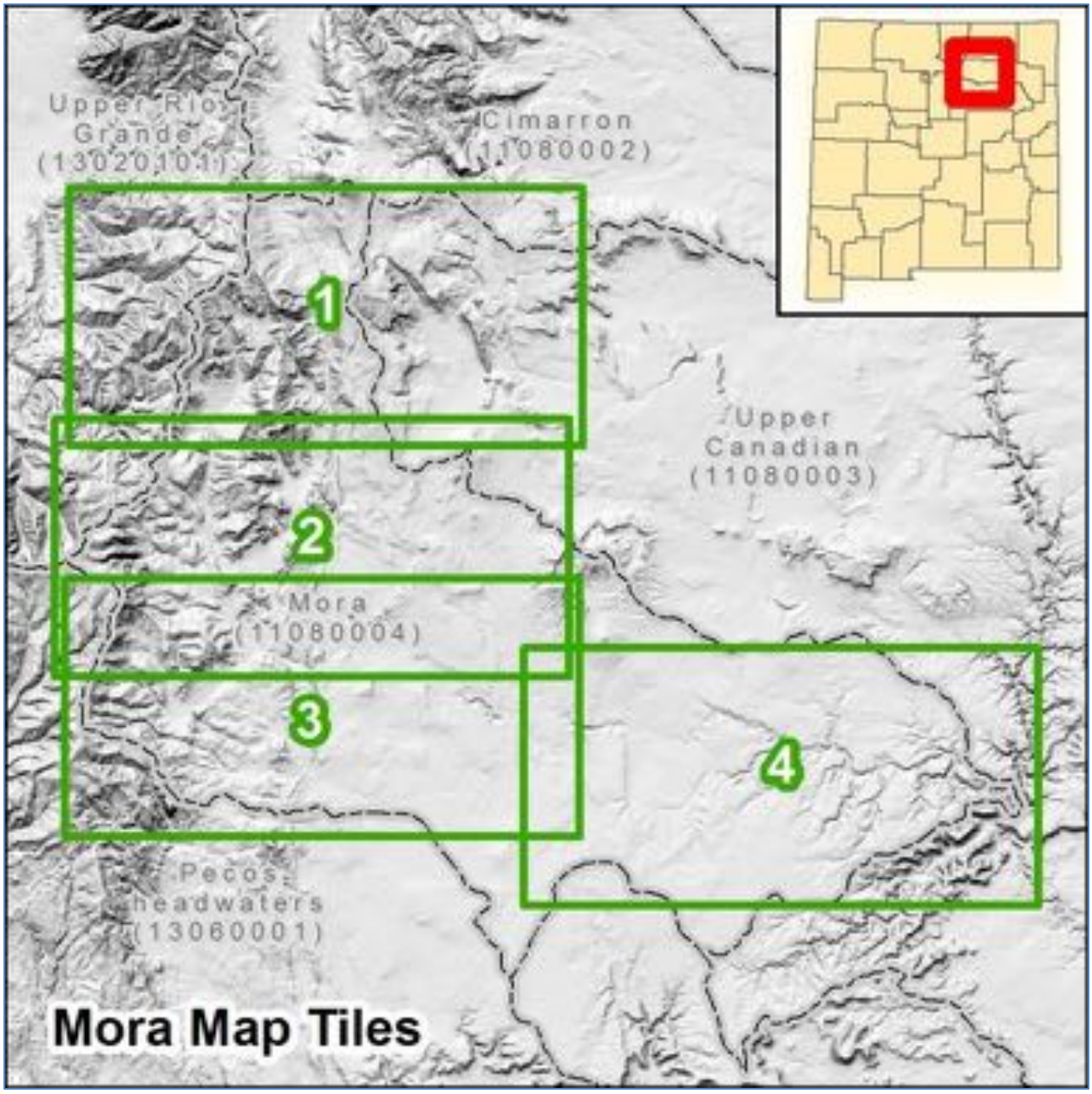

Figure 9. Mora Map Tiles

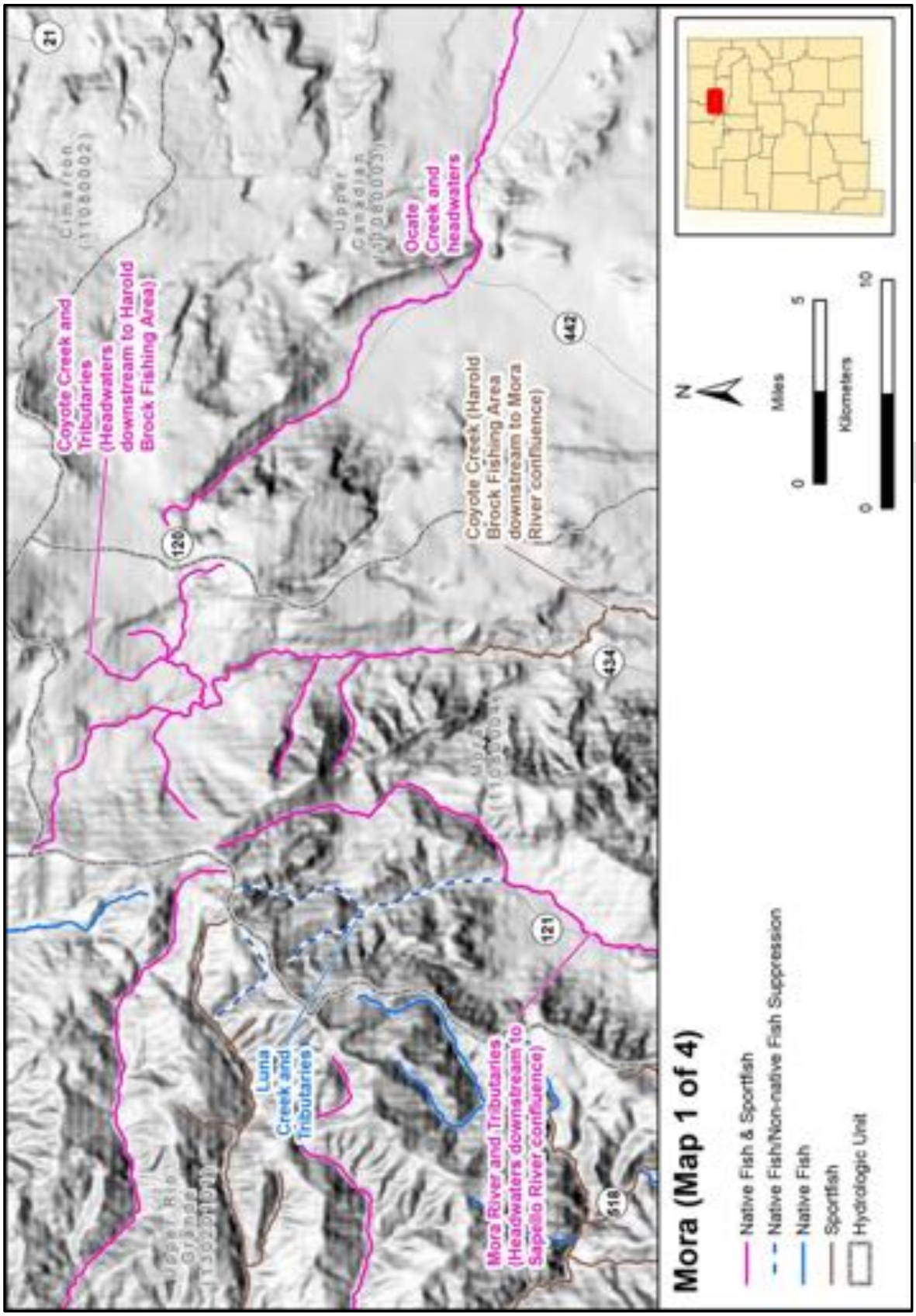

Figure 10. Mora (Map 1 of 4)

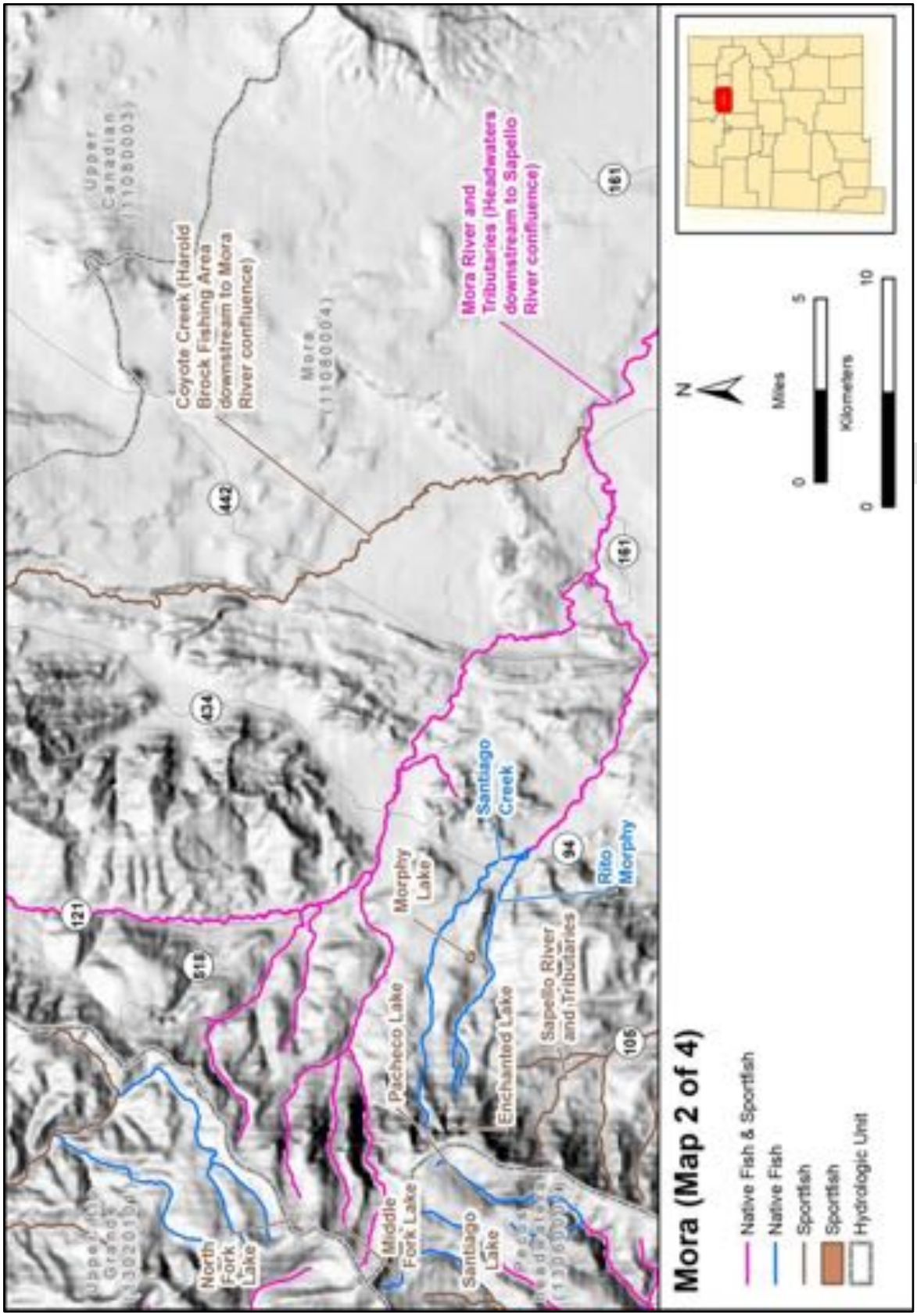

Figure 11. Mora (Map 2 of 4)

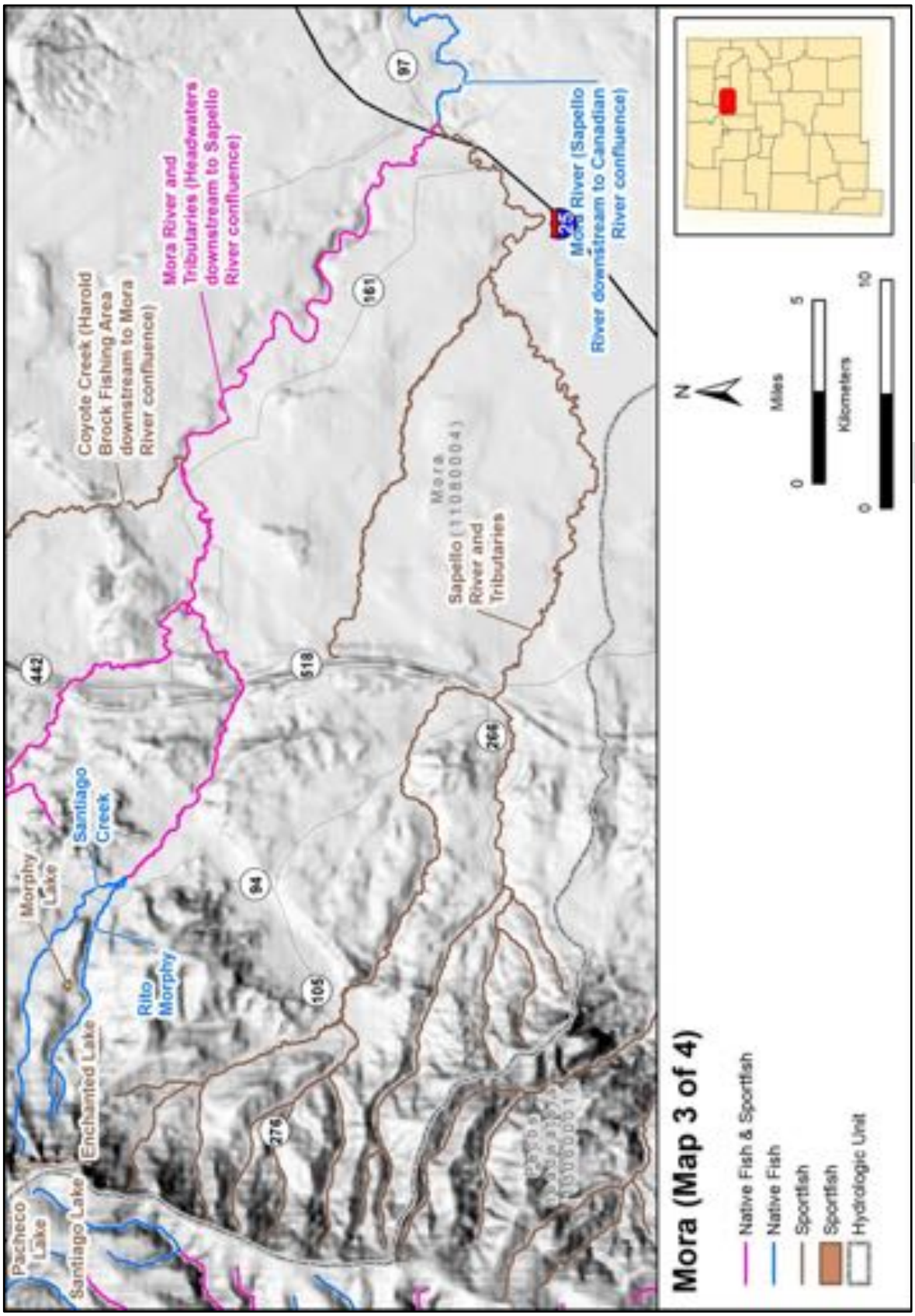

Figure 12. Mora (Map 3 of 4)

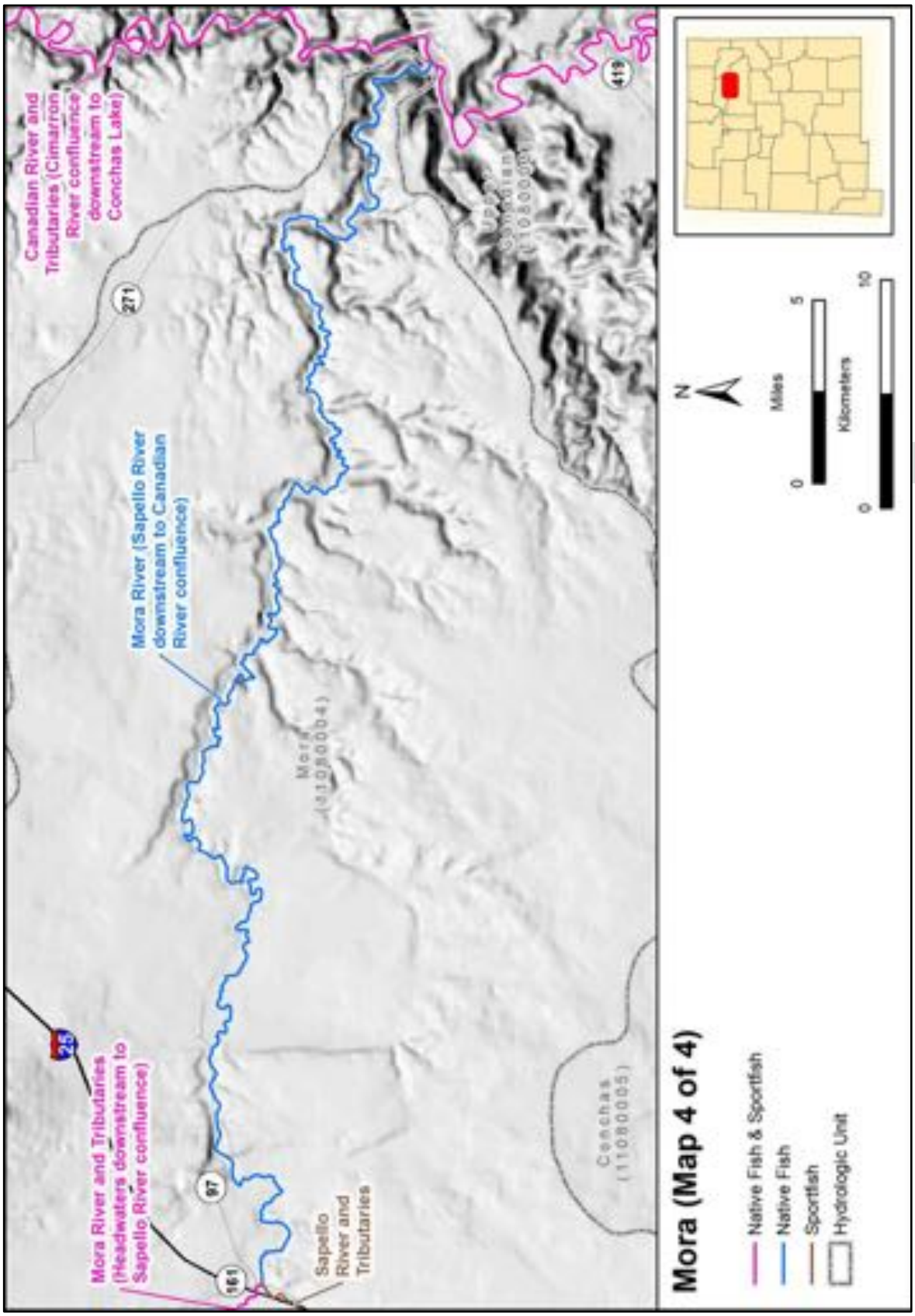

Figure 13. Mora (Map 4 of 4)

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	Sand shiner present in this reach.
	Suckermouth Minnow	Native Fish	Suckermouth minnow present in this reach.
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 fry 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	Only known distribution of Arkansas River shiner in New Mexico.
	Peppered Chub	Native Fish	Only known distribution of peppered chub in New Mexico.
	Plains Minnow	Native Fish	Plains minnow are present in this reach.

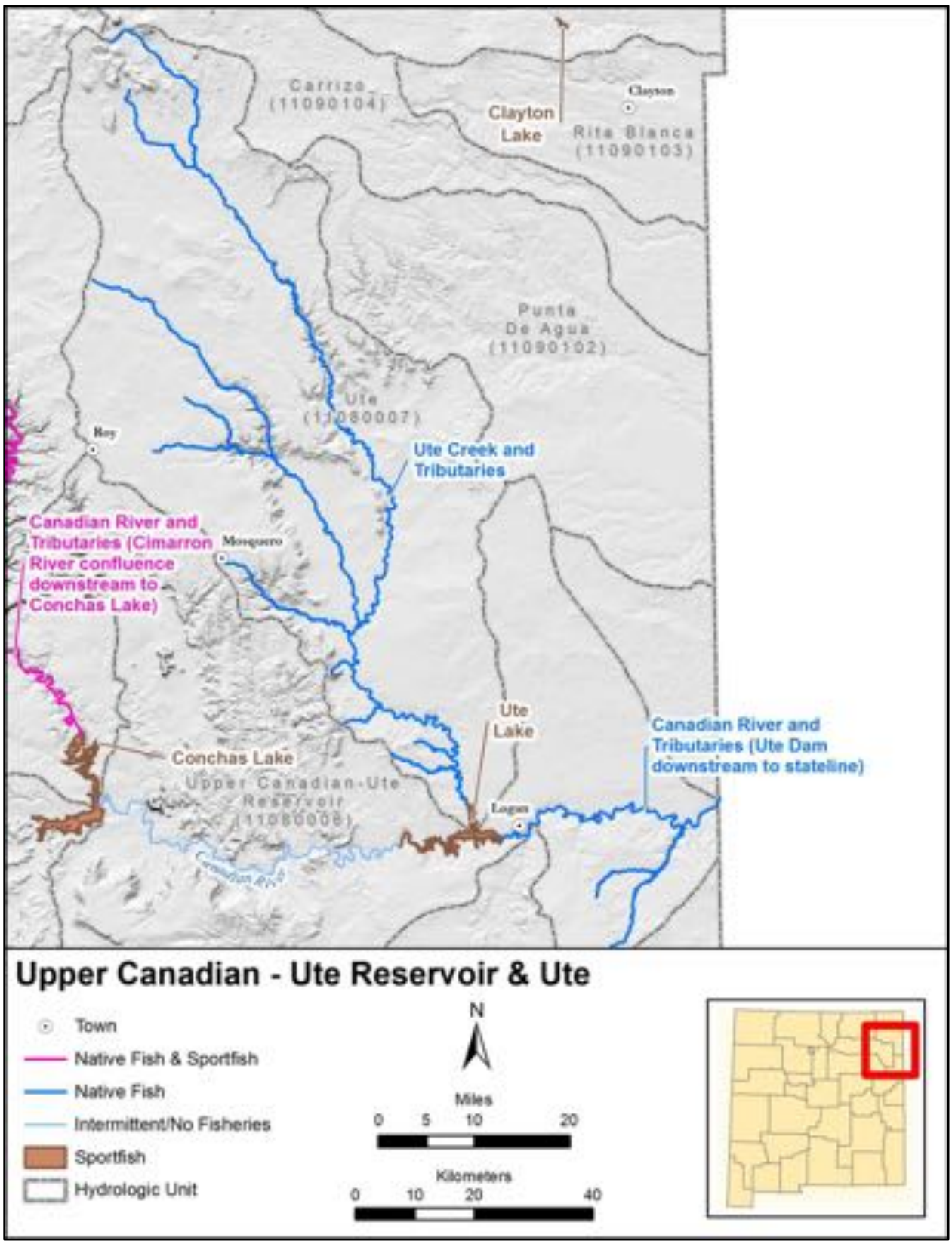

Figure 14. Upper Canadian - Ute Reservoir and Ute

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	Central stoneroller present in this reach.
Clayton Lake	Walleye	Put, Grow and Take	Stock walleye at 100 advanced fry/surface acre. Actual stocking varies with reservoir elevation. Brood source for walleye.
	Largemouth Bass	Wild/Supplemental stocking	Manage as Trophy Bass water and investigate regulations to attain trophy potential.
	Channel Catfish	Put, Grow and Take	Stock sub-adult channel catfish annually. Monitor to assess growth rate and recruitment.
	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout.
	Flathead Catfish	Wild	Investigate transplanting flathead catfish to control bullhead population.

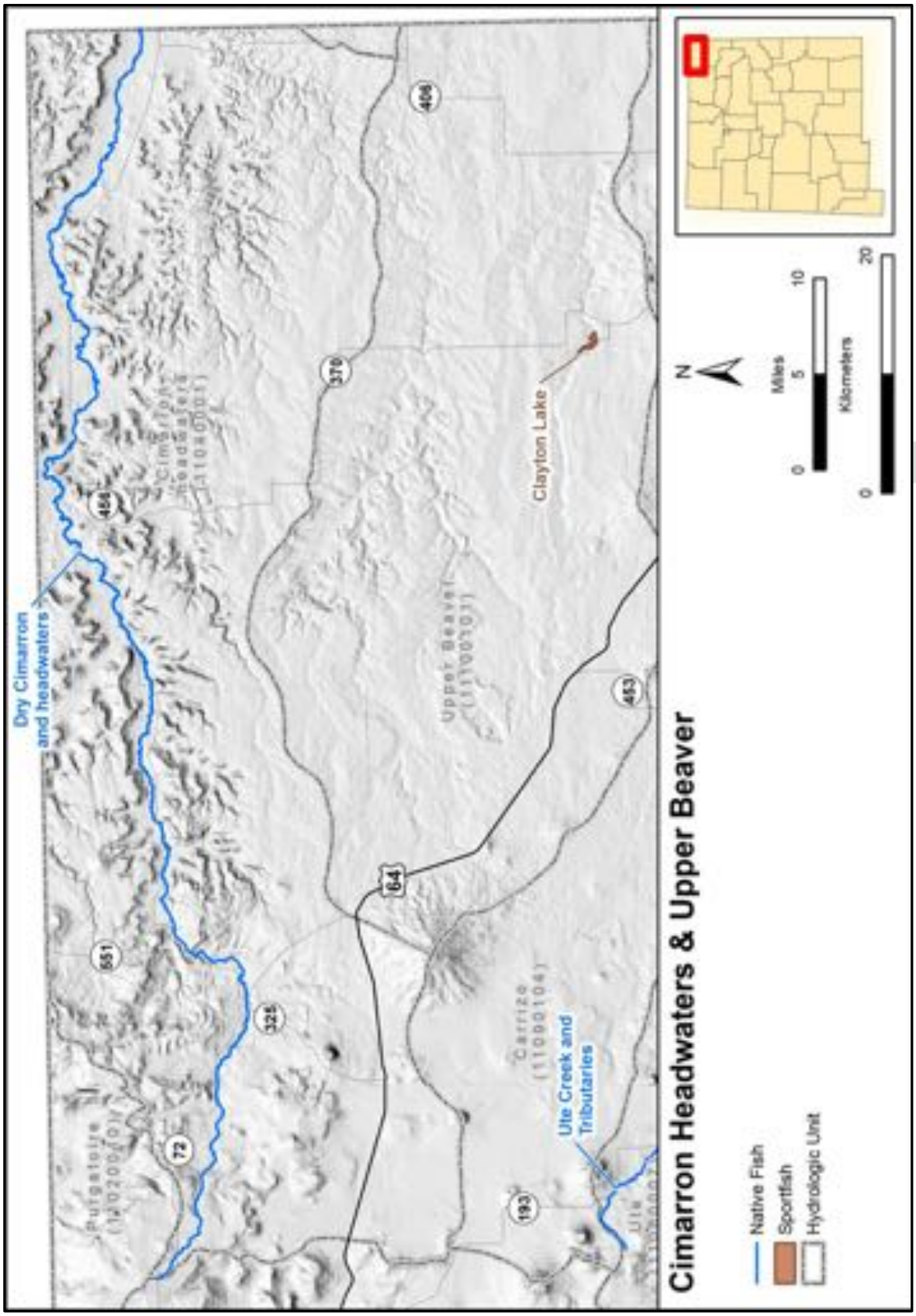

Figure 15. Cimarron Headwaters and Upper Beaver

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	Big Cat Water - Stock catchable channel catfish from May to September. Maintain 2 fish daily bag limit.
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout from November to March.
Ned Houk Ponds	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish from May to September. Maintain 2 fish daily bag limit.
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout from November to March.
Oasis Park Lake	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish from May to September. Maintain 2 fish daily bag limit.
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout from November to March.
	Sunfish	Suppression	Stock and maintain largemouth bass to control overpopulated sunfish population.
Dennis Chavez Pond	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish from May to September. Maintain 2 fish daily bag limit.
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout from November to March.
	Sunfish	Suppression	Stock and maintain largemouth bass to control overpopulated sunfish populations.

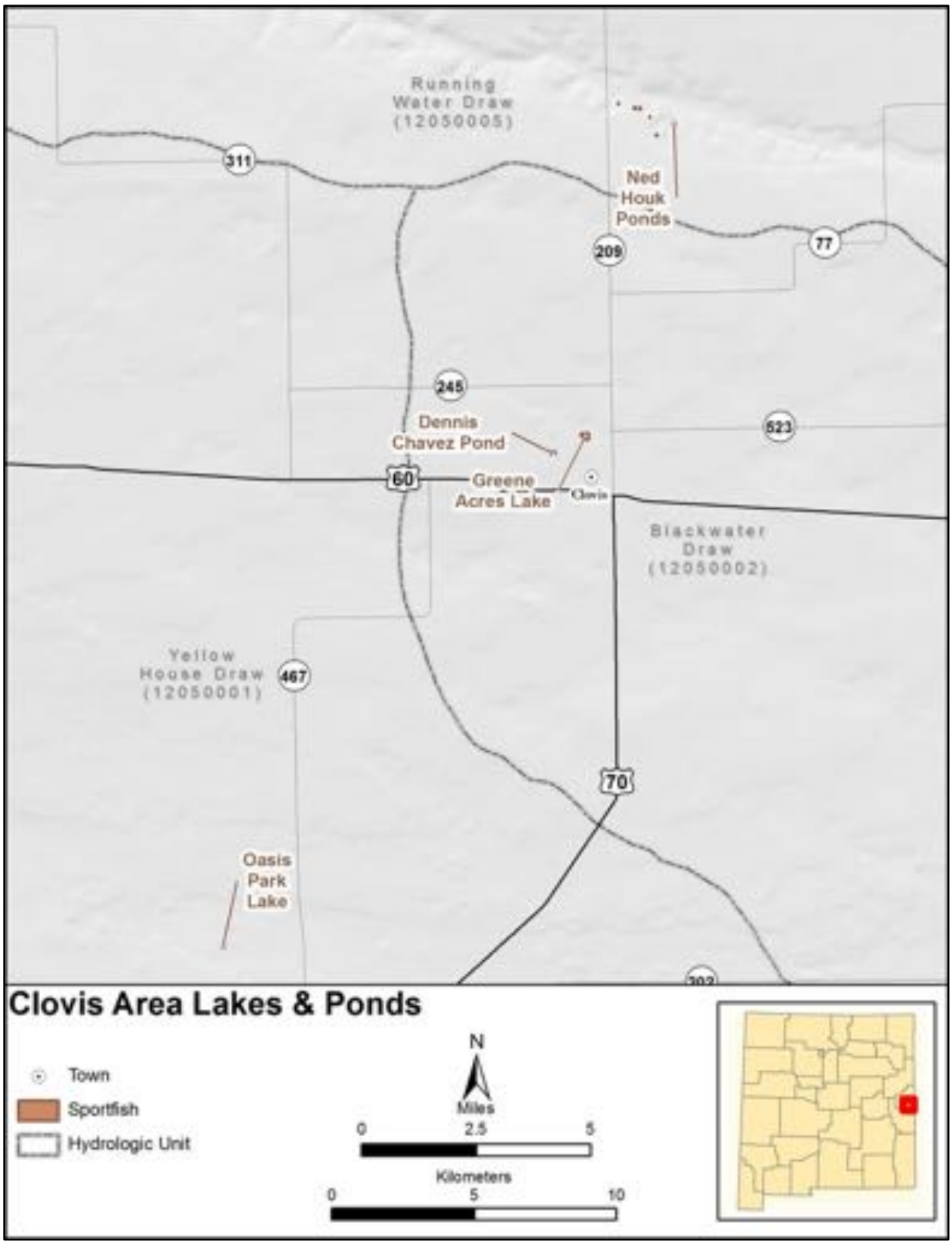

Figure 16. Clovis Area Lakes and Ponds

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 occurs 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 Rangewide Conservation Strategy for Rio Grande Cutthroat Trout. 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 Reservoir. Pecos pupfish inhabit multiple locations in the lower Pecos including waters on the Bottomless Lakes Sate Park. Gray redhorse and Texas hornshell, a native mussel, occupy the Black River and the Department is attempting to transplant both species to the Delaware River. Golden algae has also negatively affected native fish within the Pecos River particularly downstream of Brantley Reservoir.

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 (catch and release, artificial fly or lure, single, barbless hook).
Pecos River and Tributaries (headwaters downstream to Cowles)	Brown Trout	Wild	Occasional population monitoring per standardized methods.
	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 and Tributaries	Brown Trout	Wild	Maintain regulations to support angling for wild trout. Special Trout Water regulation in Doctor Creek (catch and release, artificial fly or lure, single barbless hook) from 0.25 miles upstream of confluence with Holy Ghost Creek to headwaters.
	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 (Holy Ghost Campground downstream to Pecos River confluence)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout. Forest Service currently issuing seasonal closures due to Tres Lagunas fie (2013) and unstable slopes. May need to reassess stocking strategy during closures.
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 in the Rio Valdez (catch and release only, artificial fly or lure, single barbless hook) from 0.25 mi. below Smith Cabin to headwaters.
Rio Mora Headwaters	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
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.
	Brown Trout	Suppression	Investigate regulations to help suppress brown trout in the Rito del Padre drainage.
Dalton Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande cutthroat trout.
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 (catch and release, artificial fly or lure, single, barbless hook) from waterfalls 0.25 miles downstream of Highway 63 crossing to headwaters.
Cowles Ponds (Mt. View Ponds)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout.
Panchuela Creek and Tributaries	Brown Trout	Wild	Maintain regulations to support angling for wild trout. Conservation Population of Rio Grande cutthroat trout persists in Cave Creek. Other species of trout such as brook trout are present in the watershed.
	Brook 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.
Rio Mora adjacent to Mora Campground	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout.

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

Water	Fish Species	Management Type	Management Direction
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.
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.
Pecos Baldy Lake	Rio Grande Cutthroat Trout	Put, Grow and Take	Stock periodically with Pecos strain Rio Grande cutthroat trout, as available.
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 in two reaches (two trout, >12 inches, artificial fly or lure with single, barbless hook) in the box canyon 0.5 miles above the confluence with the Mora River and upstream 1.0 mile to 0.25 miles below Cowles Bridge. Investigate the effectiveness of the Special Trout Water regulations. Other species of trout exist in tributaries though the predominant species in brown trout. Maintain regulations to support angling for wild trout.

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

Water	Fish Species	Management Type	Management Direction
Cow Creek and Tributaries	Trout	Wild	Brown, brook, 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	Rio Grande chub are abundant throughout this reach.
Pecos River (Interstate 25 downstream to Santa Rosa Lake)	Rio Grande Chub	Native Fish	Rio Grande chub are abundant in this reach.
	Flathead Chub	Native Fish	Flathead chub are abundant in this reach.
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout between November and March within Villanueva State Park.
	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish between May and September within Villanueva State Park. Maintain 2 fish daily bag limit.
Gallinas Creek (River) and Tributaries (Headwaters downstream to Interstate 25)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout.

Management Direction for HUC 13060001 Pecos Headwaters – Headwaters to Santa Rosa Lake			
Water	**Fish Species**	**Management Type**	**Management Direction**
	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, Grow and Take	Stock fingerling and catchable triploid rainbow trout. Investigate effectiveness of fingerling stocking strategy.
Harris Lake	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout.
Tecolote Creek (Headwaters downstream to confluence with Falls Creek)	Trout	Wild	Brown, brook and cutthroat trout are present in different reaches of this watershed. Maintain regulations to support angling for wild trout.

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

Water	Fish Species	Management Type	Management Direction
Tecolote Creek (Falls Creek confluence downstream to Pecos River)	N/A	N/A	Limited information is available about the status of this reach.
El Rito Creek (Santa Rosa)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout.
	Roundnose Minnow	Native Fish	Roundnose minnow are present in this reach.
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.
Blue Hole Park Ponds	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish between May and September. Maintain 2 fish daily bag limit.
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout from September to May.
Tres Lagunas	N/A	N/A	Often dry. Some interest from the City of Santa Rosa in stocking but no current plans in place.

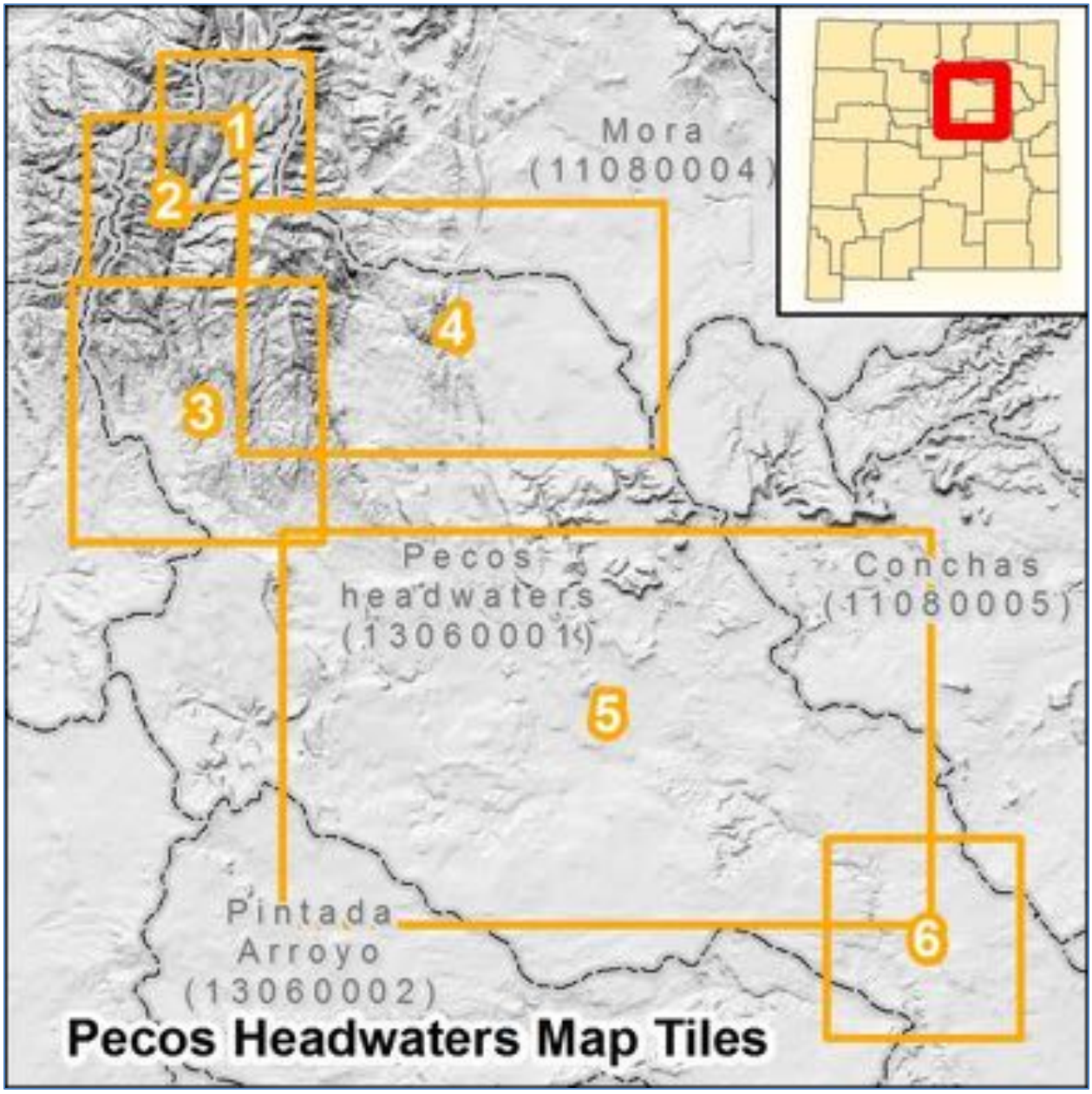

Figure 17. Pecos Headwaters Map Tiles

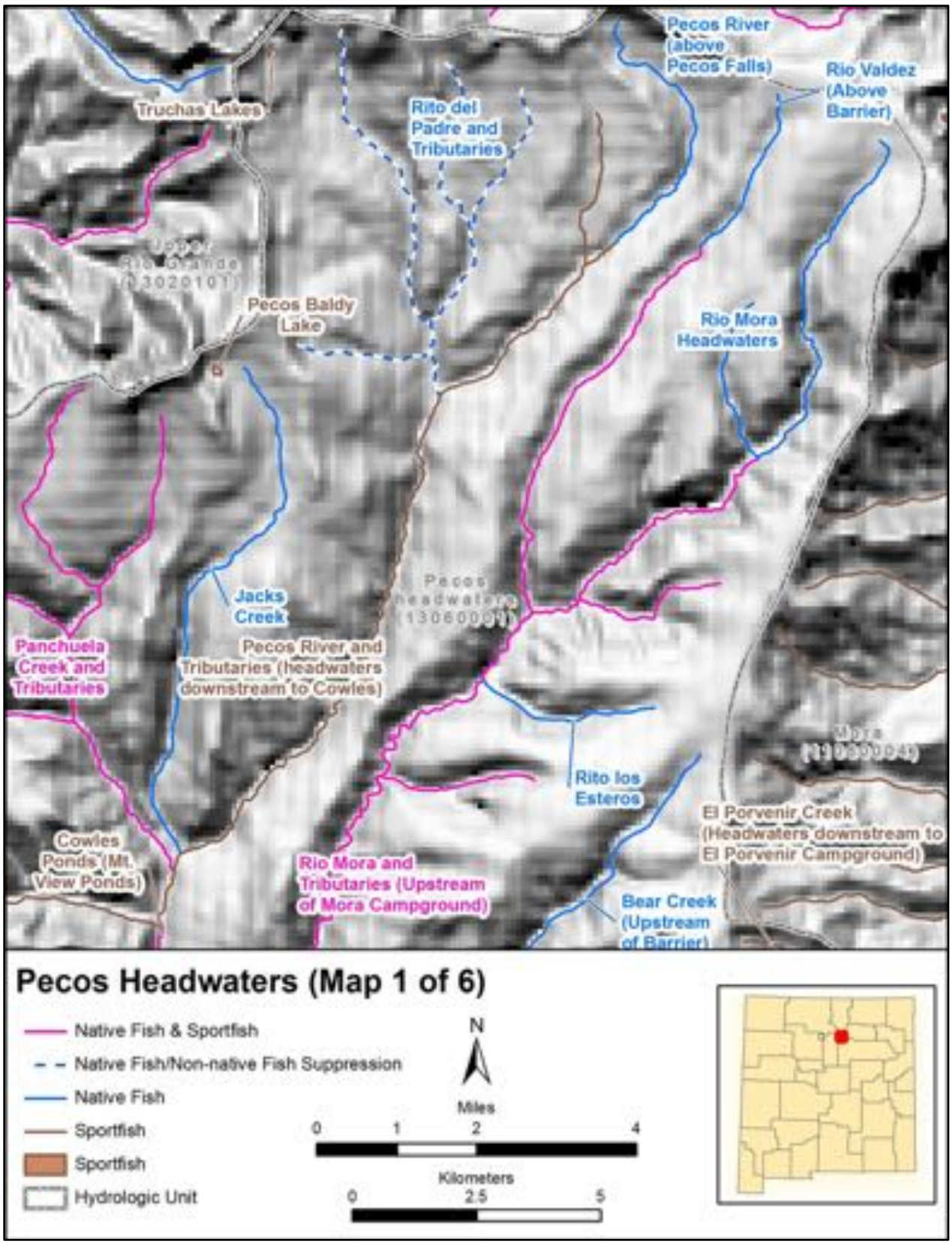

Figure 18. Pecos Headwaters (Map 1 of 6)

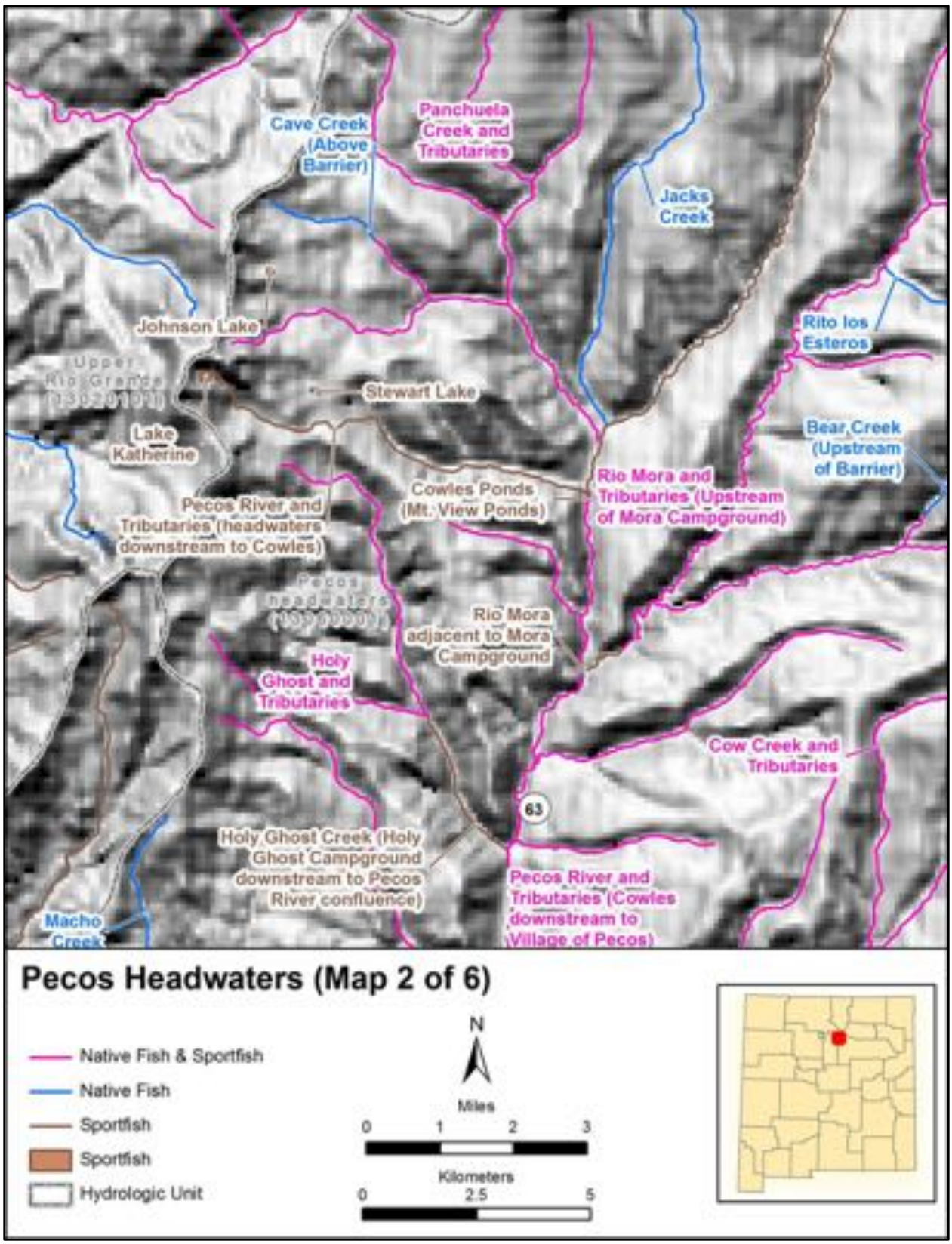

Figure 19. Pecos Headwaters (Map 2 of 6)

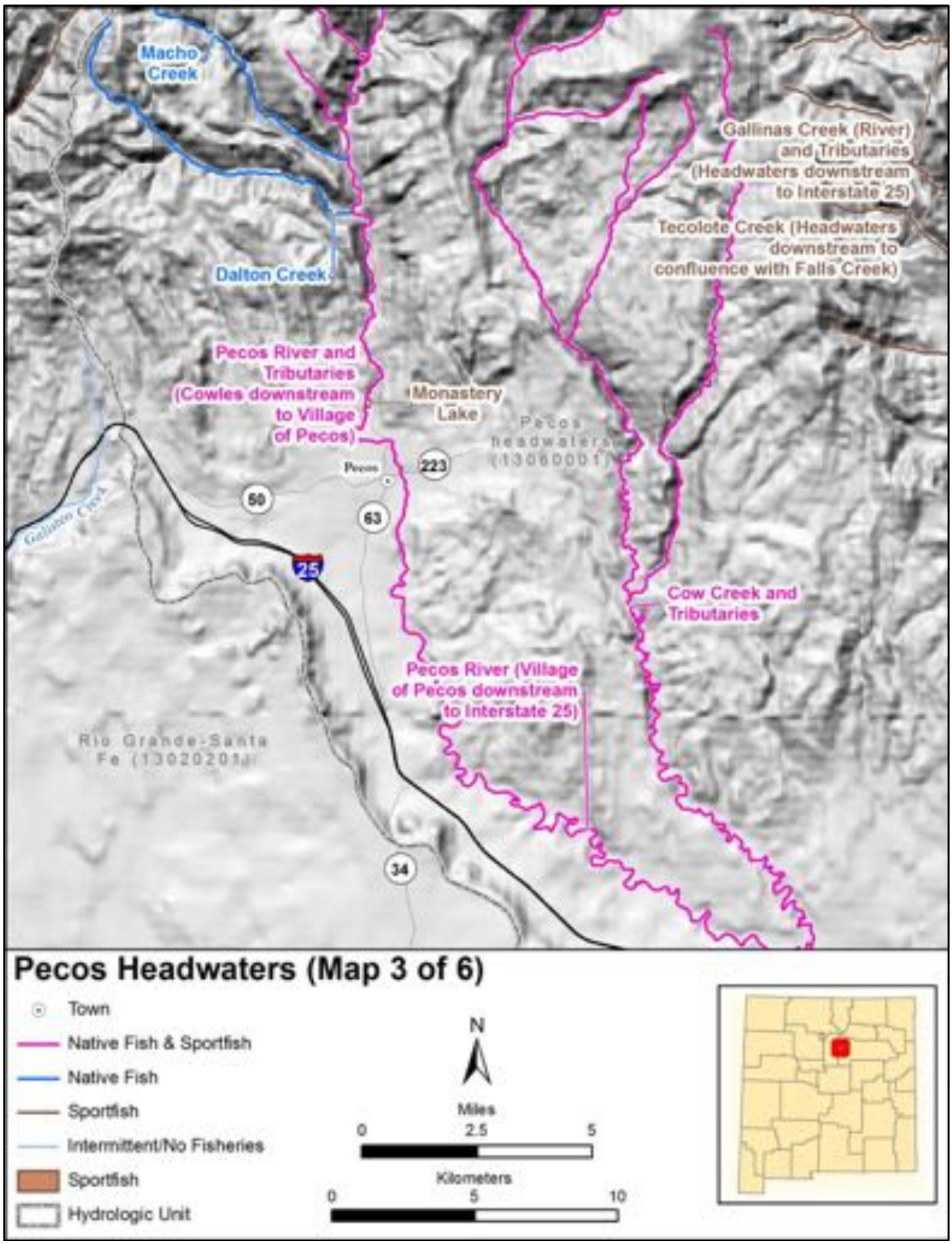

Figure 20. Pecos Headwaters (Map 3 of 6)

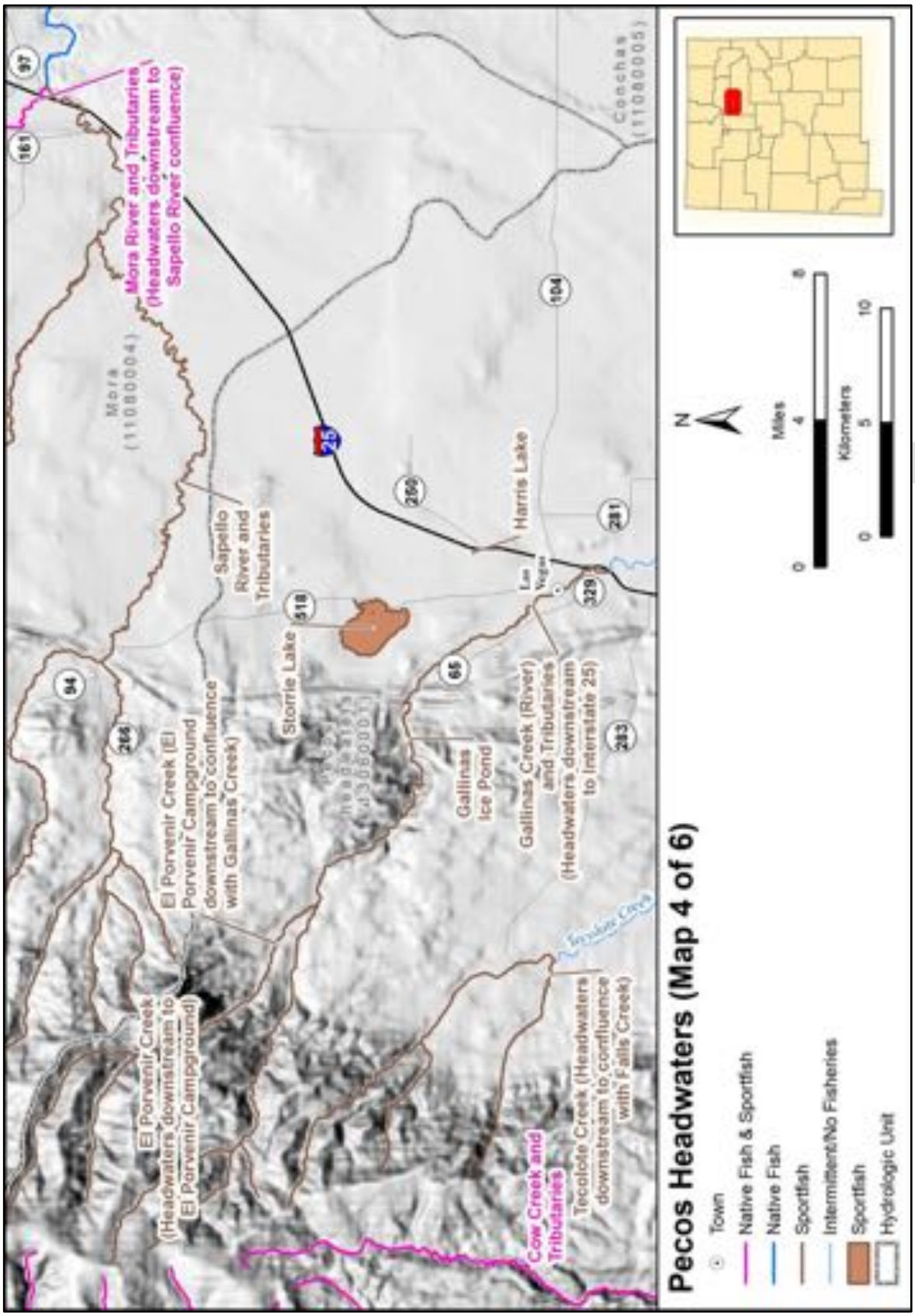

Figure 21. Pecos Headwaters (Map 4 of 6)

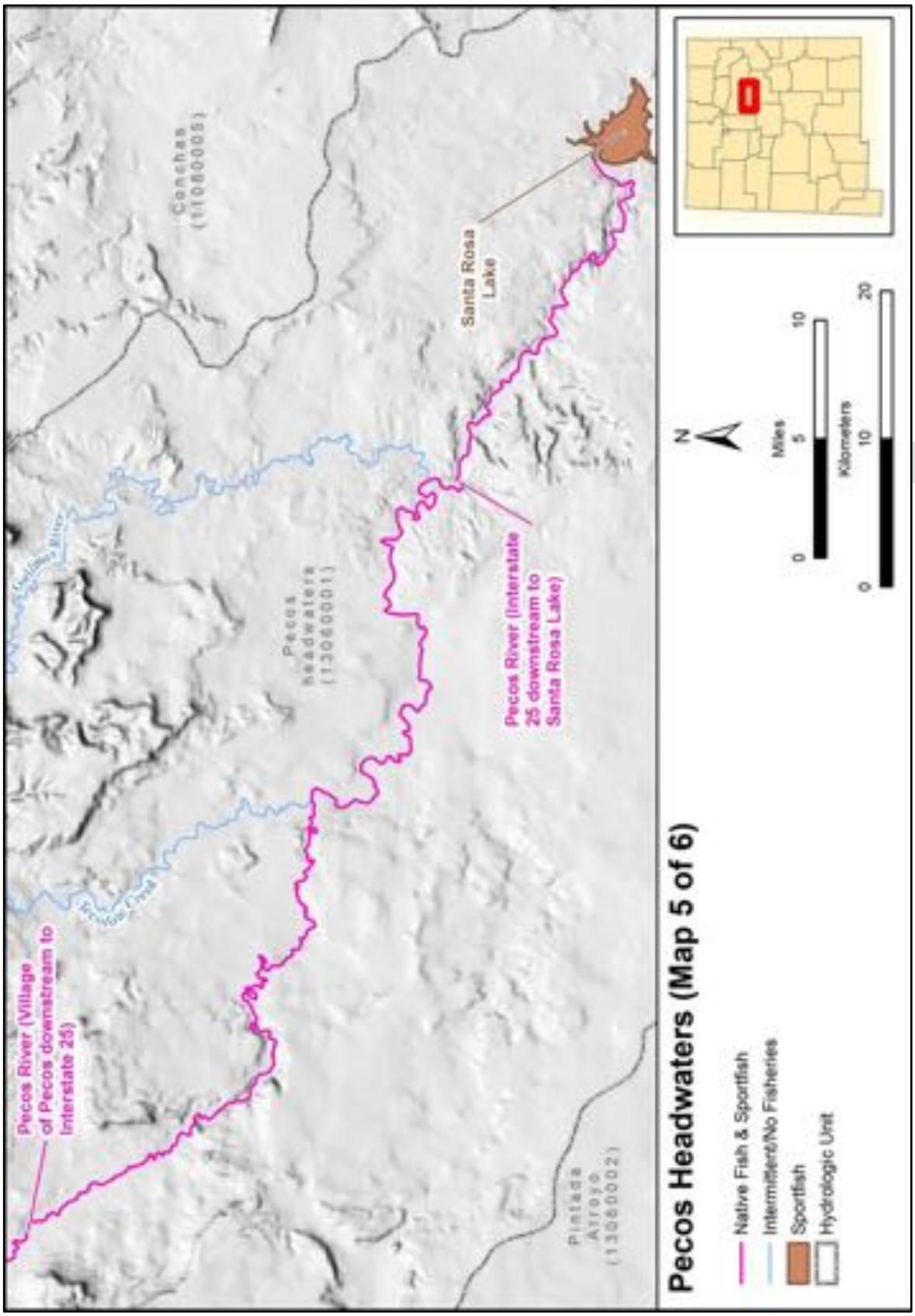

Figure 22. Pecos Headwaters (Map 5 of 6)

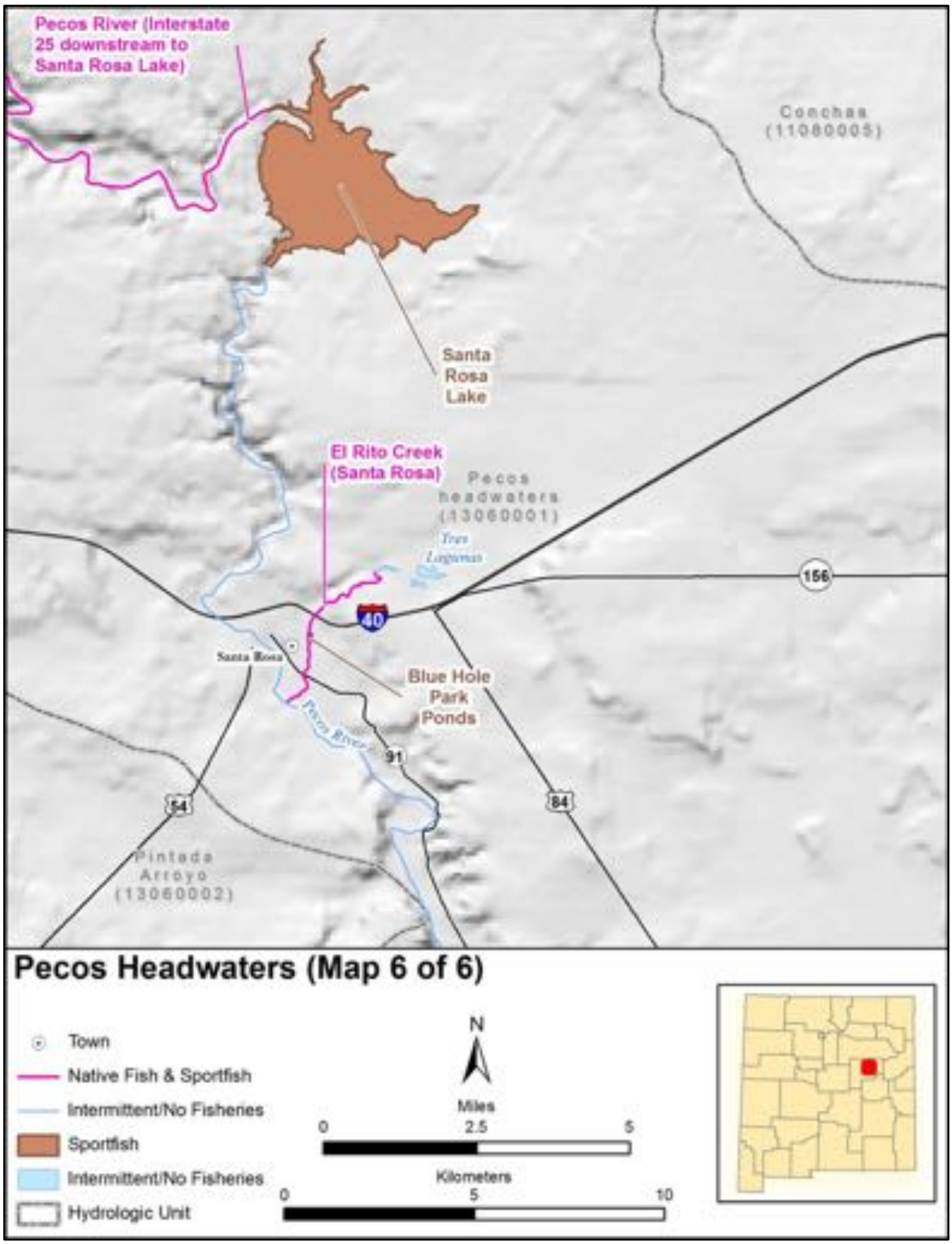

Figure 23. Pecos Headwaters (Map 6 of 6)

HUC 13060003 Upper Pecos, 13060005 Arroyo del Macho, 13060006 Gallo Arroyo, 13060007 Upper Pecos – Long Arroyo, 13060008 Rio Hondo, 13060010 Rio Penasco, 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 Penasco, 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 from November to March.
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 Lakes 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 sheephead minnow/Pecos pupfish hybrids.
	Rio Grande Shiner	Native Fish	Rio Grande shiner present in this reach.
	Speckled Chub	Native Fish	Speckled chub present in this reach.
	Flathead Catfish	Wild	Maintain regulations to support flathead catfish.
Brantley Lake	Channel Catfish	Wild	Catch and release regulations due to DDT contamination. Evaluate periodically in collaboration with Environment Department and review consumption advisories. Regular golden algae blooms limit fishery potential and not consistently stocked. Subject to significant water level fluctuation. Investigate mitigation measures for golden algae.
	White Bass	Wild	Maintain catch and release regulation to protect human health.
Pecos River (Brantley Dam downstream to and including Lake Avalon)	N/A	N/A	Historic stronghold for blue sucker, gray redhorse and black bass. Currently no to limited potential for any fisheries management due to golden algae. Investigate mitigation measures to reduce the effects of golden algae.

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

Water	Fish Species	Management Type	Management Direction
Lake Carlsbad	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout annually. Subject to periodic golden algae blooms.
	Spotted Bass	Wild	Manage as a Recreational Bass water.
Lake Carlsbad	Largemouth Bass	Wild	Manage as a Recreational Bass water.
Bataan Lake	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout annually. Subject to periodic golden algae blooms. Other sportfish species present but not managed due to limited habitat. Catfish stocking ceased due to fish consumption advisory for PCBs.
Pecos River (Lower Tansill Dam dowsntream 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.
	Channel Catfish	Wild	Maintain regulations to support channel catfish fishery. Consumption advisory for channel catfish - no catfish should be consumed from this reach.
	Blue Sucker	Native Fish	Investigate potential for repatriation of blue sucker to Six Mile Dam.
	Gray Redhorse	Native Fish	Gray redhorse present in this reach.
	Smallmouth Buffalo	Native Fish	Investigate potential for repatriation of smallmouth buffalo to Six Mile Dam.
Rio Bonito (Headwaters downstream to Bonito Lake)	Rio Grande Cutthroat Trout	Native Fish	Severely impacted by Little Bear Fire. Non-native salmonids believed to have been extirpated or greatly reduced throughout watershed. Consider for repatriation of Rio Grande cutthroat trout. Brook trout and rainbow trout present prior to fire.

Management Direction for HUC 13060003 Upper Pecos, 13060005 Arroyo del Macho, 13060006 Gallo Arroyo, 13060007 Upper Pecos – Long Arroyo, 13060008 Rio Hondo, 13060010 Rio Penasco, 13060011 Upper Pecos Black, 13070002 Delaware, 13070007 Landreth-Monument Draws, , and 12080003 Monument Seminole Draws			
Water	**Fish Species**	**Management Type**	**Management Direction**
Bonito Lake	Triploid Rainbow Trout	Put and Take	Severely impacted by Little Bear Fire. Upon watershed recovery and dredging of reservoir. Stock catchable triploid rainbow trout.
Rio Bonito (Downstream of Bonito Lake)	Rainbow Trout	Put and Take	Not stocked in recent years due to drought.
	Brown Trout	Wild	Limited brown trout. Maintain regulations to support wild trout angling.
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 (Three trout only, any legal tackle or bait) from Mescalero Reservation boundary downstream to Friedenbloom Drive.
	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout.
Pine Lodge Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande cutthroat trout. Population status unknown due to drought.
Grindstone Reservoir	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout. Copper sulfate treatments during the summer by Village of Ruidoso can cause fish kills.
	Channel Catfish	Put, Grow and Take	Stock fingerling channel catfish. Monitor to document growth rate and recruitment.
	Smallmouth Bass	Wild/Supplemental stocking	Manage as a Recreational Bass water. Transfer smallmouth bass from other waters as necessary to supplement population.
Eagle Creek	Brook Trout	Wild	Headwaters of the watershed within the jurisdiction of Mescalero Apache Tribe. Maintain regulations to support wild trout angling.

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

Water	Fish Species	Management Type	Management Direction
Alto Lake	Channel Catfish	Put, Grow and Take and Put and Take	Recently reopened to public angling. Management direction reflects uncertainty of species management in the future but will be adapted based upon evaluation of management actions. Stock fingerling and catchable channel catfish. Adopt Big Cat Water regulations if necessary. Also consider stocking other species such as bluegill as necessary to establish forage for predatory fish.
	Triploid Rainbow Trout	Put and Take	Stock catchable rainbow trout.
	Largemouth Bass	Wild/Supplemental Stocking	Manage as a Recreational Bass water. Also consider stocking smallmouth bass if appropriate.
Aqua Chiquita	Brook Trout	Wild	Prone to drying. Maintain regulations to support wild trout angling.
Rio Penasco	Brown Trout	Wild	Primarily private property. Single Open Gate property near Mayhill, NM. Investigate additional Open Gate properties. Maintain regulations to support wild trout angling.
	Rainbow Trout	Put, Grow and Take	Stock fingerling triploid rainbow trout on Open Gate Property.
Bosque Redondo Lake	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish between May and September. Maintain 2 fish daily bag limit.
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout between November and March.
Bottomless Lakes	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout between November and March. 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.
Lake Van	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish from May to September. Maintain 2 fish daily bag limit.

Management Direction for HUC 13060003 Upper Pecos, 13060005 Arroyo del Macho, 13060006 Gallo Arroyo, 13060007 Upper Pecos – Long Arroyo, 13060008 Rio Hondo, 13060010 Rio Penasco, 13060011 Upper Pecos Black, 13070002 Delaware, 13070007 Landreth-Monument Draws, , and 12080003 Monument Seminole Draws			
Water	**Fish Species**	**Management Type**	**Management Direction**
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout from November to March.
Roswell Kids Pond	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish from May to September. Maintain 2 fish daily bag limit.
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout from November to March.
Corona Pond	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish from May to September. Maintain 2 fish daily bag limit.
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout from November to March.
Black River	Blue Sucker	Native Fish	Limited public access. Few blue sucker collected over the past several years. Investigate the feasibility of replacing road culverts (2) fragmenting population.
	Gray Redhorse	Native Fish	Investigate the feasibility of replacing road culverts (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 from November to March.
Pecos River (Avalon Dam to Lake Carlsbad)	N/A	N/A	Often dry, limited angling opportunities.
Eunice Lake	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish from May to September. Maintain 2 fish daily bag limit.
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout from November to March.
Jal Lake	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish from May to September. Maintain 2 fish daily bag limit.
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout from November to March.

Management Direction for HUC 13060003 Upper Pecos, 13060005 Arroyo del Macho, 13060006 Gallo Arroyo, 13060007 Upper Pecos – Long Arroyo, 13060008 Rio Hondo, 13060010 Rio Penasco, 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	Continue to transfer gray redhorse from the Black River to the Delaware River to expand current range and enhance Texas Hornshell repatriation efforts.
Chaparral Park Lake	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish from May to September. Maintain 2 fish daily bag limit.
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout from November to March.
	Sunfish	Suppression	Stock and maintain largemouth bass to control overpopulated sunfish populations.
Green Meadow Lake	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish from May to September. Maintain 2 fish daily bag limit.
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout from November to March.
Harry McAdams Park Pond	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout from November to March.

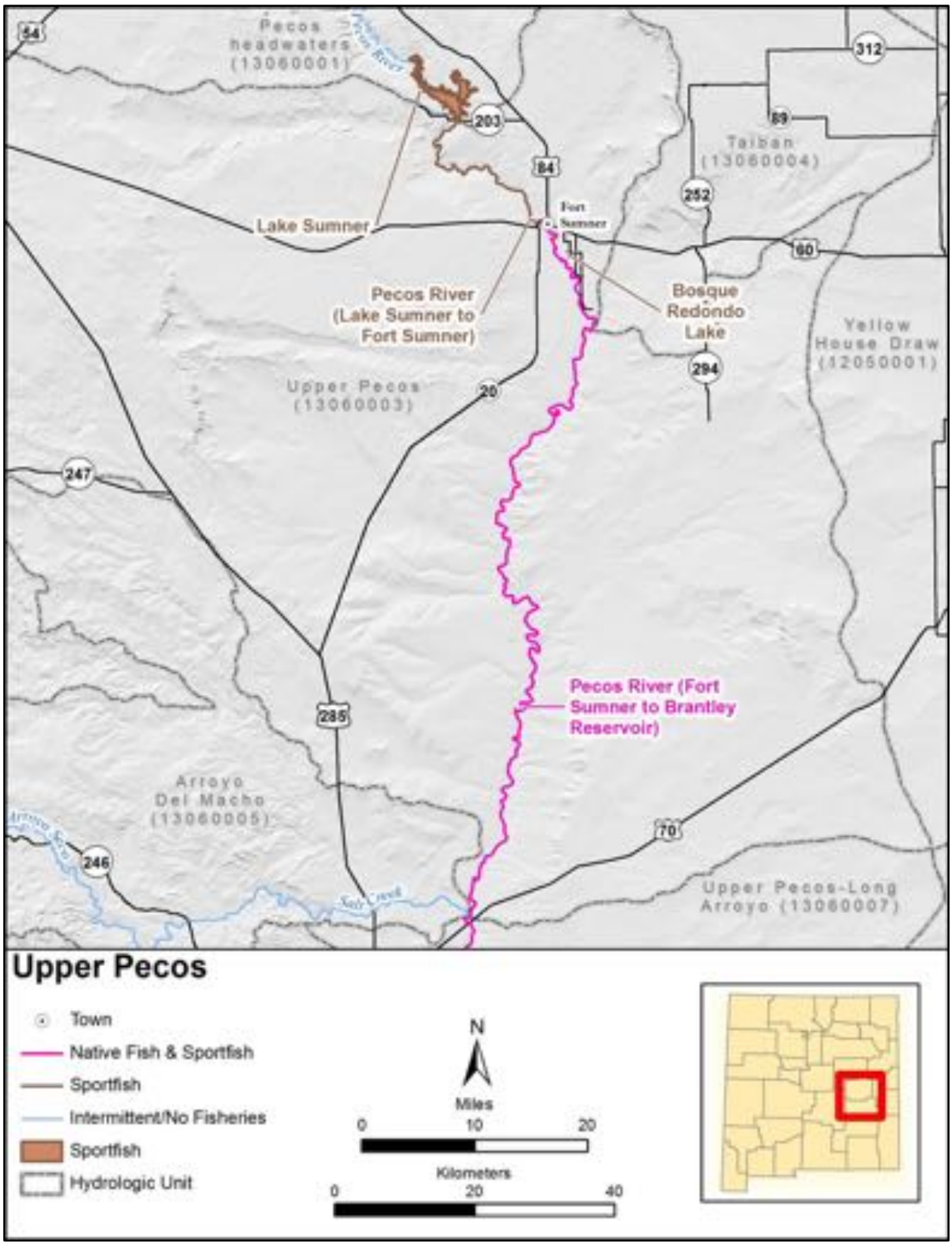

Figure 24. Upper Pecos

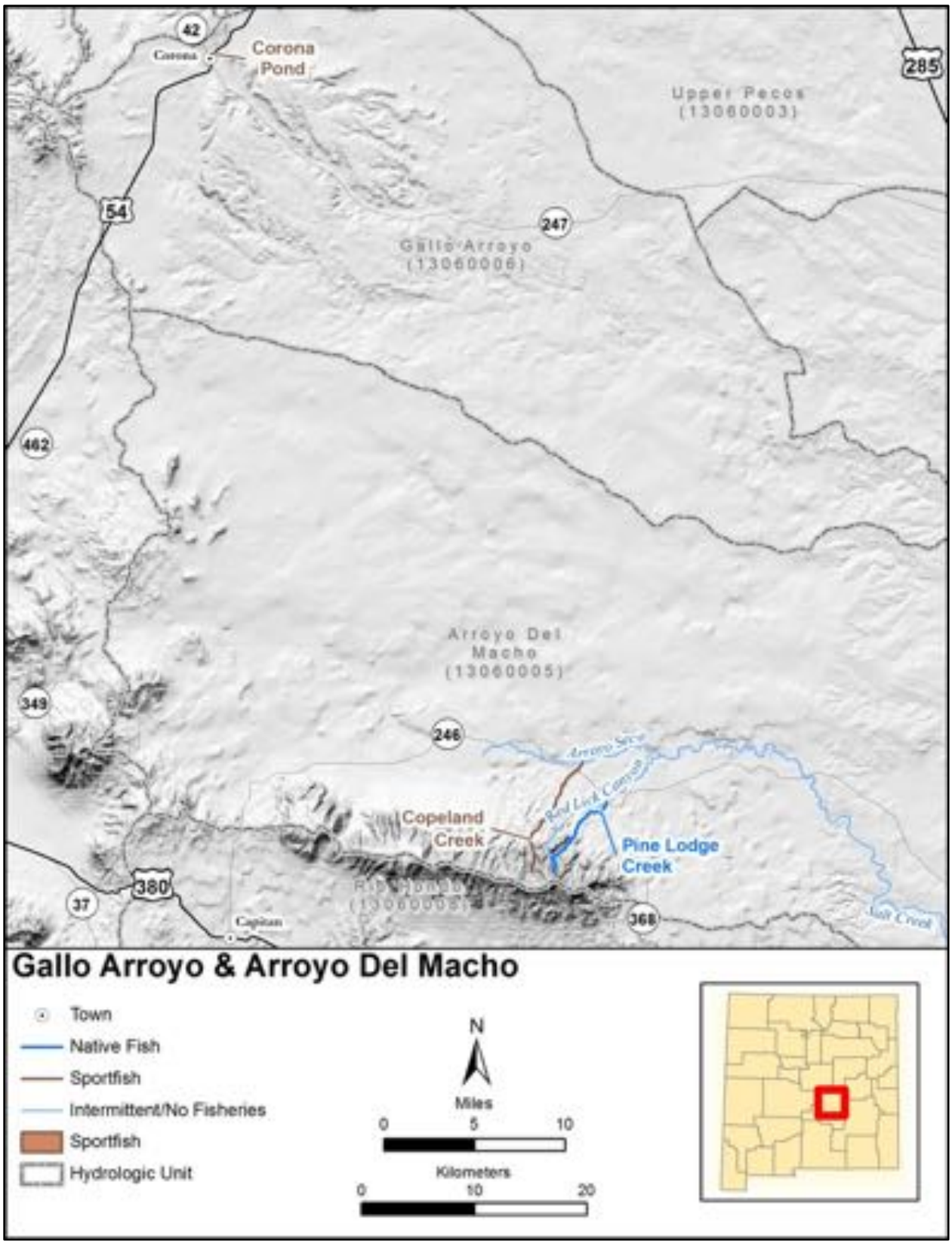

Figure 25. Gallo Arroyo and Arroyo Del Macho

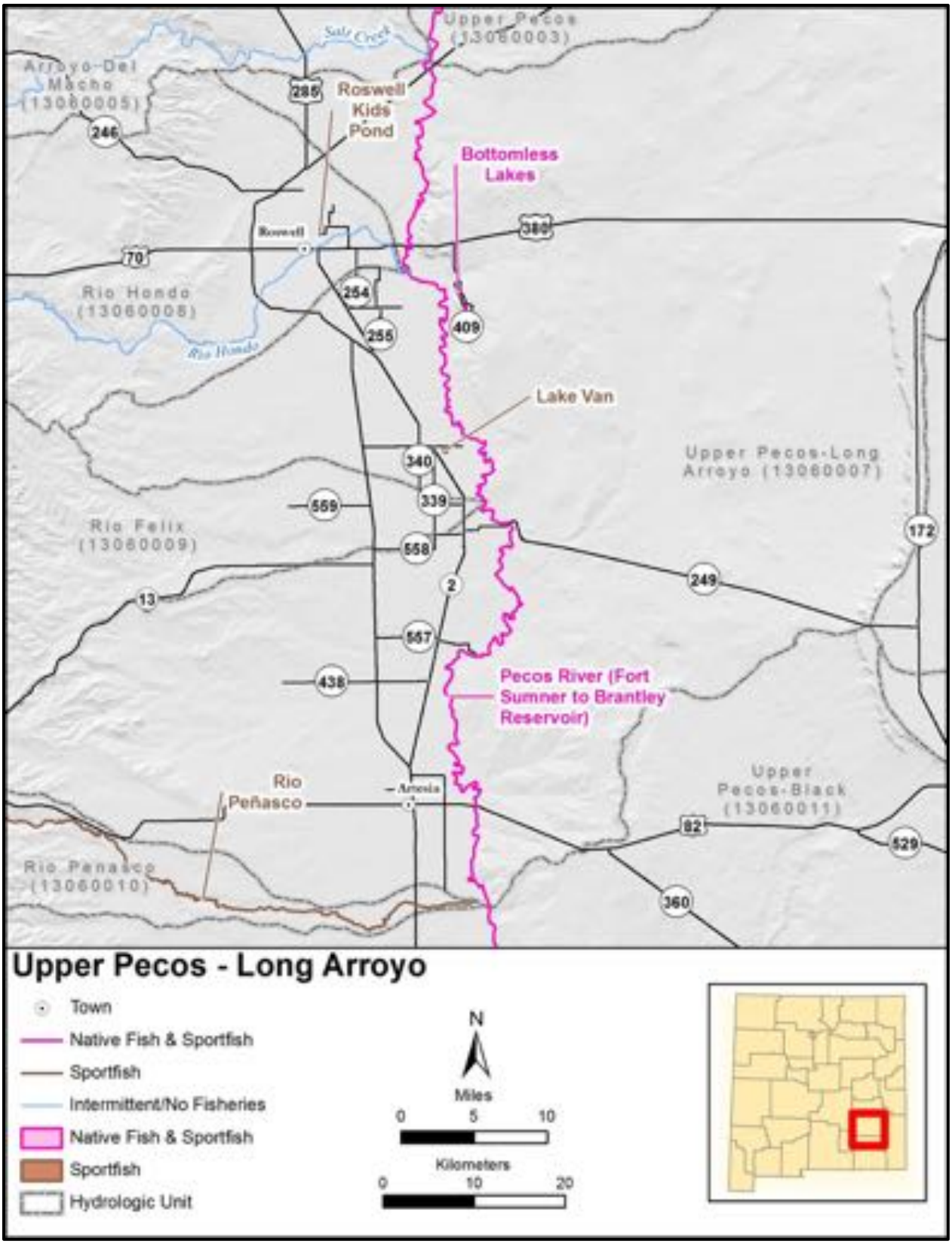

Figure 26. Upper Pecos - Long Arroyo

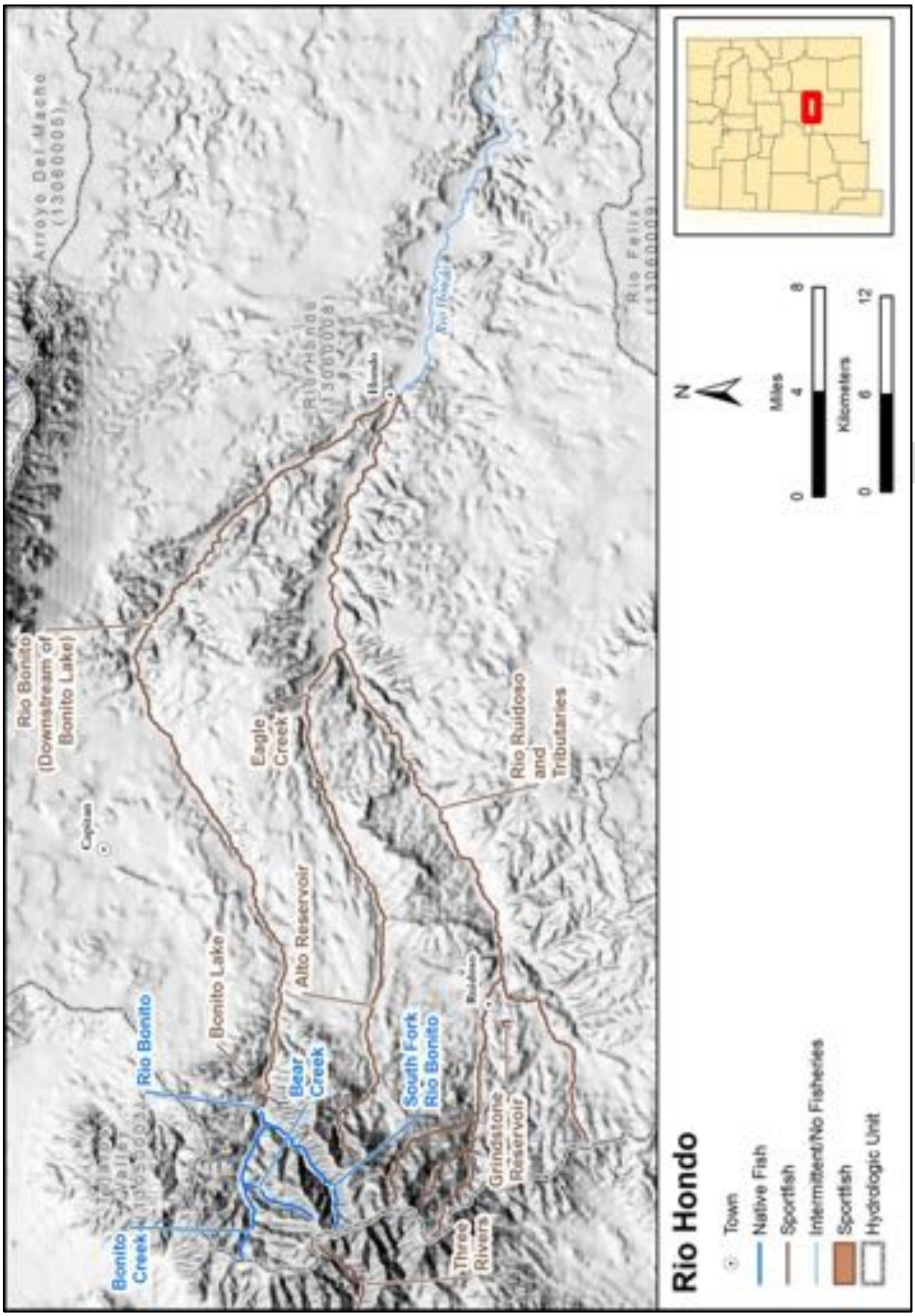

Figure 27. Rio Hondo

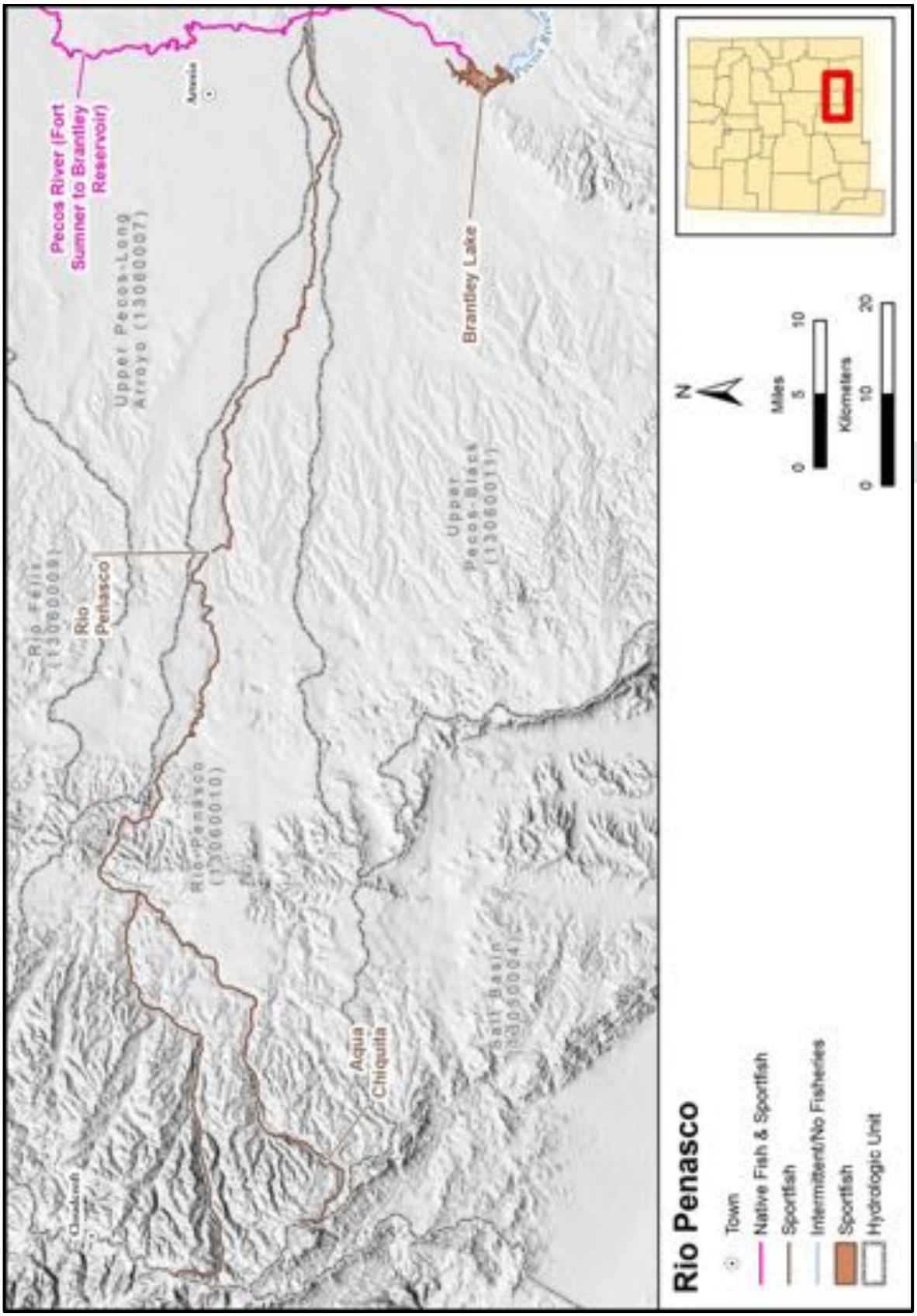

Figure 28. Rio Penasco

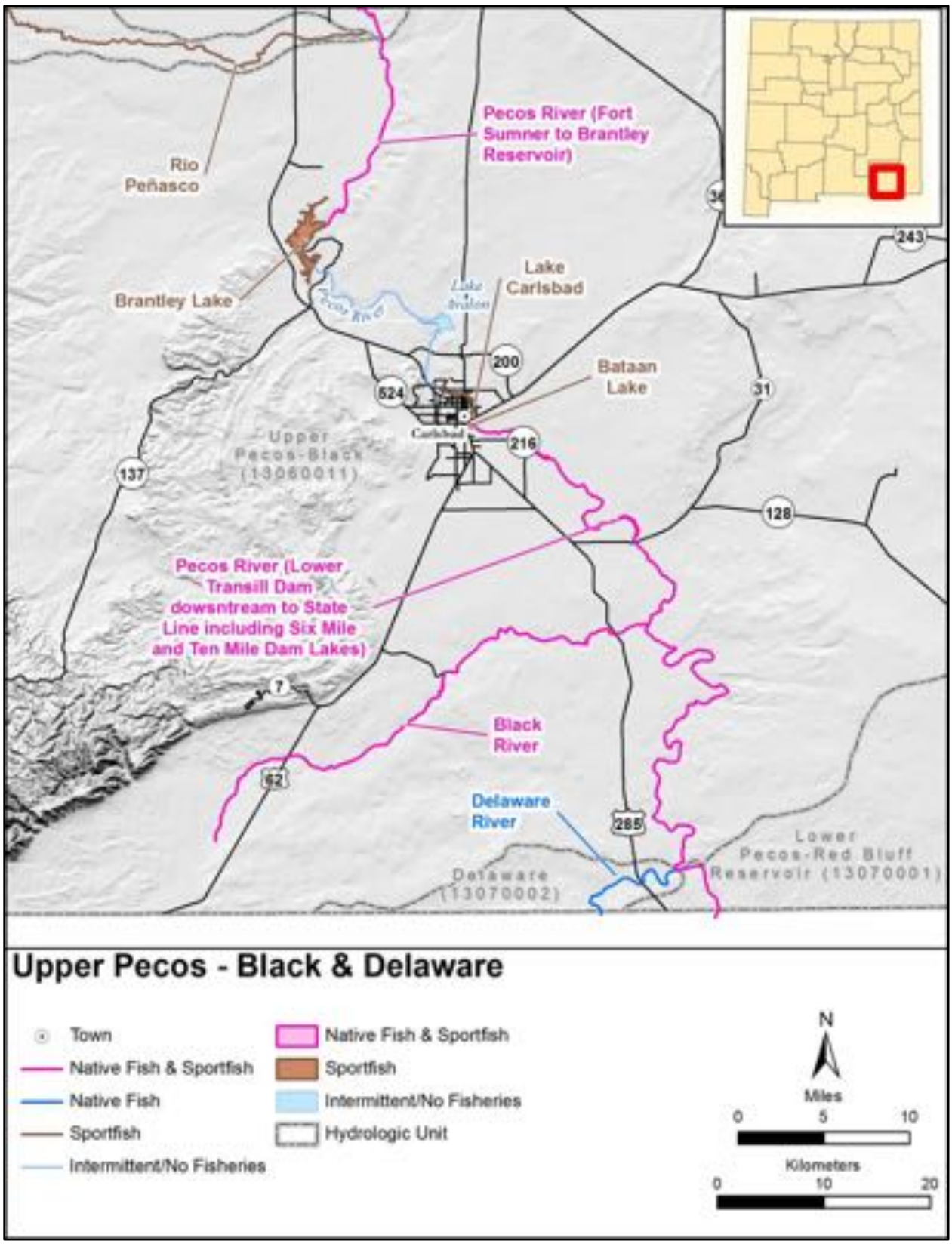

Figure 29. Upper Pecos - Black and Delaware

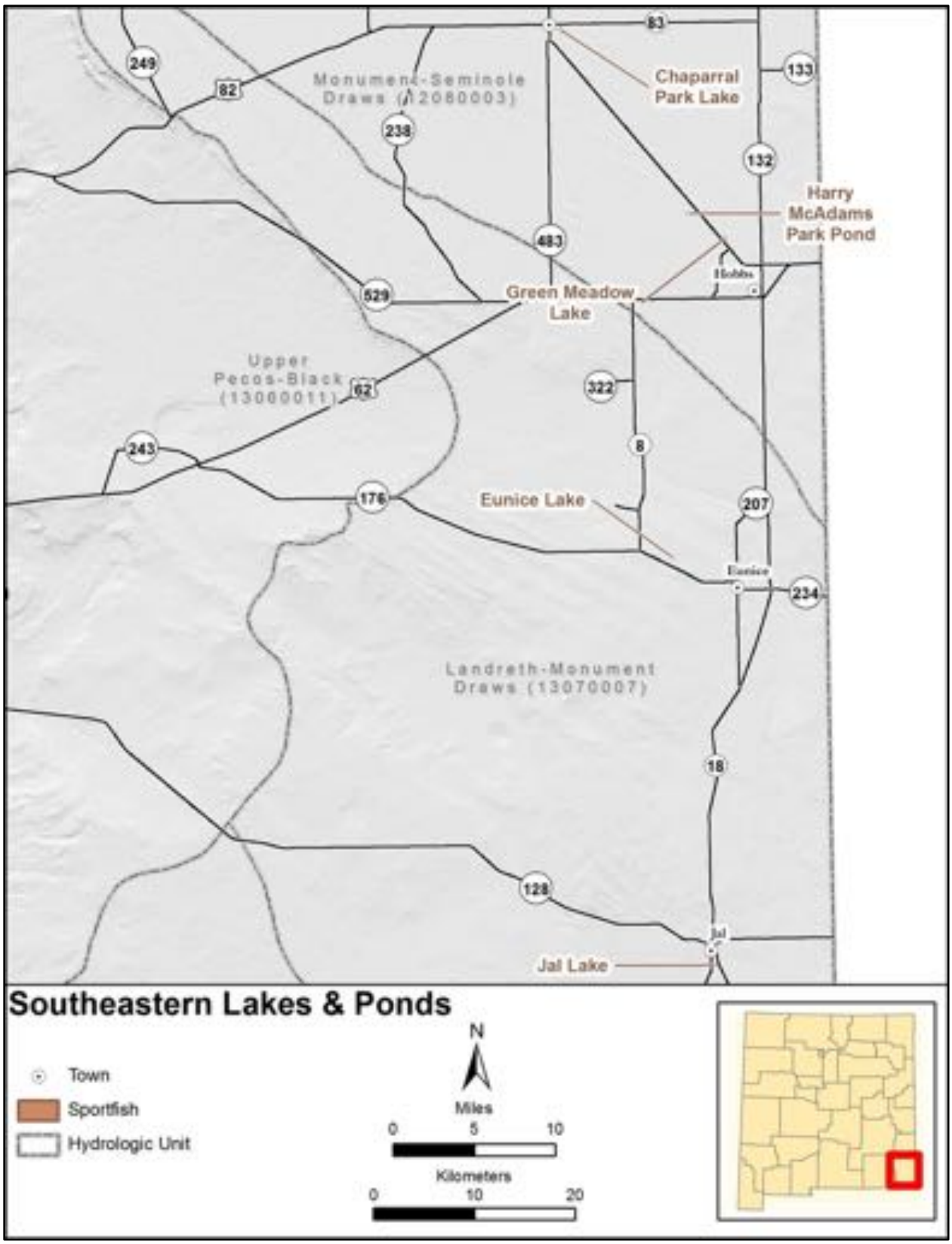

Figure 30. Southeastern Lakes and Ponds

Tularosa Watershed

The Tularosa Basin encompasses approximately 3.2 million acres in south central New Mexico and is a closed basin. Because much of the Tularosa Basin is federal government property (White Sands Missile Range, Holloman Air Force Base, White Sands National Monument), there has been limited development in the watershed. Due to limited perennial habitats in the Tularosa Watershed, fisheries activities are limited to monitoring of White Sands pupfish and associated coordination with federal agencies and regulation enforcement for the trout in the Three Rivers drainage near Alamogordo and Carrizozo Recreation Lake.

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	Big Cat Water - Stock catchable channel catfish from May to September. Maintain 2 fish daily bag limit.
	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout from November to March.
Lost River	White Sands Pupfish	Native Fish	Investigate refugial sites.
Three Rivers	Brook Trout	Wild	Maintain angling regulations to support wild trout angling.

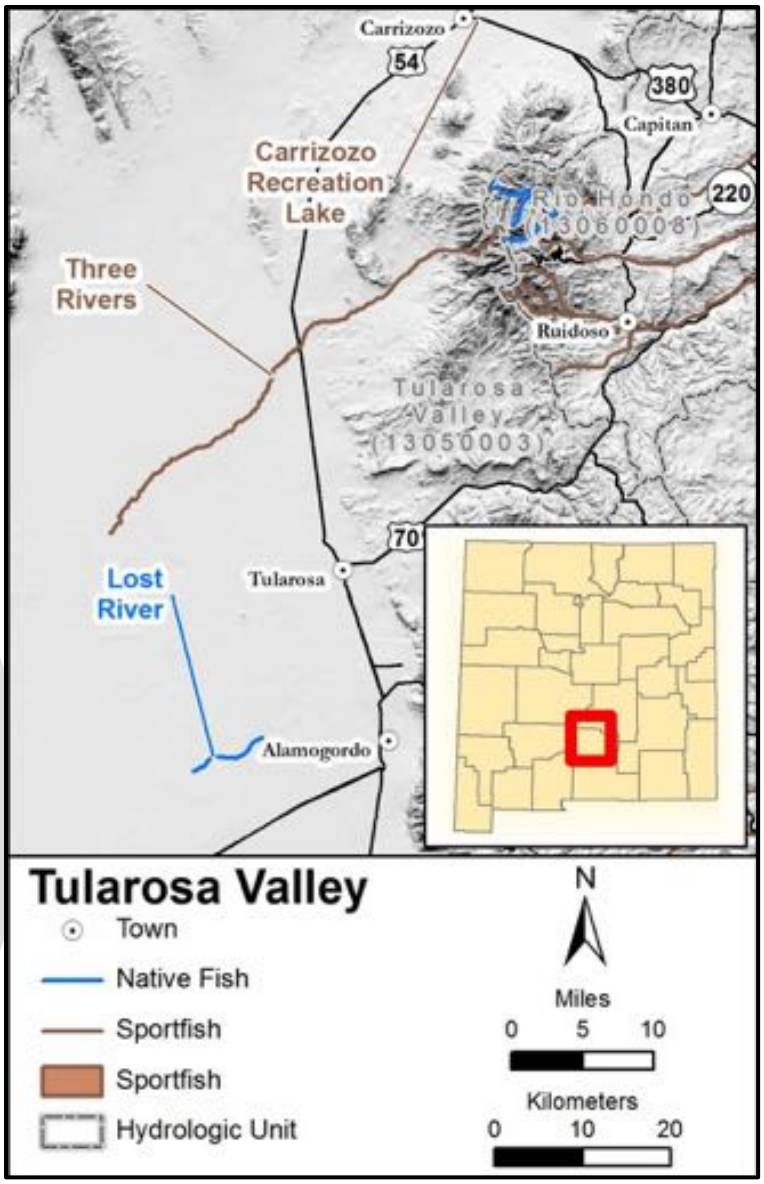

Figure 31. Tularosa Valley

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 a number of streams that drain into the Rio Grande. These 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 historic 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 rainbow trout, brown trout, brook trout, and cutthroat trout as well as trophy angling opportunities in large rivers such as the Rio Grande and Rio Chama. Heron Reservoir offers exceptional Kokanee angling and is the only lake trout fishery in the state. Elephant Butte Lake, the state's largest reservoir, receives significant angling pressure for largemouth bass, striped bass, and white bass. Current conditions have also increased opportunities for walleye and blue catfish. Popular urban fisheries include Tingley Beach in Albuquerque and Alumni Pond in Las Cruces.

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 Rio Costilla Watershed. Many reaches within the drainage are inhabited by Rio Grande sucker and chub though these are not considered focal species. Existing focal species, in most cases either rainbow trout or brown trout, do not seem to have deleterious effects on native fish in those reaches. 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 (two trout only, artificial fly or lure, single barbless hook) from Forest Service Roads 284 and 87a, 2.5 miles upstream to private land.
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 San Antonio and Tributaries (Headwaters to Rio Nutrias)	Brown Trout	Wild	Maintain regulations to support angling for wild trout.
	Cutthroat Trout	Wild	Maintain regulations to support angling for wild trout.
	Rio Grande Chub	Native Fish	Rio Grande chub and sucker present.
	Rio Grande Sucker	Native Fish	Rio Grande chub and sucker present.
Rio San Antonio and Tributaries (Rio Nutrias to State Line)	Brown Trout	Wild	Maintain regulations to support angling for wild trout.

Management Direction for HUC 13010005 Conejos			
Water	**Fish Species**	**Management Type**	**Management Direction**
Tanques Canyon	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande cutthroat trout.
	Brown Trout	Suppression	Periodically remove brown trout to maintain the Rio Grande cutthroat trout population.
Tio Grande Canyon	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande cutthroat trout.
	Brown Trout	Suppression	Periodically remove brown trout to maintain the Rio Grande cutthroat trout population.

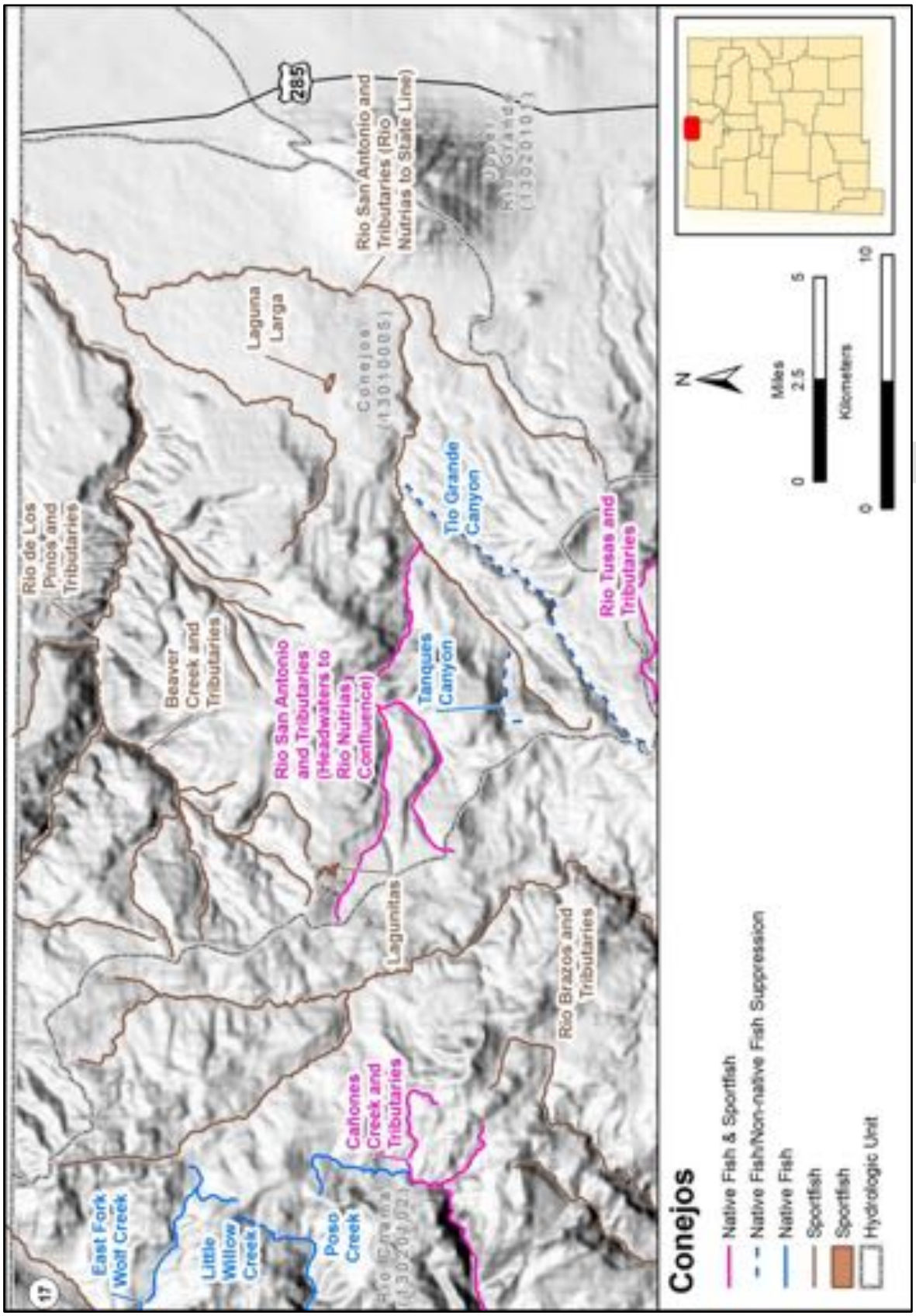

Figure 32. Conejos

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 (three fish, any length) from Colorado stateline downstream to Taos Junction Bridge. Maintain regulations to support quality angling experience for wild trout.
	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout between Taos Junction Bridge and Pilar.
	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 (Pilar downstream to confluence of Rio Chama)	Brown Trout	Wild	Maintain regulations to support quality angling experience for wild trout.
	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout between Pilar and Embudo.
	Smallmouth Bass	Wild	Maintain statewide smallmouth bass regulation.
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 salmonids fishery, dominated by centrachids and cyprinids. 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 quality angling experience for wild trout.
Costilla Creek (Headwaters downstream to Costilla Dam)	Rio Grande Cutthroat Trout	Native Fish	Ongoing Rio Grande cutthroat trout restoration project for all waters upstream of Costilla Dam. Lower reaches may include Rio Grande sucker and Rio Grande chub repatriation efforts, as appropriate.
Costilla Creek and Tributaries (Valle Vidal Unit of Carson National Forest)	Rio Grande Cutthroat Trout	Native Fish	Special Trout Water regulation (catch and release, artificial fly or lure, single barbless hook).
	Rio Grande Chub	Native Fish	Repatriate to appropriate habitats including Comanche Creek watershed.

Management Direction for HUC 13020101 Upper Rio Grande

Water	Fish Species	Management Type	Management Direction
	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 (catch and release, artificial fly or lure, single barbless hook) from Valle Vidal boundary downstream to Latir Creek.
	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout. Long-term stocking efforts will be dependent upon renewal of private land lease. Investigate long-term transition from rainbow trout to Rio Grande cutthroat trout catchable stocking.
Powderhouse Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande cutthroat trout. Planned as part of the Costilla restoration project upon completion.
La Cueva Creek	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande cutthroat trout. Planned as part of the Costilla restoration project upon completion.
Cabresto Creek	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande cutthroat trout. Speial Trout Water regulation (catch and release, artificial fly or lure, single, barbless hook) for Rio Grande cutthroat trout
	Brook Trout	Suppression	Periodically remove broook trout to maintain the Rio Grande cutthroat trout population.
	Brown Trout	Suppression	Periodically remove brown trout to maintain the Rio Grande cutthroat trout population.
Cabresto Lake	Trout	Wild	Rainbow, brook and cutthroat trout are present in this drainage. Maintain regulations to support angling for wild trout. Investigate need for stocking catchable rainbow trout or fingerling Rio Grande cutthroat trout.
Lake Fork Cabresto	Trout	Wild	Brook trout 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 (two fish > 12") for a one mile reach upstream of Goose Creek confluence. Investigate the effectiveness of the Special Trout Water regulation. Brown, brook 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 effects 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 (three trout, any length) from 0.5 miles below the walking bridge at Red River Hatchery downstream to confluence with Rio Grande. Investigate the effectiveness of the Special Trout Water regulation.
Red River Hatchery Pond	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout. Special Trout Water regulation (three trout, any length). Youth, senior, and persons with disabilities designated water.
Columbine Creek and Tributaries	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande cutthroat trout.
	Brown Trout	Suppression	Periodically remove brown trout to maintain the Rio Grande cutthroat trout population.
San Cristobal Creek and Tributaries	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande cutthroat trout.
Rio Pueblo de Taos	Brown Trout	Wild	Primarily on Pueblo of Taos. Maintain angling regulations to support wild trout angling opportunity
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. Brown trout present in Yerba and Gavilan Creeks, and South Fork Rio Hondo but not Italianos Creek.
	Brown Trout	Suppression	Periodically remove brown trout to maintain the Rio Grande cutthroat trout population.

Management Direction for HUC 13020101 Upper Rio Grande

Water	Fish Species	Management Type	Management Direction
Rio Hondo (Headwaters downstream to Highway 522)	Trout	Wild	Brown and cutthroat trout present in this drainage. 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.
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. Extremely small conservation population of Rio Grande cutthroat trout in Tienditas Creek, headwater tributary.
Rio Grande del Rancho (Little Rio Grande) and Tributaries	Brown Trout	Wild	Maintain regulations to support angling for wild trout.
	Rio Grande Cutthroat Trout	Native Fish	Small Conservation Population of Rio Grande cutthroat trout in extreme headwaters of the Little Rio Grande.
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.
	Brown Trout	Suppression	Periodically remove brown trout to maintain the Rio Grande cutthroat trout population.
Frijoles Creek (Taos)	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande cutthroat trout.
	Brown Trout	Suppression	Periodically remove brown trout to maintain the Rio Grande cutthroat trout population.
Rio Pueblo and Tributaries	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout.
	Brown Trout	Wild	Special Trout Water regulation (two fish, any length, artificial fly or lure with single, barbless hook) from Mile Marker 55 on N.M. Highway 518 upstream 1 mile to Canon Tio Maes trailhead.

Management Direction for HUC 13020101 Upper Rio Grande

Water	Fish Species	Management Type	Management Direction
La Junta Canyon (Rito la Presa)	Brown Trout	Wild	Maintain regulations to support angling for wild trout. Small 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	Rio Grande Cutthroat Trout	Native Fish	Core Conservation Population of Rio Grande cutthroat trout in headwaters of East, Middle and West Forks of the Rio Santa Barbara and Jicarita and Indian Creek, inhabiting same reaches as brown trout. Investigate regulations to support persistence of Rio Grande cutthroat trout. Barriers to brown trout movement are not present in the watershed.
	Brown Trout	Wild	Maintain regulations to support angling for wild trout in reaches downstream 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 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 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.

Management Direction for HUC 13020101 Upper Rio Grande

Water	Fish Species	Management Type	Management Direction
	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 though no barrier present to limit movement of brown trout from downstream areas.
Guaje Creek	Rio Grande Cutthroat Trout	Native Fish	Severely impacted by Cerro Grande and Las Conchas wildfires. Non-native salmonids believed to have been extirpated. Consider for repatriation of Rio Grande cutthroat trout.
Los Alamos Reservoir	Triploid Rainbow Trout	Put and Take	Severely impacted by Los Conchas and Cerro Grande wildfires and not suitable for stocking since 2000. Upon recovery, stock catchable triploid rainbow trout.
	Rio Grande Cutthroat Trout	Put, Grow and Take	Investigate stocking Rio Grande Cutthroat Trout fingerlings.
Tesuque Creek and Tributaries	Rainbow Trout	Wild	Lower reach almost entirely within and under the jurisdiction of Tesuque Pueblo. Maintain regulations to support angling for wild trout in areas under NMDGF jurisdiction.
Rio Nambe and Tributaries	Rio Grande Cutthroat Trout	Native Fish	Lower section entirely within and under the jurisdiction of Nambe Pueblo (Rainbows stocked by Pueblo in Nambe Lake). Upper sections of Rio Nambe and Rio Capulin severely impacted by Pacheco wildfire. Non-native salmonids severely impacted, but not extirpated. Considered for repatriation of Rio Grande cutthroat trout in collaboration with Nambe Pueblo.
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.
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.
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.

Management Direction for HUC 13020101 Upper Rio Grande

Water	Fish Species	Management Type	Management Direction
Williams Lake	N/A	N/A	Habitat is limited and winterkill conditions are likely common. Not stocked since 1998. Cease stocking.
Lost Lake (East Fork Red River)	Rio Grande Cutthroat Trout	Put, Grow and Take	Stock fingerling Rio Grande cutthroat trout.
Horseshoe 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	Rio Grande Cutthroat Trout	Put, Grow and Take	Habitat is limited and winterkill conditions are likely common. Not stocked since 1999. Cease stocking.
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	Has not been stocked in >15 years. May be a potential site to stock recreational Rio Grande cutthroat trout. Investigate stocking potential and develop recommendations.
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.
La Cueva Canyon	Rio Grande Cutthroat Trout	Native Fish	Existing waterfall barrier present.
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).

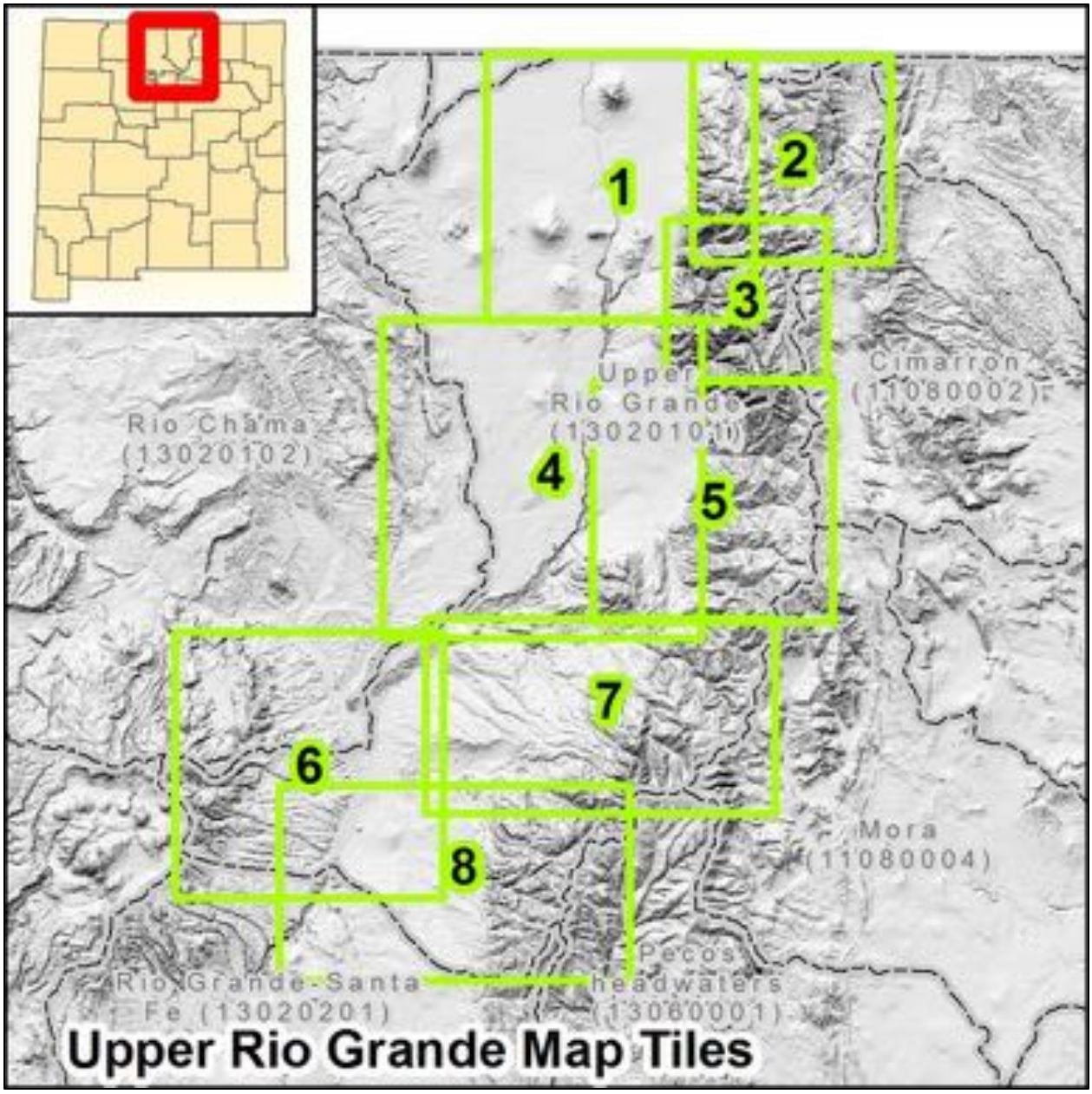

Figure 33. Upper Rio Grande Map Tiles

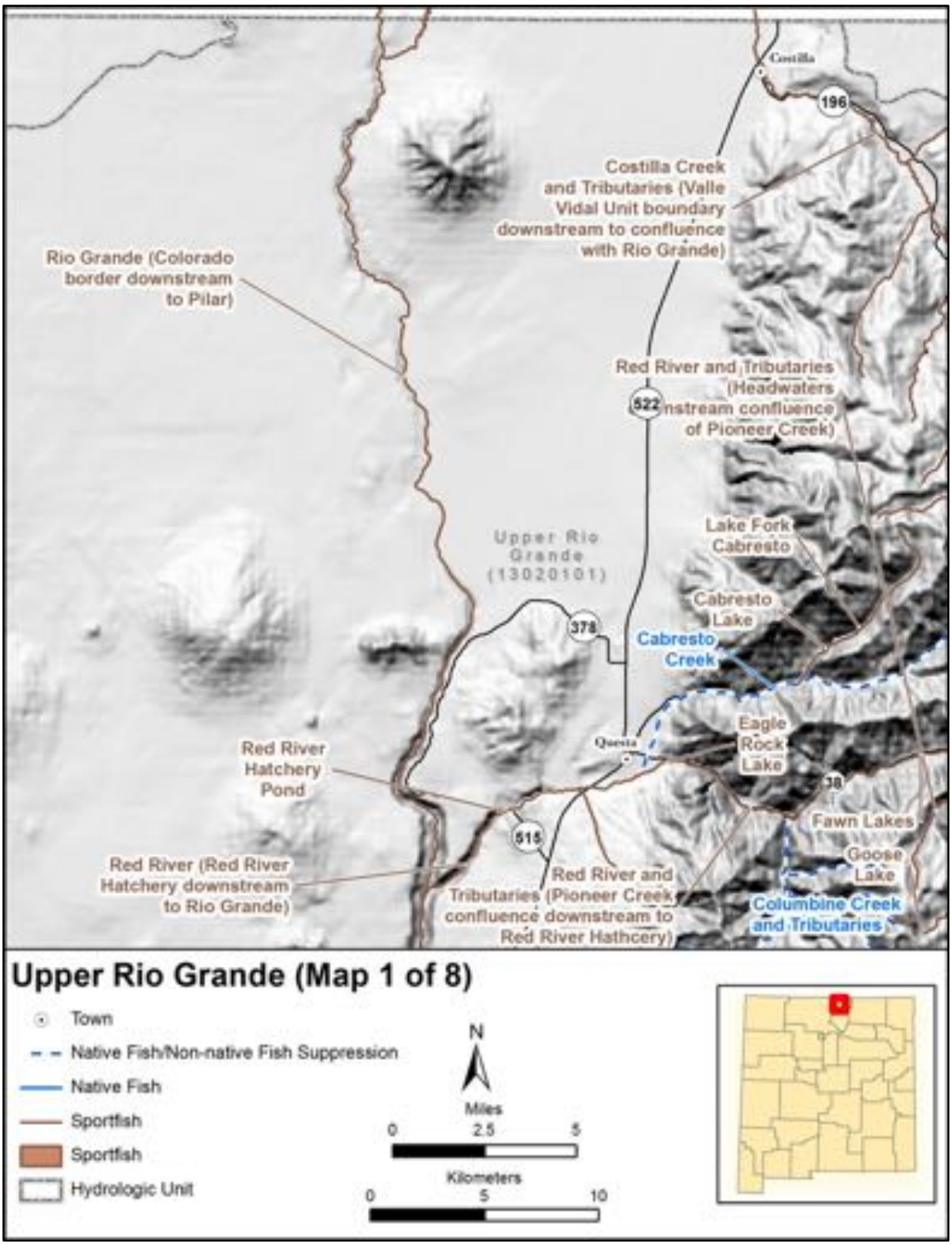

Figure 34. Upper Rio Grande (Map 1 of 8)

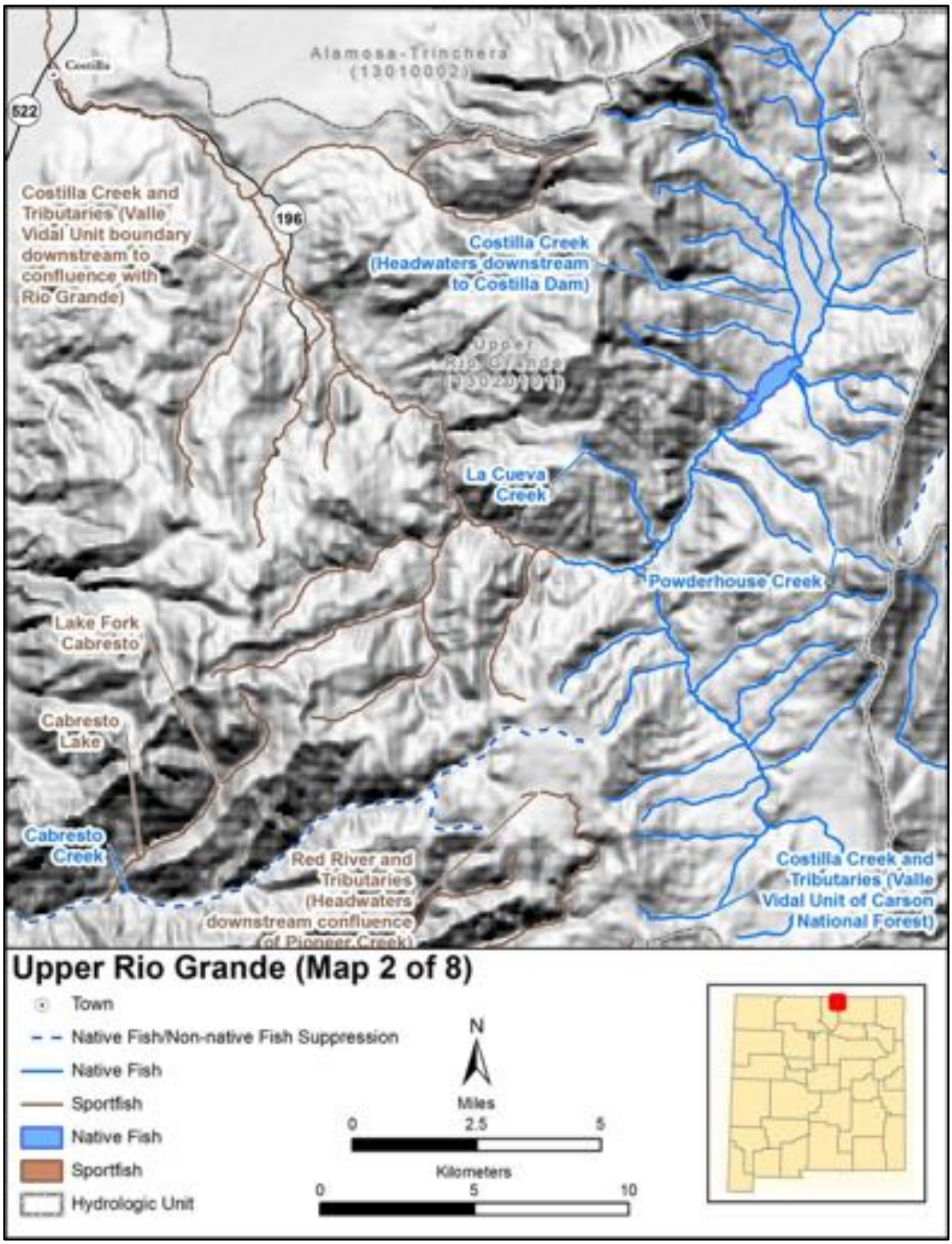

Figure 35. Upper Rio Grande (Map 2 of 8)

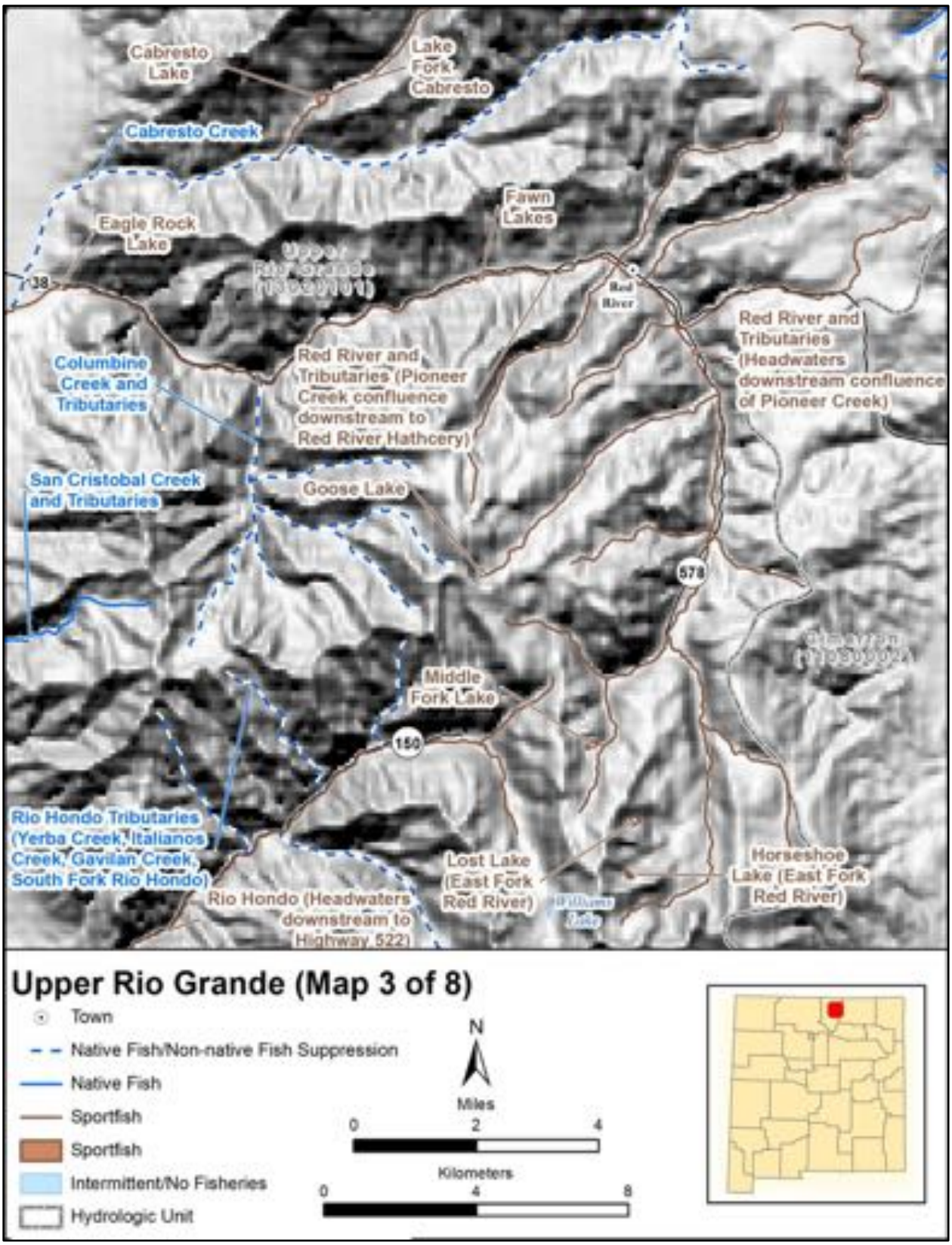

Figure 36. Upper Rio Grande (Map 3 of 8)

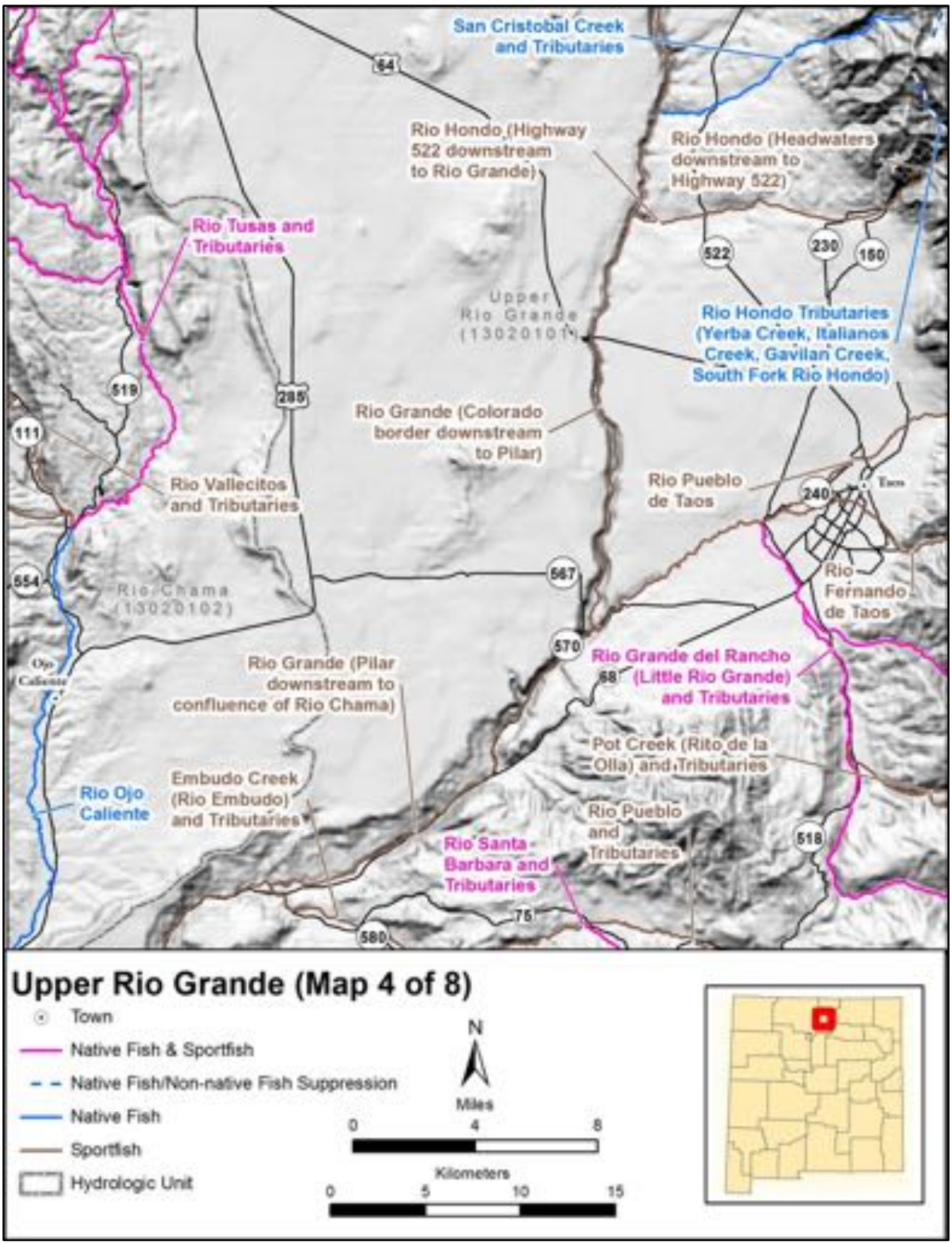

Figure 37. Upper Rio Grande (Map 4 of 8)

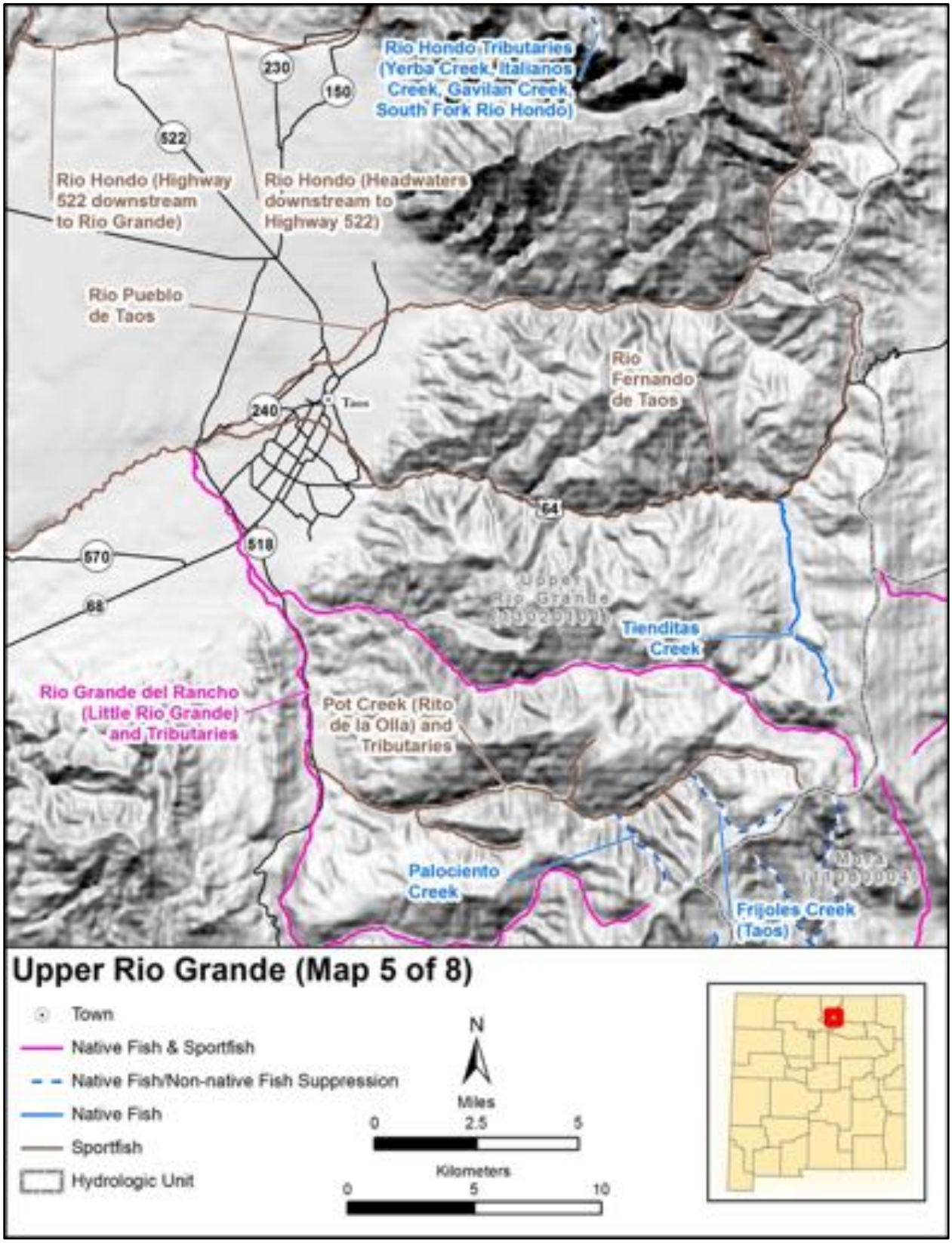

Figure 38. Upper Rio Grande (Map 5 of 8)

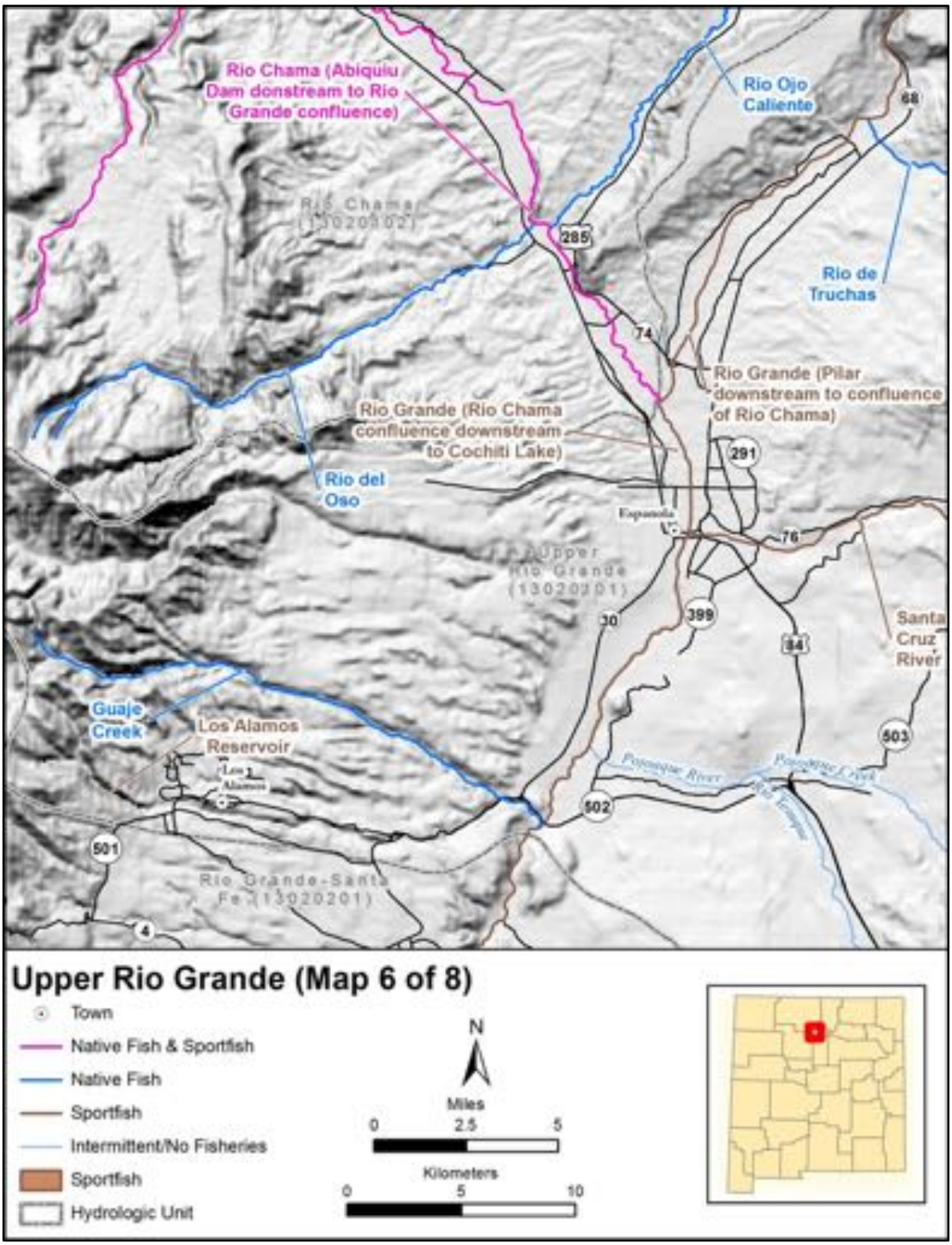

Figure 39. Upper Rio Grande (Map 6 of 8)

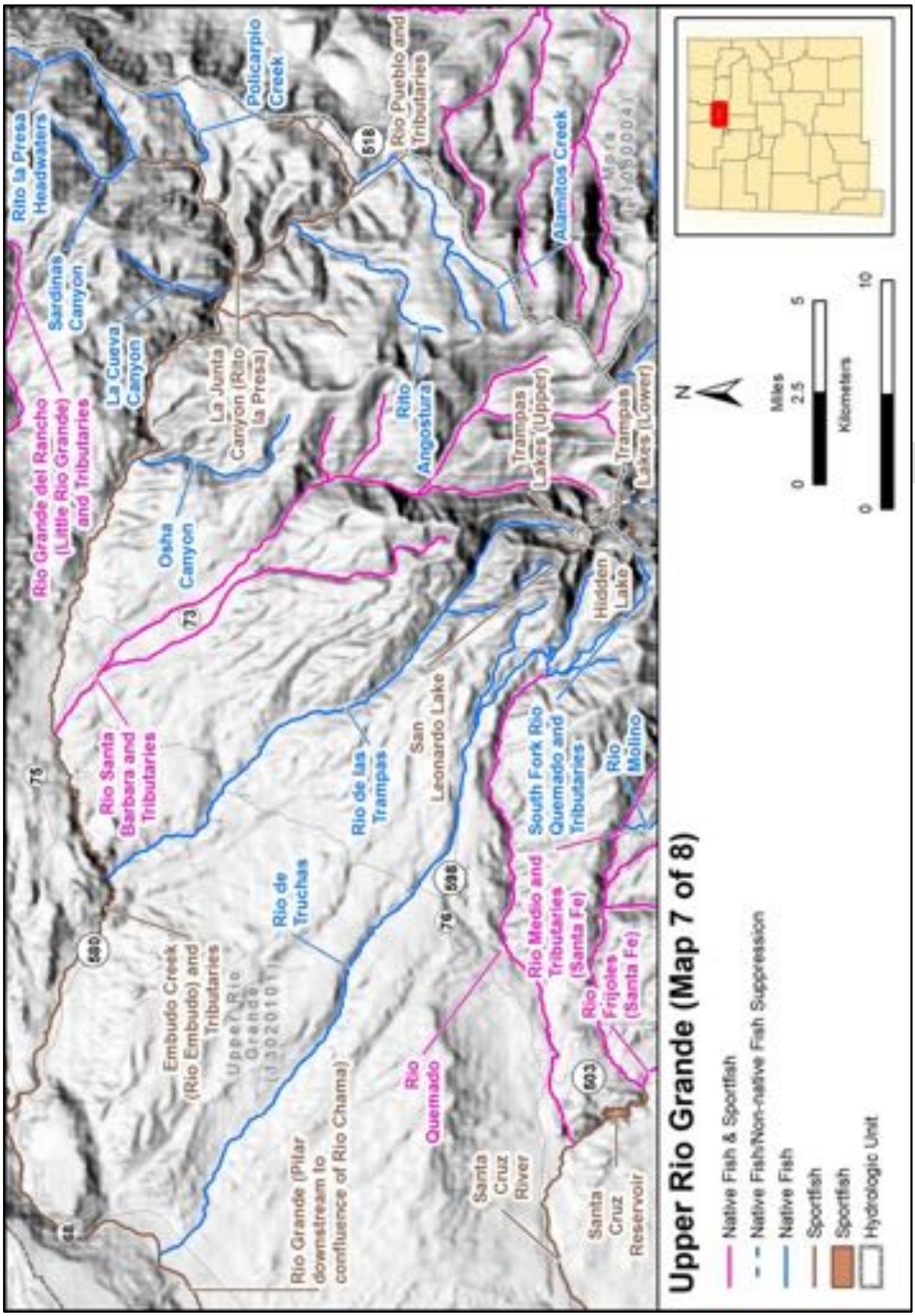

Figure 40. Upper Rio Grande (Map 7 of 8)

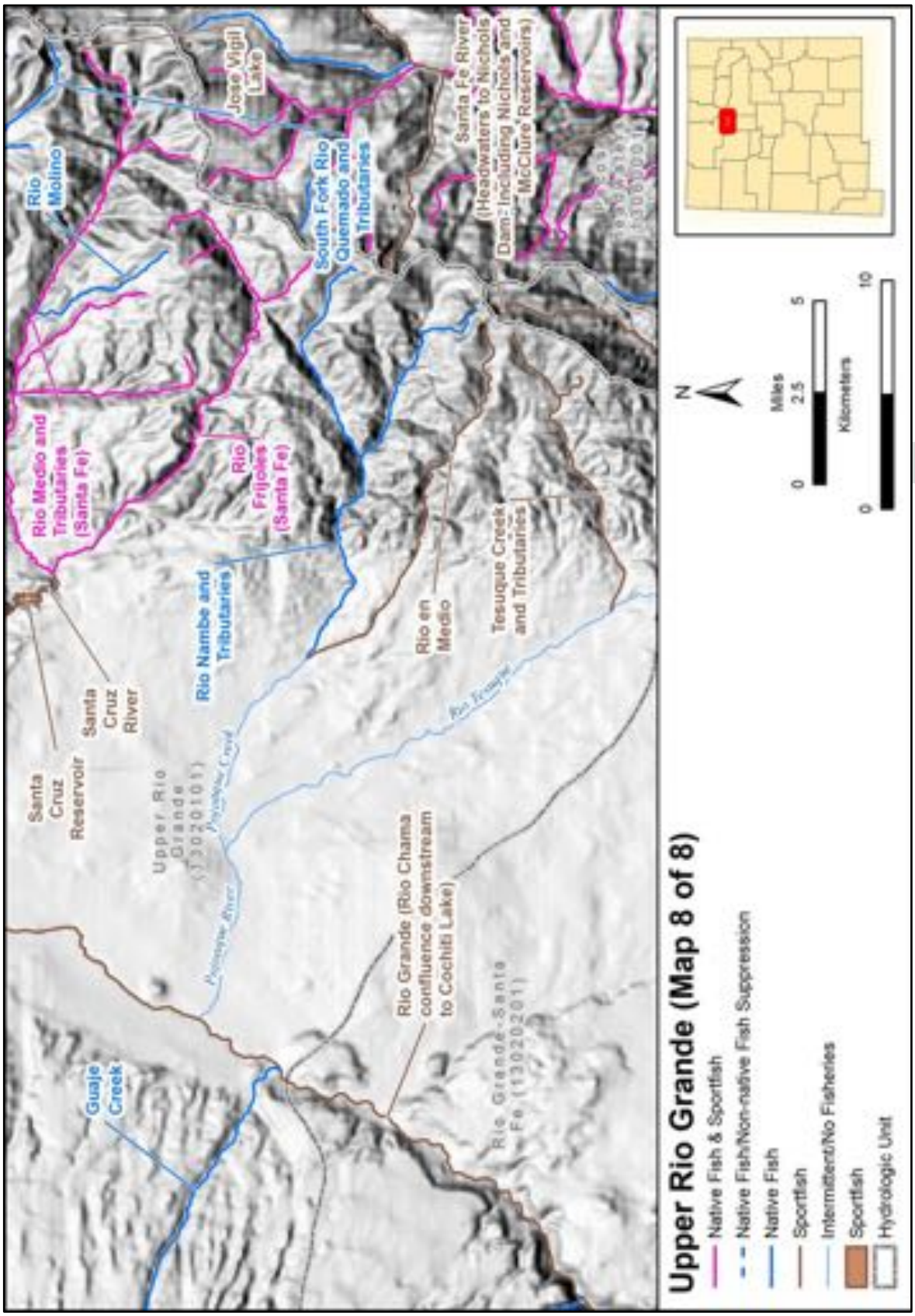

Figure 41. Upper Rio Grande (Map 8 of 8)

HUC 13020102 Rio Chama

Management Direction for HUC 13020102 Rio Chama

Water	Fish Species	Management Type	Management Direction
Placer Creek	Brook Trout	Wild	Maintain regulations to support angling for wild trout.
Hopewell Lake	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout.
	Brook Trout	Wild	Maintain regulations to support angling for wild trout. Abundance of brook trout uncertain.
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	Rio Grande chub and sucker present in lower drainage.
	Rio Grande Sucker	Native Fish	Rio Grande chub and sucker present in lower drainage.
Rio Vallecitos and Tributaries	Brown Trout	Wild	Maintain regulations to support angling for wild trout.
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.
	Rio Grande Chub	Native Fish	Rio Grande chub present in lower drainage.
Rio Ojo Caliente	Rio Grande Chub	Native Fish	Rio Grande chub and sucker present. Lower sections are ephemeral during dry season.
	Rio Grande Sucker	Native Fish	Rio Grande chub and sucker present. Lower sections are ephemeral during dry season.
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.

Management Direction for HUC 13020102 Rio Chama			
Water	**Fish Species**	**Management Type**	**Management Direction**
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 (two trout >12 inches, artificial fly or lure with single, barbless hook) within posted portion of Rio Chama Wildlife and Fishing Area. Maintain regulations to support angling for wild trout.
Rio Chama (El Vado Dam downstream to Abiquiu Lake)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout. Maintain regulations to support angling for wild trout.
	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 and monitor to document recruitment.
Rio Chama (Abiquiu Dam donstream to Rio Grande confluence)	Triploid Rainbow Trout	Put and Take	Special Trout Water regulation (three trout, any length, any legal tackle or bait) from Abiquiu Dam downstream 7 miles to U.S. Highway 84 bridge. Stock catchable triploid rainbow trout annually in tailwater.
	Brown Trout	Wild	Maintain regulations to support angling for wild trout.
	Rio Grande Chub	Native Fish	Rio Grande chub collected during previous surveys.
	Flathead Chub	Native Fish	Flathead chub collected during previous surveys.
Heron Reservoir	Kokanee Salmon	Put, Grow and Take	Primary source for statewide Kokanee broodstock. Kokanee season closed October-mid Nov 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.
	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.

Management Direction for HUC 13020102 Rio Chama			
Water	**Fish Species**	**Management Type**	**Management Direction**
El Vado Reservoir	Kokanee Salmon	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.
Abiquiu Reservoir	Walleye	Put, Grow and Take	Stock walleye at 100 advanced fry/surface acre. Annual stocking varies with reservoir elevation.
	Channel Catfish	Wild	Maintain regulations to support catfish angling.
	Smallmouth Bass	Wild	Manage as a Recreational Bass water.
	Kokanee Salmon	Put, Grow and Take	Stock Kokanee at 100 fingerlings/ surface acre. Annual stocking varies with reservoir elevation. Low priority water for Kokanee stocking.
	Triploid Rainbow Trout	Put, Grow and Take	Stock fingerling triploid rainbow trout. Investigate success of triploid rainbow trout recruitment.
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 (two trout, any length, artificial fly or lure, single, barbless hook) on Sargent Wildlife Management Area.
	Rio Grande Chub	Native Fish	Rio Grande chub present.
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 (catch and release, artificial fly or lure, single, barbless hook).
Canones Creek (San Juans) and Tributaries	Brown Trout	Wild	Almost entirely on private and Jicarilla Apache property.
	Rio Grande Cutthroat Trout	Native Fish	Almost entirely on private and Jicarilla Apache property. Small population of Rio Grande cutthroat trout in headwaters of Poso Creek.

Management Direction for HUC 13020102 Rio Chama

Water	Fish Species	Management Type	Management Direction
Laguna del Campo	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout. Special Trout Water regulation (three trout, any length).
Rio Brazos and Tributaries	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout annually on Department leased access on the Rio Brazos. Predominantly privately owned.
	Brown Trout	Wild	Maintain regulations to support angling for wild trout.
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 attempted here.
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.
Canjilon Creek	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande cutthroat trout.
Rio Cebolla (Rio Arriba) and Tributaries	Rio Grande Chub	Native Fish	Rio Grande chub present.
	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	Rio Grande chub present.
	Trout	Wild	Almost entirely on private land. Maintain regulations to support angling for wild trout.
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.

Management Direction for HUC 13020102 Rio Chama

Water	Fish Species	Management Type	Management Direction
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 possibly lost after the South Fork wildfire. Repatriate Rio Grande cutthroat trout after the watershed recovers.
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. 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.
Brazos Lodge Pond	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout in the early summer.
Little Willow Creek	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande cutthroat trout almost entirely on Jicarilla Apache property.

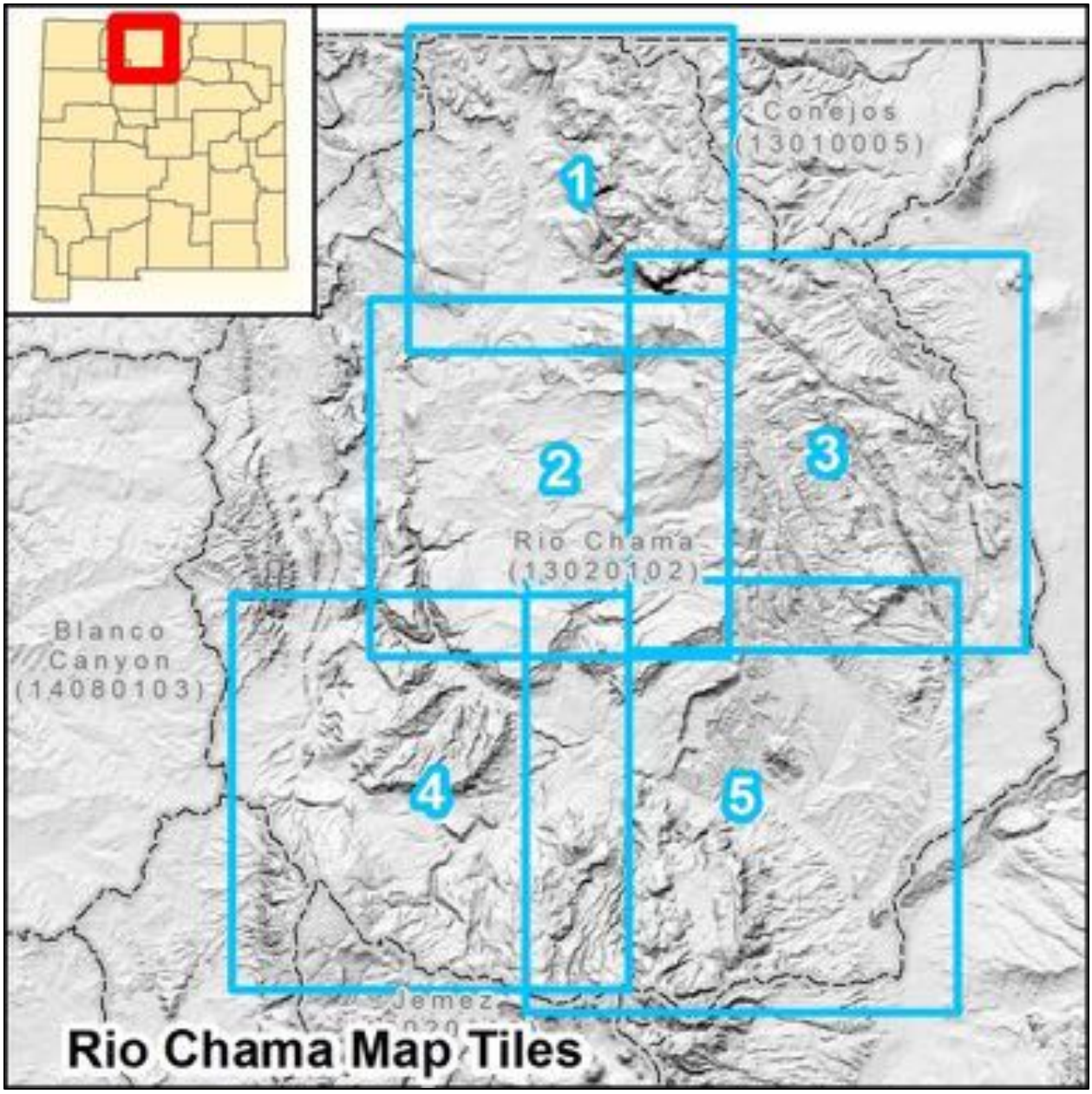

Figure 42. Rio Chama Map Tiles

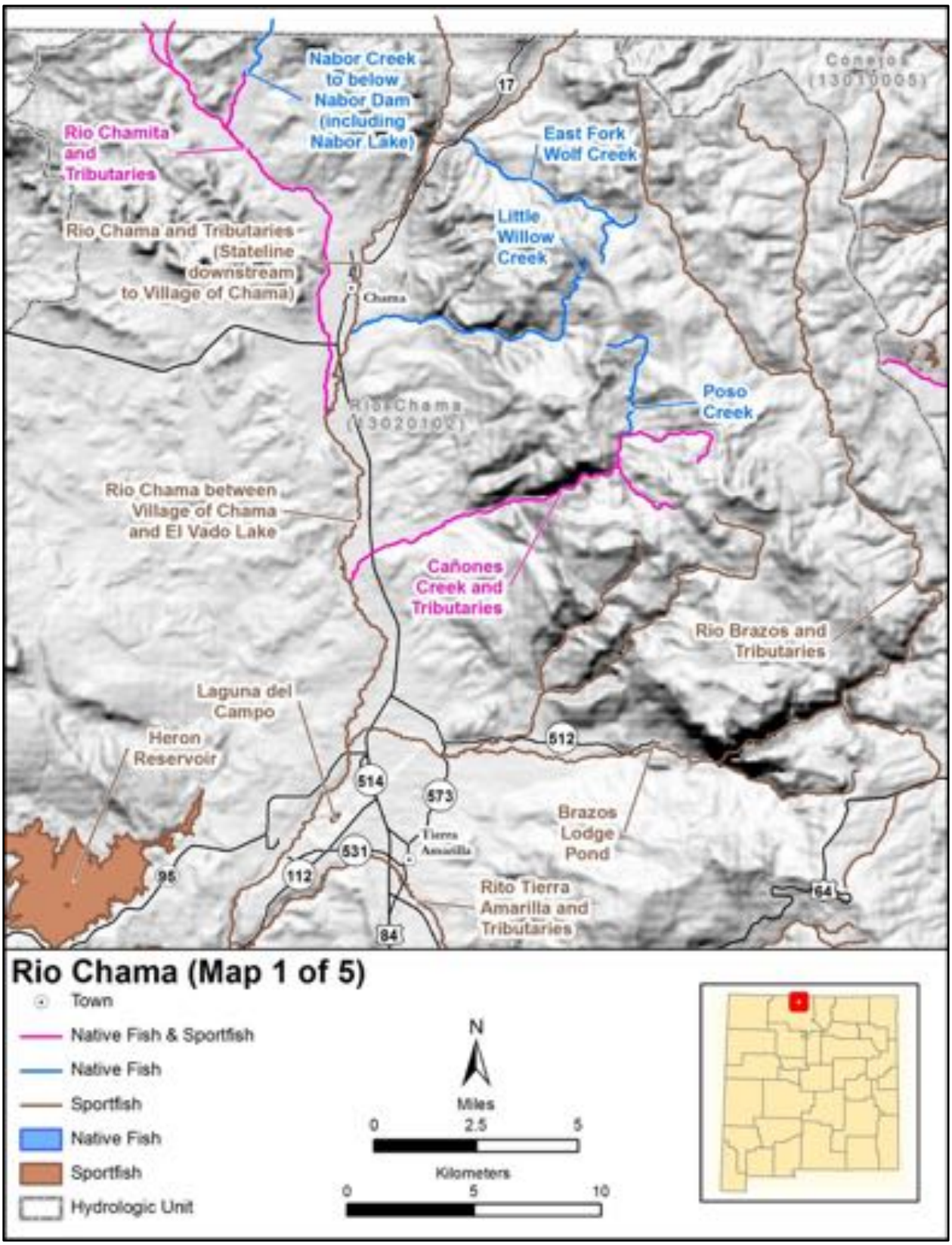

Figure 43. Rio Chama (Map 1 of 5)

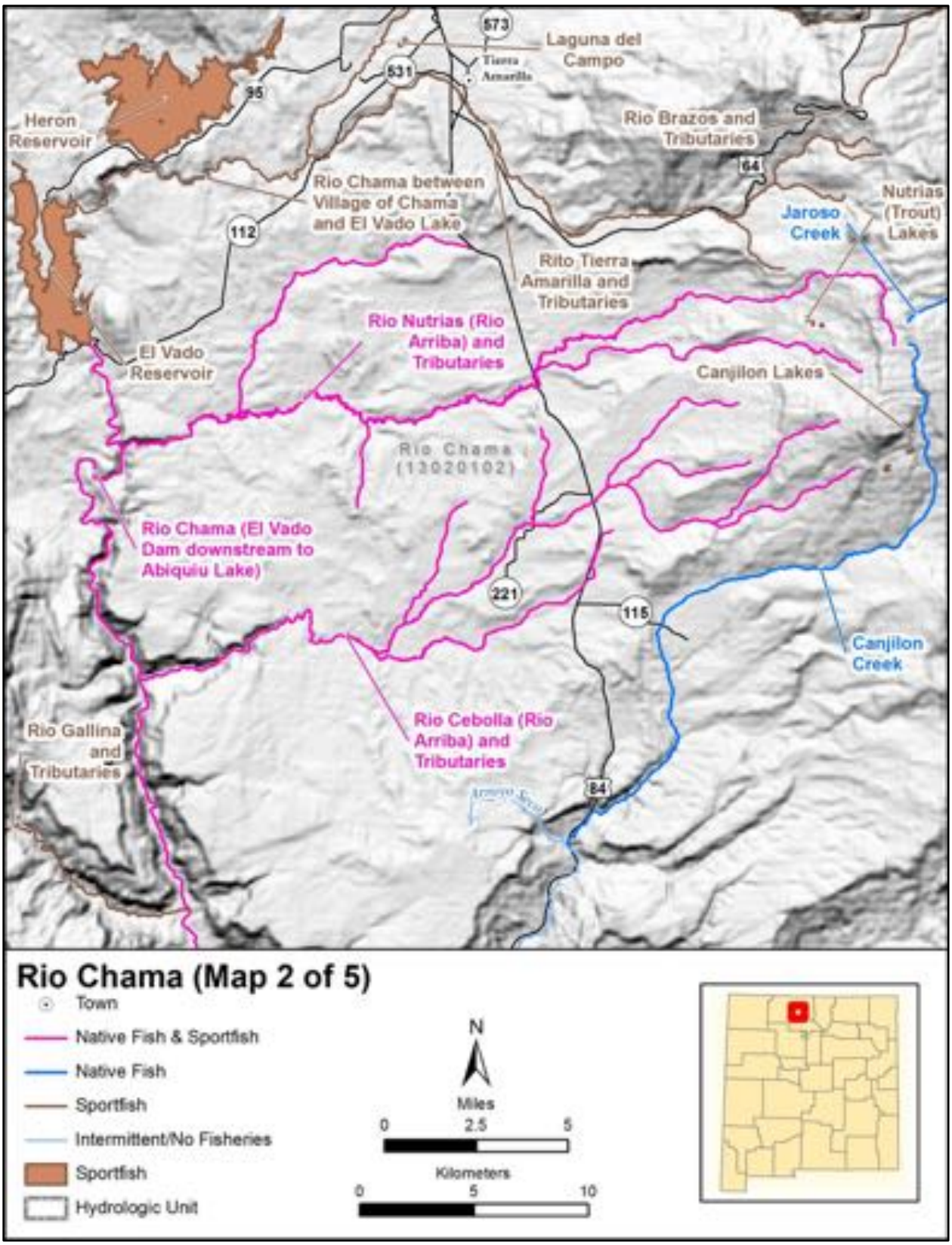

Figure 44. Rio Chama (Map 2 of 5)

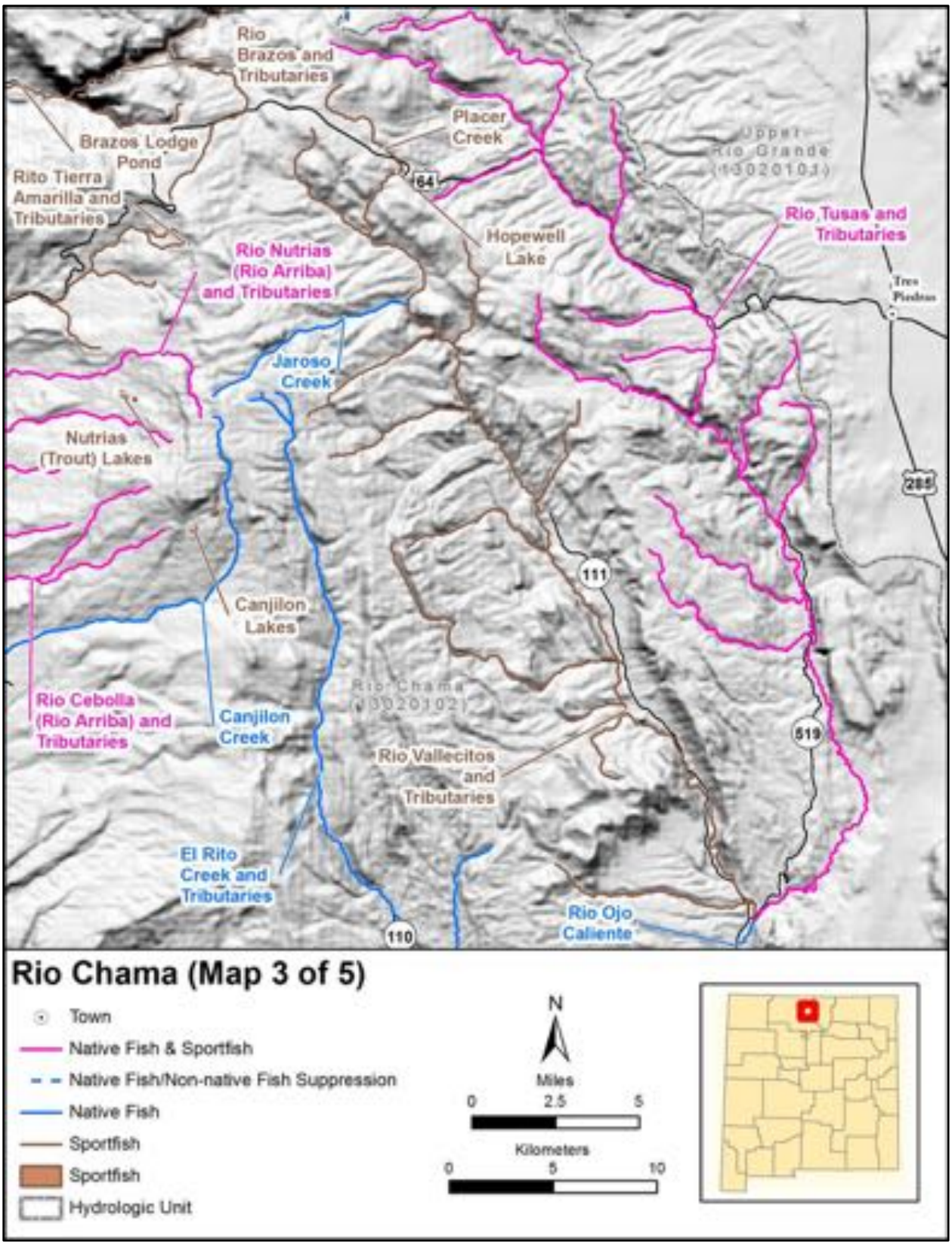

Figure 45. Rio Chama (Map 3 of 5)

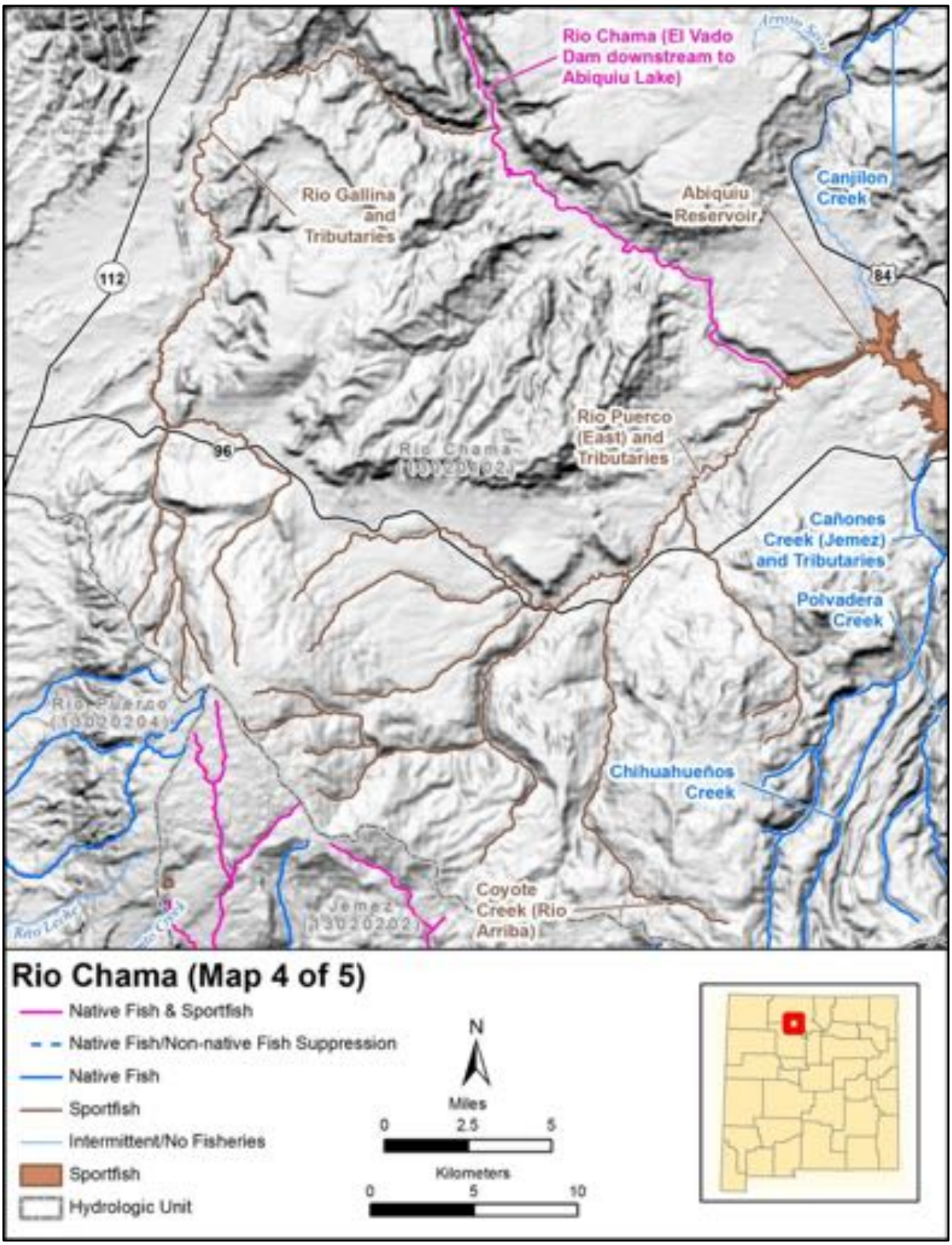

Figure 46. Rio Chama (Map 4 of 5)

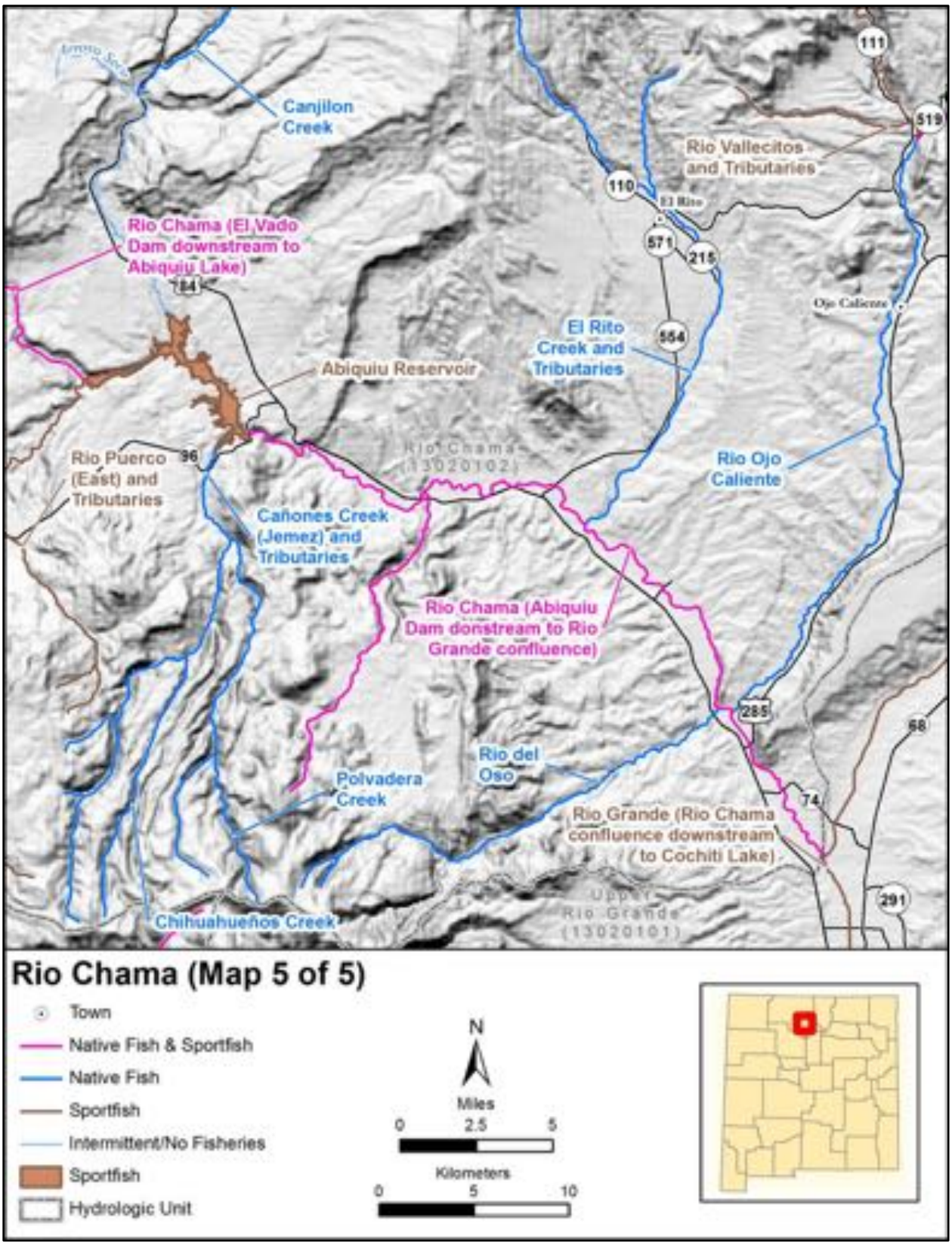

Figure 47. Rio Chama (Map 5 of 5)

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	Entirely within Bandelier National Monument. Heavily impacted by Los Conchas wildfire and subsequent flooding and non-native salmonids believed to have been extirpated. Considered for repatriation of Rio Grande cutthroat trout in collaboration with the National Park Service.
Capulin Creek	Rio Grande Cutthroat Trout	Native Fish	Severely impacted by Dome and Las Conchas wildfires. Contained Core Conservation Population of Rio Grande cutthroat trout prior to the Las Conchas wildfire. Will be restocked with Rio Grande cutthroat trout. Special Trout Water regulation (catch and release, artificial fly or lure, single, barbless hook) through entire watershed.
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 Chub	Native Fish	Rio Grande chub are abundant in the reach between wastewater treatment plant and the Rio Grande. Reach is partially within the jurisdiction of Cochiti Pueblo.
	Rio Grande Sucker	Native Fish	Rio Grande sucker are abundant in the reach between wastewater treatment plant and the Rio Grande.
Peralta Creek	Rio Grande Cutthroat Trout	Native Fish	Severely impacted by the Las Conchas wildfire. Cutthroat trout population believed to have been extirpated. Will be stocked with Rio Grande cutthroat trout when watershed recovers.

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 wildlfire. 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)	Triploid Rainbow Trout	Put and Take	Formerly stocked once per year with catchable sized rainbow trout. Last stocked in 2010 and subject to drying.
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.

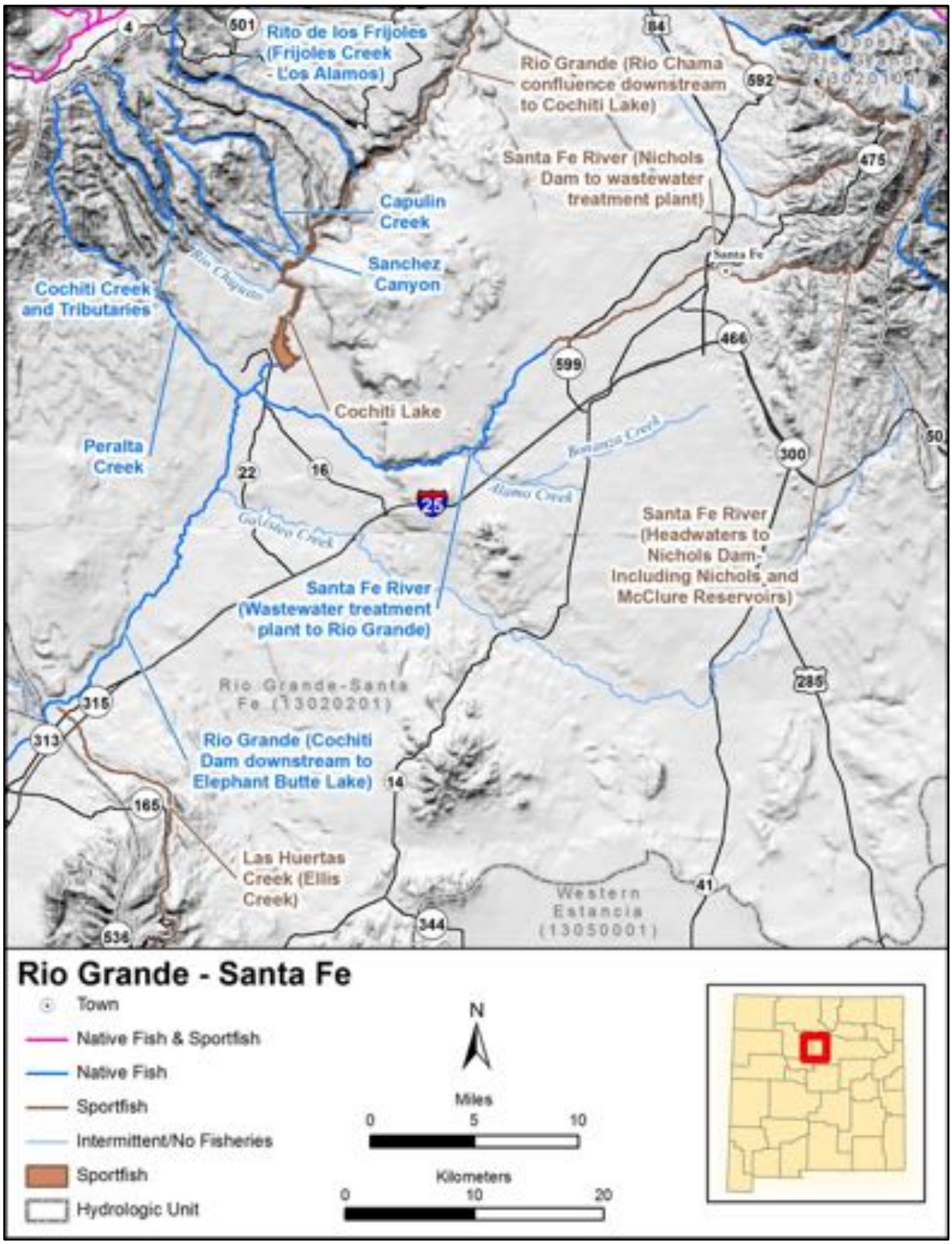

Figure 48. Rio Grande - Santa Fe

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	Stock catchable triploid rainbow trout in early summer. U.S. Forest Service restrictions on stocking methodology. Consistent winterkill conditions necessitates annual catchable stocking.
East Fork Jemez River and Tributaries	Triploid Rainbow Trout	Put and Take	Upper reaches are within the Valles Caldera National Preserve. Stock catchable triploid rainbow trout downstream of East Fork Trailhead and Valles Caldera boundary.
	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 on Forest Service property as part of recreational stocking study.
	Rio Grande Chub	Native Fish	Populations of Rio Grande chub present in this reach.
	Rio Grande Sucker	Native Fish	Populations of Rio Grande sucker present in this reach.
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 Valles Caldera boundary.
	Brown Trout	Wild	Maintain regulations to support angling for wild trout. Special Trout Water regulation (catch and release, artificial fly or lure, single, barbless hook) from Valles Caldera boundary downstream 2.0 miles.
	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	Populations of Rio Grande sucker present within this reach.
	Rio Grande Chub	Native Fish	Populations of Rio Grande chub sucker present within this reach.
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.

Management Direction for HUC 13020202 Jemez, 13020204 Rio Puerco, 13020207 Rio San Jose			
Water	**Fish Species**	**Management Type**	**Management Direction**
	Rio Grande Sucker	Native Fish	Rio Grande sucker are abundant in this reach.
	Rio Grande Chub	Native Fish	Rio Grande chub are abundant in this reach.
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. Suppression is difficult due to high habitat complexity and length of stream containing Rio Grande cutthroat trout.
	Brown Trout	Wild	Investigate angling regulations that would help to reduce brown trout density. Suppression of brown trout is difficult due to habitat complexity and stream length.
Rito de Las Palomas	Rio Grande Cutthroat Trout	Native Fish	Conservation Population of Rio Grande cutthroat trout.
Rio Cebolla (Headwaters downstream to and 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, although not as frequently. Special Trout Water regulation (catch and release, artificial fly or lure, single, barbless hook) for the entire reach.
	Brown Trout	Suppression	Periodically remove brown trout to maintain the Rio Grande cutthroat trout population. Suppression occurred annually from 2005-2013. Less frequent removals will continue. Unlimited brown trout harvest regulation.
Rio Cebolla (below McKinney Pond 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. Special Trout Water regulation (catch and release, artificial fly or lure, single, barbless hook) upstream of Seven Springs Day Use area.
	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	Rio Grande sucker are present in this reach.
	Rio Grande Chub	Native Fish	Rio Grande chub are present in this reach.

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 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	Rio Grande sucker are present in this reach.
	Rio Grande Chub	Native Fish	Rio Grande chub are present in this reach.
Rio Guadalupe	Brown Trout	Wild	Special Trout Water regulation (catch and release only, artificial fly or lure, single barbless hook) from Porter Landing Bridge 1.3 miles downstream to Llano Loco Spring.
	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	Rio Grande chub are present in this reach.
	Rio Grande Sucker	Native Fish	Rio Grande sucker are present in this reach.
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	Rio Grande chub are present.
	Rio Grande Sucker	Native Fish	Rio Grande sucker are present though white sucker abundance increasing downstream of Jemez Springs.
Jemez River (Rio Guadalupe confluence downsream to Rio Grande)	N/A	N/A	Almost entirely within boundaries of Zia, Jemez, and Santa Ana Pueblos. Not actively managed by NMGF.

Management Direction for HUC 13020202 Jemez, 13020204 Rio Puerco, 13020207 Rio San Jose			
Water	**Fish Species**	**Management Type**	**Management Direction**
Seven Springs Kids Pond (Brood Pond)	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout annually. Access restricted to anglers less than 12 years of age.
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. Brook trout present in Rito de los Pinos.
Bluewater Lake	Triploid Rainbow Trout	Put and Take	Investigate appropriate stocking rate and season for catchable rainbow trout.
	Channel Catfish	Put, Grow and Take	Stock fingerling channel catfish every other year and monitor for recruitment.
	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.
Grant's Riverwalk Pond	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish between May and September. Maintain 2 fish daily bag limit.
Rio Puerco (Nacimiento Creek to Rio Grande)	N/A	N/A	No current data and is primarily ephemeral.

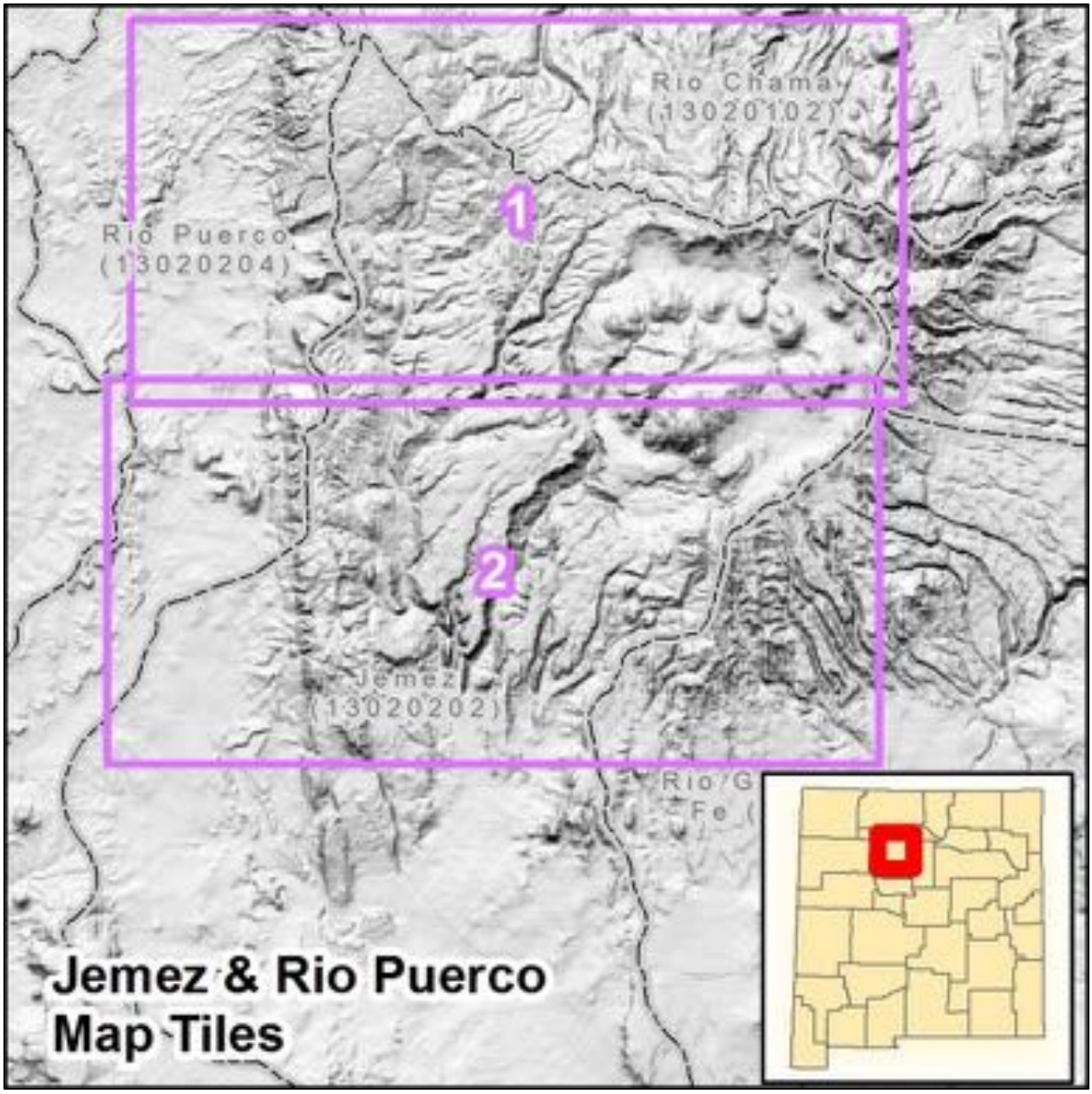

Figure 49. Jemez and Rio Puerco Map Tiles

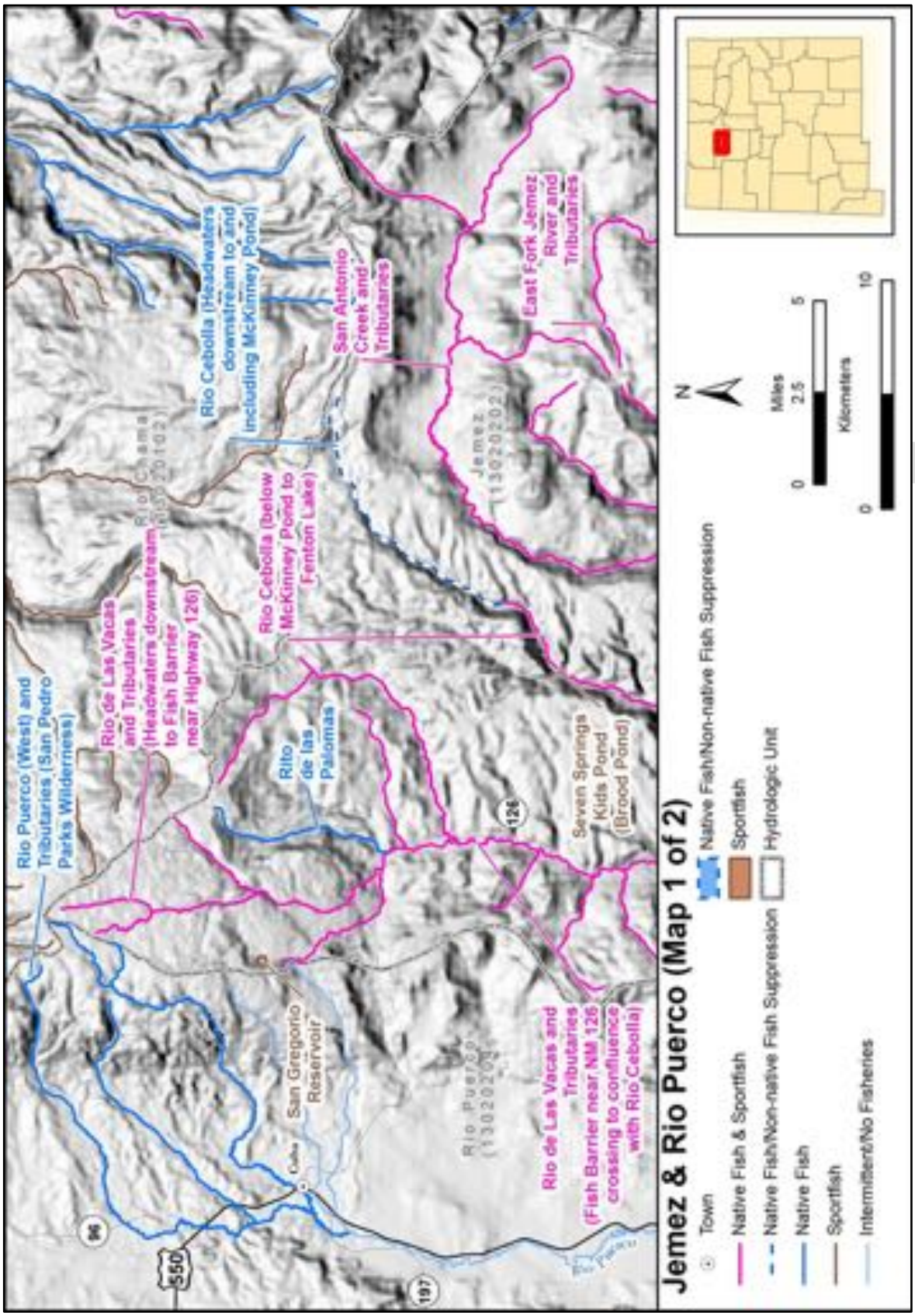

Figure 50. Jemez and Rio Puerco (Map 1 of 2)

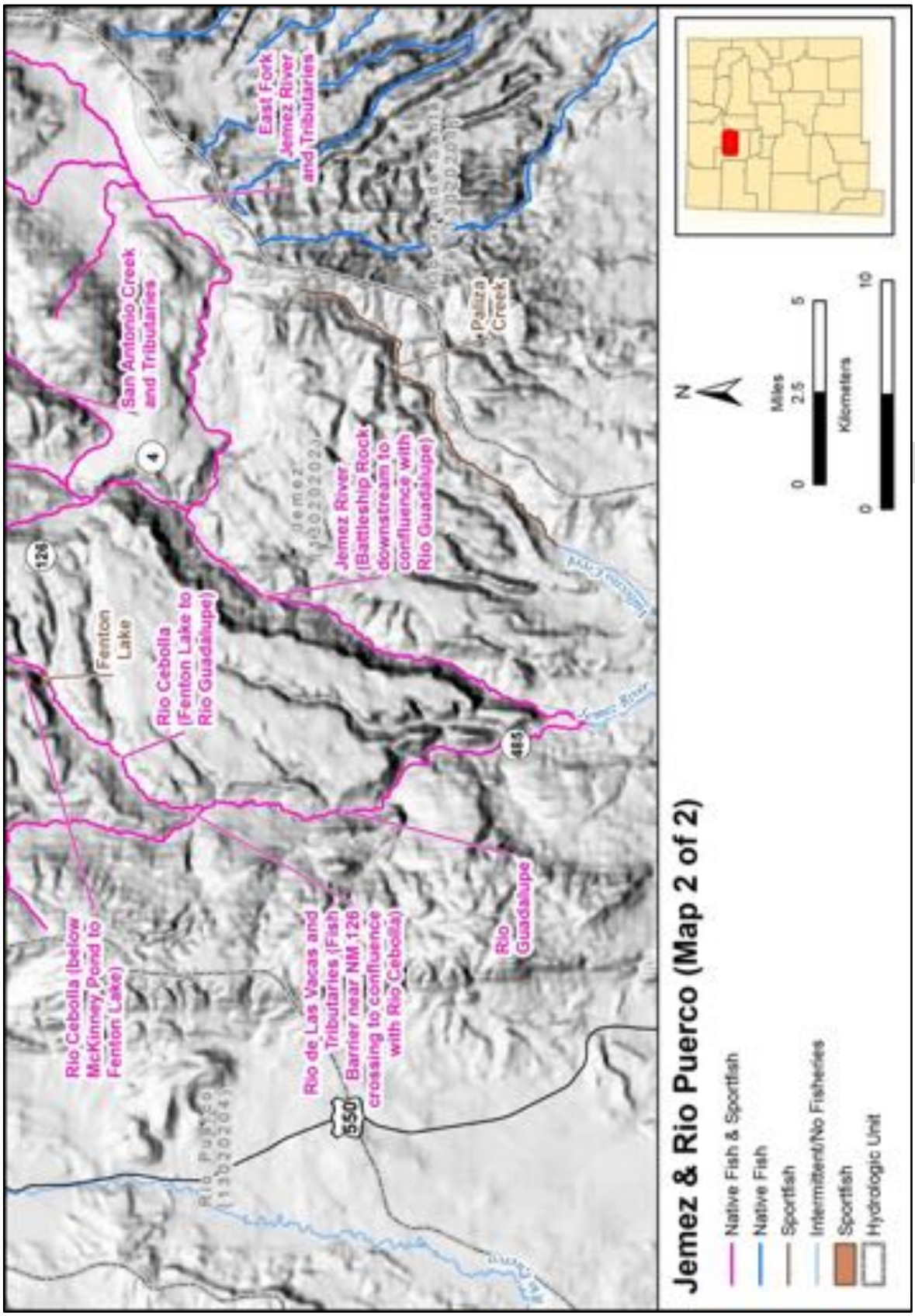

Figure 51. Jemez and Rio Puerco (Map 2 of 2)

Figure 52. 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 Lake)	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. River routinely dries and is fragmented by irrigation diversions.
Tingley Beach	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout between October and March. Special Trout Water regulation for Central and Kids Ponds only (four trout, any length, any legal tackle or bait) and southernmost pond (catch and release, artificial fly or lure, single, barbless hook).
	Largemouth Bass	Wild/Supplemental stocking	Stock largemouth bass as necessary to supplement population.
	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish between May and September. Maintain two fish daily bag limit.
Albuquerque Riverside Drain (Upper)	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout between November and March.
Upper Corrales Riverside Drain	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout between November and March.
Bernalillo Riverside Drain	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout between November and March.
Albuquerque Riverside Drain (Lower)	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout between November and March.
Belen Riverside Drain	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout between November and March.
Peralta Riverside Drain	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout from November through March.
Escondida Lake	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout between November and March.
	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish between May and September. Maintain two fish daily bag limit.

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
Manzano Lake	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout.
Elephant Butte Lake	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 fishery.
	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	Stock catchable Triploid Rainbow Trout between November and March. Special Trout Water regulation (three fish, any length).
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 angling regulations to support catfish angling.
Ralph Edwards Park Pond	Triploid Rainbow Trout	Put and Take	Stock catchable 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	Upper reaches planned for native fish restoration. Severely impacted by Silver Fire (2013) and salmonids are believed to be eliminated. Repatriate with Rio Grande Cutthroat Trout upon watershed recovery or piscicide treatment (if necessary). Special Trout Water regulation (catch and release, artifical fly or lure, single, barbless hook) within Gila National Forest boundary.
	Rio Grande Sucker	Native Fish	Believed to be eliminated. Repatriate upon watershed recovery.

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 Chub	Native Fish	Believed to be eliminated. Repatriate upon watershed recovery.
Palomas Creek	Rio Grande Sucker	Native Fish	Rio Grande sucker are present.
Young Pond	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout between October and March.
	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish between May and September. Maintain two fish daily bag limit.
Alumni Pond	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout between October and March.
	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish between May and September. Maintain two fish daily bag limit.
Burn Lake	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout between October and March, water level permitting.
	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish between May and September, water level permitting.
Rio Grande (Caballo Dam to State Line)	N/A	N/A	Dry most of the year.

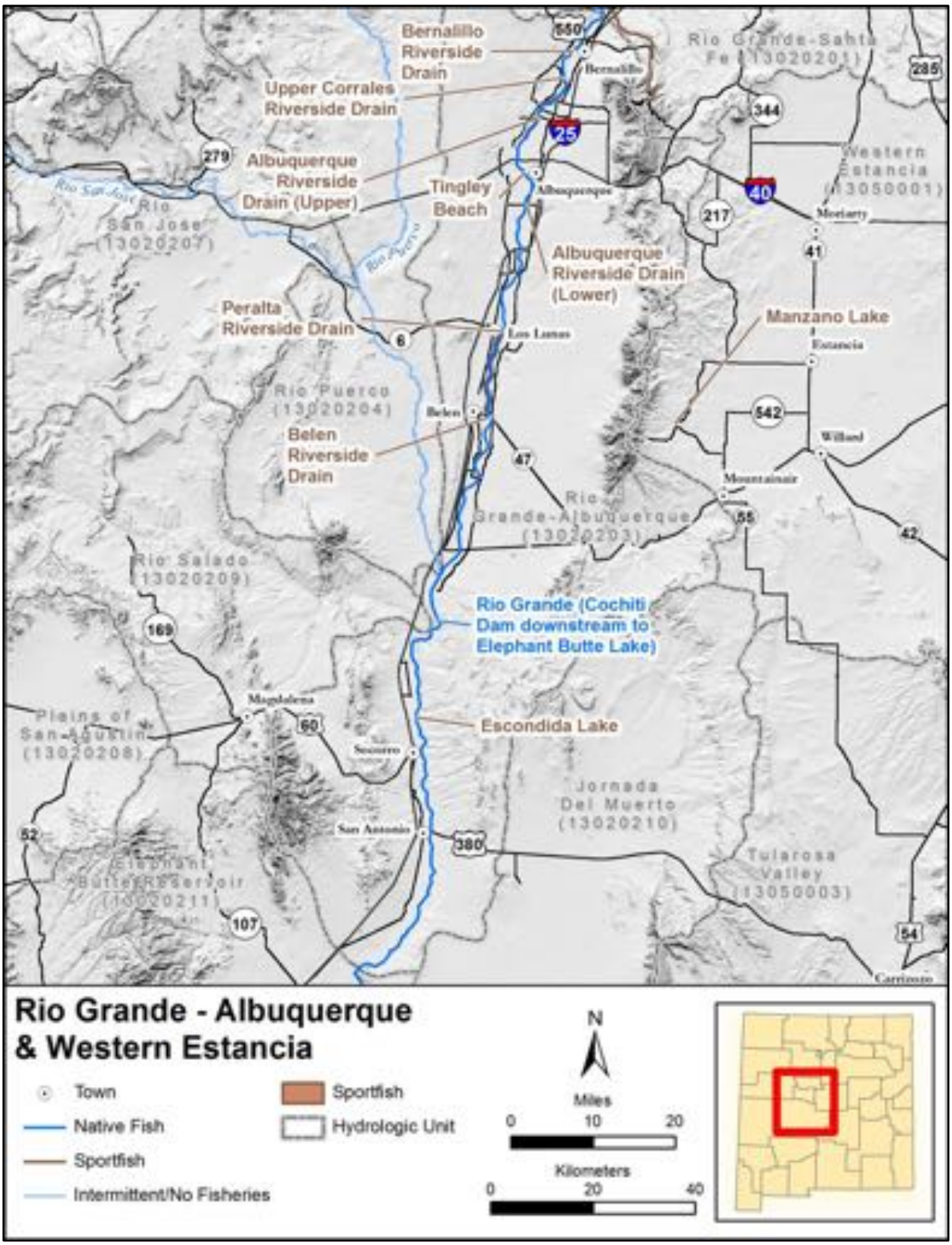

Figure 53. Rio Grande - Albuquerque & Western Estancia

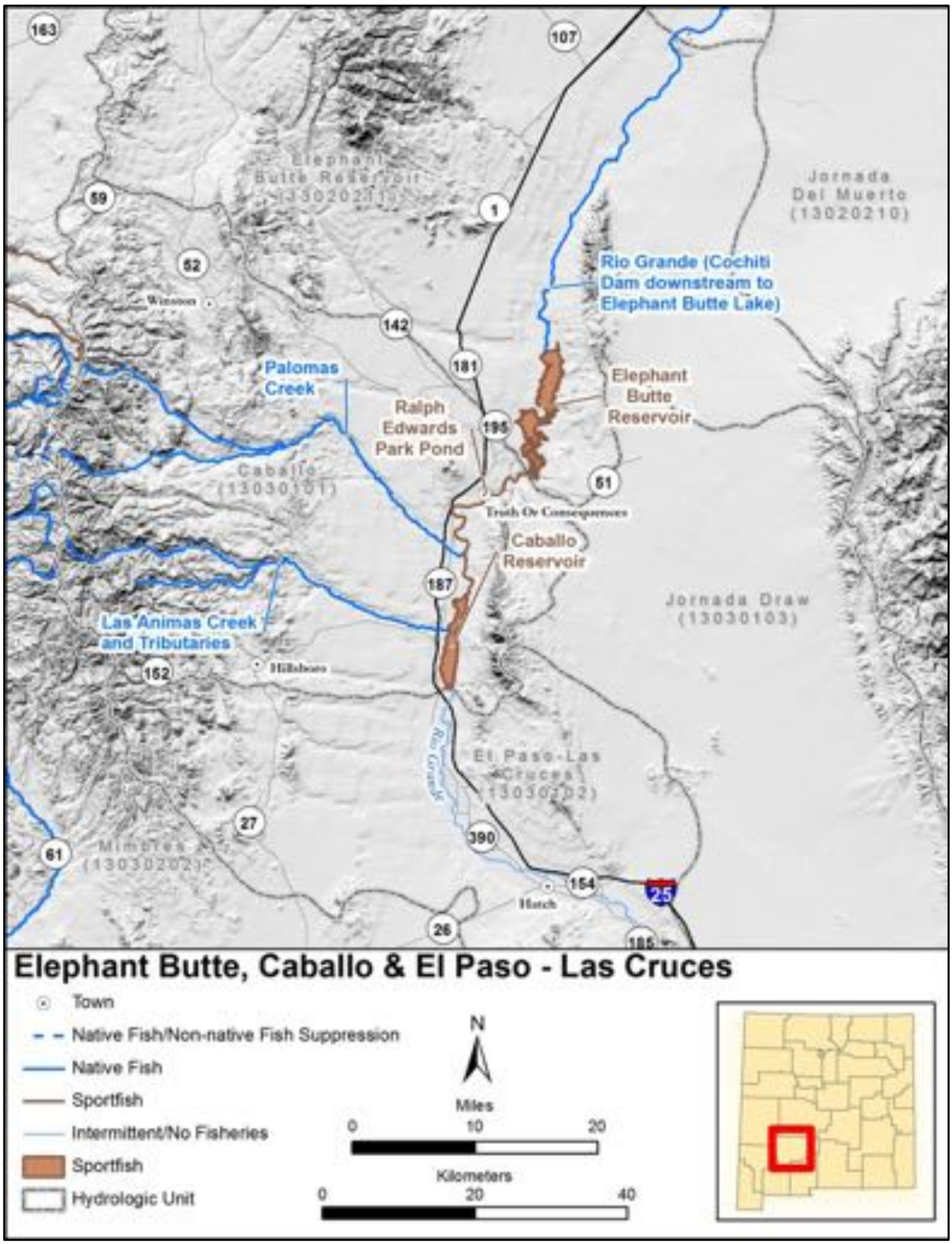

Figure 54. Elephant Butte, Caballo and El Paso - Las Cruces

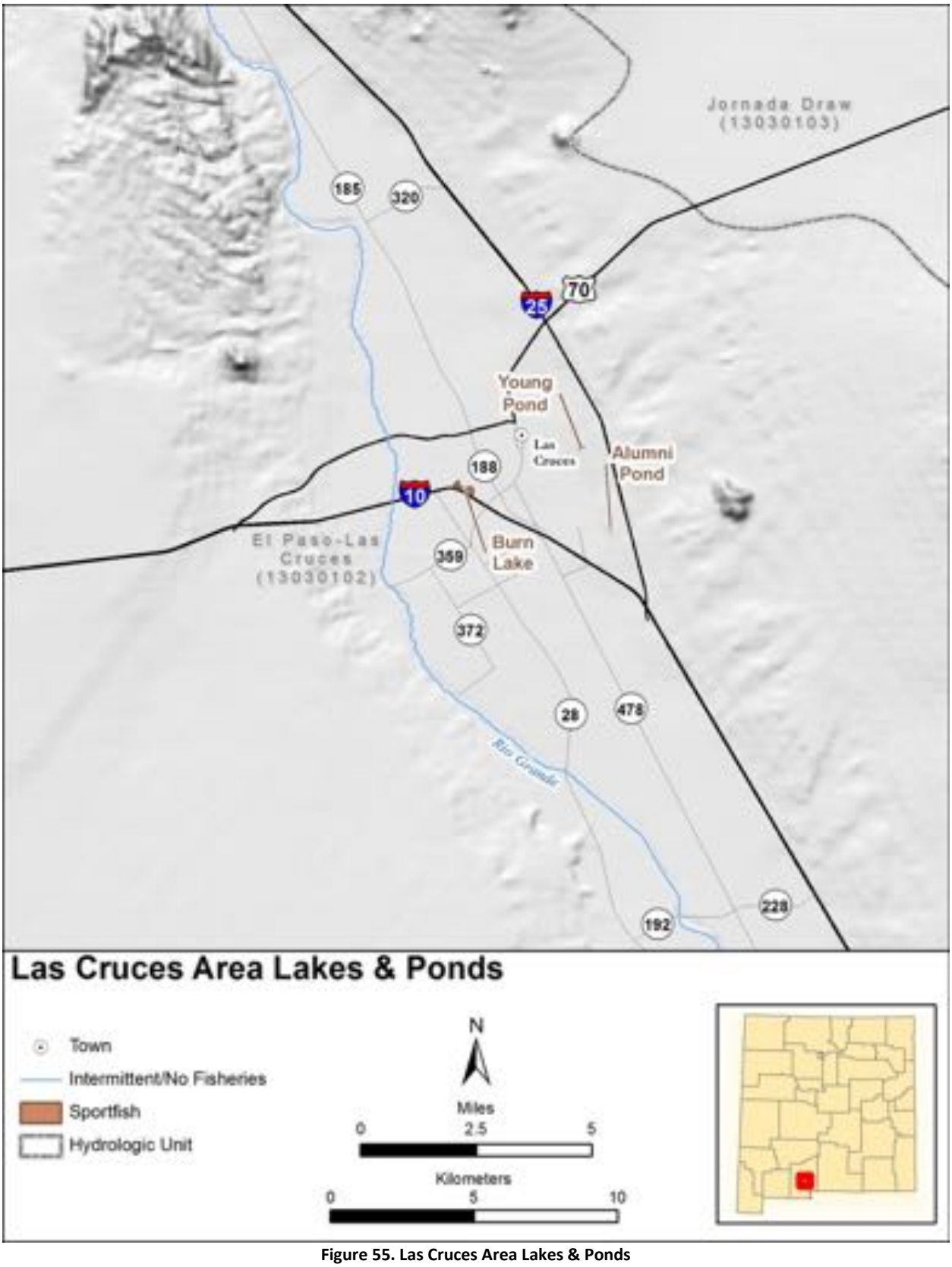

Figure 55. Las Cruces Area Lakes & Ponds

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 NMDGF 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 Lake provides recreational fishing opportunities including largemouth bass, channel catfish, and seasonally stocked rainbow trout. The federally threatened Chihuahua chub inhabits perennial warmwater reaches and Gila trout, not native to the Mimbres, was stocked into McKnight Creek in the 1970s. Fire induced flooding and ash flows eliminated Gila trout from McKnight Creek and nearly eliminated Chihuahua Chub in 2013.

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 hatchery reared Chihuahua chub to maintain population and expand range. Investigate off-channel refugia. Severely impacted by the Silver Fire (2013). Document post-fire recovery of Chihuahua chub prior to stocking other fish in the drainage.
	Rio Grande Sucker	Native Fish	Eliminated by Silver Fire. Repatriate upon watershed recovery.
Bear Canyon Reservoir	Triploid Rainbow Trout	Put and Take	Winter Trout Water - Stock catchable triploid rainbow trout between November and March.
	Channel Catfish	Put, Grow and Take	Stock subadult channel catfish. Monitor to assess growth rate and recruitment.
	Largemouth Bass	Wild	Manage as a Recreational Bass water. Investigate potential as a Trophy Bass water.

Figure 56. 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 ponderosa, piñon, juniper, cottonwood, Arizona sycamore, boxelder, and Arizona walnut.

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 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. Two Gila trout populations have been opened to fishing since 2006 and excess broodstock have been stocked from the Mora National Fish Hatchery and Technology Center 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. Most streams with Gila trout are currently closed to angling to protect them from even minimal losses associated with angling. 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, 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 (Headwaters downstream to White Creek falls)	Gila Trout	Native Fish	Gila trout recovery stream. Severely impacted by the Whitewater-Baldy wildfire in 2012. Stock with Gila trout 2014 to 2016.
West Fork Gila River and Tributaries (Headwaters to waterfalls near White Creek Cabin)	Gila Trout	Native Fish	Gila trout recovery stream(s) and Whiskey Creek is a relict population. Severely impacted by the Whitewater-Baldy wildfire in 2012. Non-native trout migrated through waterfall in 2013 and 2014. Investigate potential for augmenting waterfall to secure this reach. Complete necessary environmental compliance and restore for Gila trout. Investigate potential for opening to angling.
McKenna Creek	Gila Trout	Native Fish	Gila trout recovery stream. Stocked with Gila trout in 2012. Investigate potential for opening to angling.
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 wild trout angling.
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 native species recovery efforts including Gila trout. A barrier and renovation would be required for repatriation of Gila trout.
	Trout	Wild	Brown and Rainbow trout present. Maintain regulations to support wild trout angling.
	Loach Minnow	Native Fish	Includes Designated Critical Habitat for loach minnow and they are present in this reach.
	Spikedace	Native Fish	Includes Designated Critical Habitat for spikedace and they are present in this reach.
	Headwater Chub	Native Fish	Currently occupied by headwater chub.

Management Direction for HUC 15040001 Upper Gila			
Water	**Fish Species**	**Management Type**	**Management Direction**
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	Includes Designated Critical Habitat for loach minnow and they are present in this reach.
	Spikedace	Native Fish	Includes Designated Critical Habitat for spikedace and they are present in this reach.
	Headwater Chub	Native Fish	Currently occupied by headwater chub.
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	Includes Designated Critical Habitat for loach minnow and they are present in this reach.
Little Creek (Above Barrier)	Gila Trout	Native Fish	Gila trout recovery stream.
Little Creek (Below Barrier)	Loach Minnow	Native Fish	Repatriate loach minnow 2014-2020 and monitor to assess effectiveness. Source loach minnow from West Fork Gila River or Bubbling Ponds Hatchery (AZ).
	Brown Trout	Wild	Maintain regulations to support wild trout angling.
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.

Management Direction for HUC 15040001 Upper Gila			
Water	**Fish Species**	**Management Type**	**Management Direction**
	Gila trout	Put and Take	Gila trout recreational water. Special Trout Water regulation (Two Gila Trout, any legal tackle or bait) for entire reach. Stock catchable Gila trout annually.
Willow Creek and Tributaries	Gila trout	Native Fish	Gila trout recreational water. Special Trout Water regulation (Two Gila Trout, any legal tackle or bait) for Willow Creek. Identified as potential Gila trout recovery stream in the Gila Trout Recovery Plan (2003). Non-native trout were not eliminated by Whitewater Baldy Fire (2012).
	Brown Trout	Suppression	Maintain unlimited harvest regulation for brown trout to promote recruitment potential for Gila tTrout.
Iron Creek (Above Barrier)	Gila trout	Native Fish	Gila trout recovery stream. Maintain current 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.
	Headwater Chub	Native Fish	Headwater chub are present in low numbers in this reach.
	Spikedace	Native Fish	Includes Designated Critical Habitat for spikedace.
	Loach Minnow	Native Fish	Includes Designated Critical Habitat for loach minnow.
	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.
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 (catch and release, artificial fly or lure, single barbless hook) upstream of waterfall barrier - Open July 1 to October 31. Gila Trout severely impacted by Silver wildfire (2013). Stock Gila trout as necessary post-fire. Investigate extending angling season. Investigate Open Gate opportunities for improved angler access.

Management Direction for HUC 15040001 Upper Gila			
Water	**Fish Species**	**Management Type**	**Management Direction**
	Brown Trout	Suppression	Brown trout impacted or extirpated by Silver wildfire (2013). Periodically remove brown trout to maintain Gila trout population.
Black Canyon (Below Barrier)	Gila Trout	Put and Take	Stock catchable Gila trout annually. Investigate status of fishery in Lower Black Canyon near confluence of East Fork Gila River.
East Fork Gila River and Tributaries	Smallmouth Bass	Wild	Maintain regulations to support smallmouth bass angling. Investigate regulations to promote trophy fishery. 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. Investigate regulations to promote trophy fishery. 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 between September and May.
	Gila Trout	Put and Take	Stock catchable Gila trout.
	Channel Catfish	Put, Grow and Take	Stock sub-adult channel catfish. Monitor to assess growth rate and recruitment.
	Largemouth Bass	Wild	Manage as a Trophy Bass water and investigate regulations to attain trophy potential.
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 annually. Investigate Open Gate opportunities to increase angler access.
	Trout	Wild	Maintain angling regulations to support wild trout angling. Brown and rainbow trout present.
Trout Creek	Rainbow Trout	Wild	Potential Gila trout recovery stream, has perennial water and a barrier at lower end. Habitat assessment needed and renovation would be required to repatriate Gila trout.

Management Direction for HUC 15040001 Upper Gila			
Water	**Fish Species**	**Management Type**	**Management Direction**
Cow Creek	Rainbow Trout	Wild	Identified as a potential Gila trout recovery stream in the Gila Trout Recovery Plan (2003). Investigate habitat and restoration potential for Gila trout.
Sheep Corral Canyon	Gila Trout	Native Fish	Gila trout recovery stream.
Turkey Creek and Tributaries	Gila Chub	Native Fish	Gila chub recovery stream. Barrier construction is needed to inhibit migration of non-native fish from the Gila River.
	Gila Trout	Native Fish	Investigate 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 (catch and release, artificial fly or lure, single barbless hook) 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	Identified as potential Gila trout recovery stream in the Gila Trout Recovery Plan (2003). Complete necessary environmental compliance and restore for Gila trout. Currently occupied by rainbow trout.
Rain Creek	Gila Trout	Native Fish	Identified as potential Gila trout recovery stream in the Gila Trout Recovery Plan (2003). Complete necessary environmental compliance and restore for Gila Trout. Currently occupied by rainbow trout.
Sapillo Creek (Headwaters to Lake Roberts)	N/A	N/A	Intermittent throughout reach. No current data.
Mogollon Creek (West Fork Mogollon confluence to Gila River)	N/A	N/A	Intermittent throughout reach. No current data.

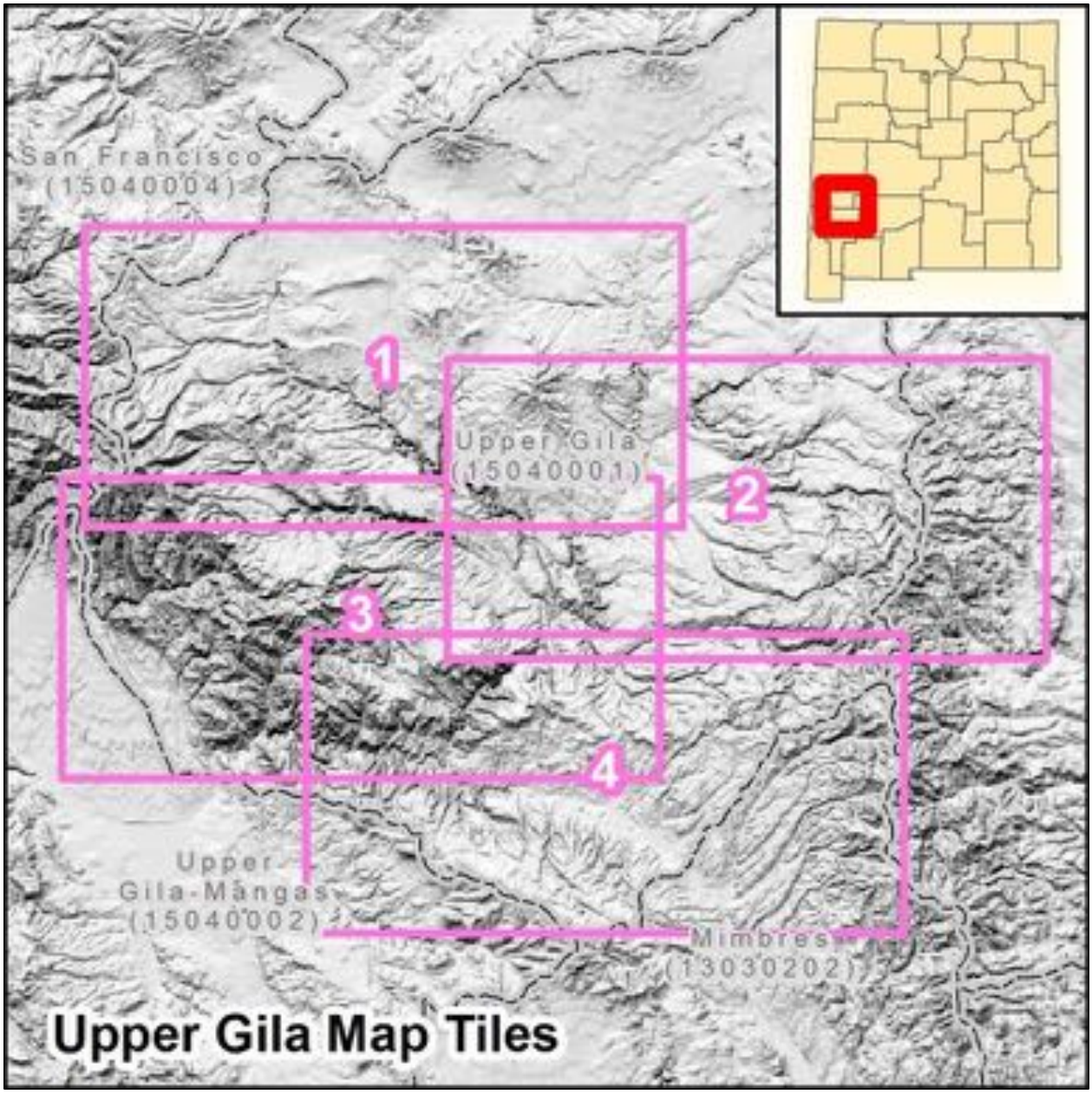

Figure 57. Upper Gila Map Tiles

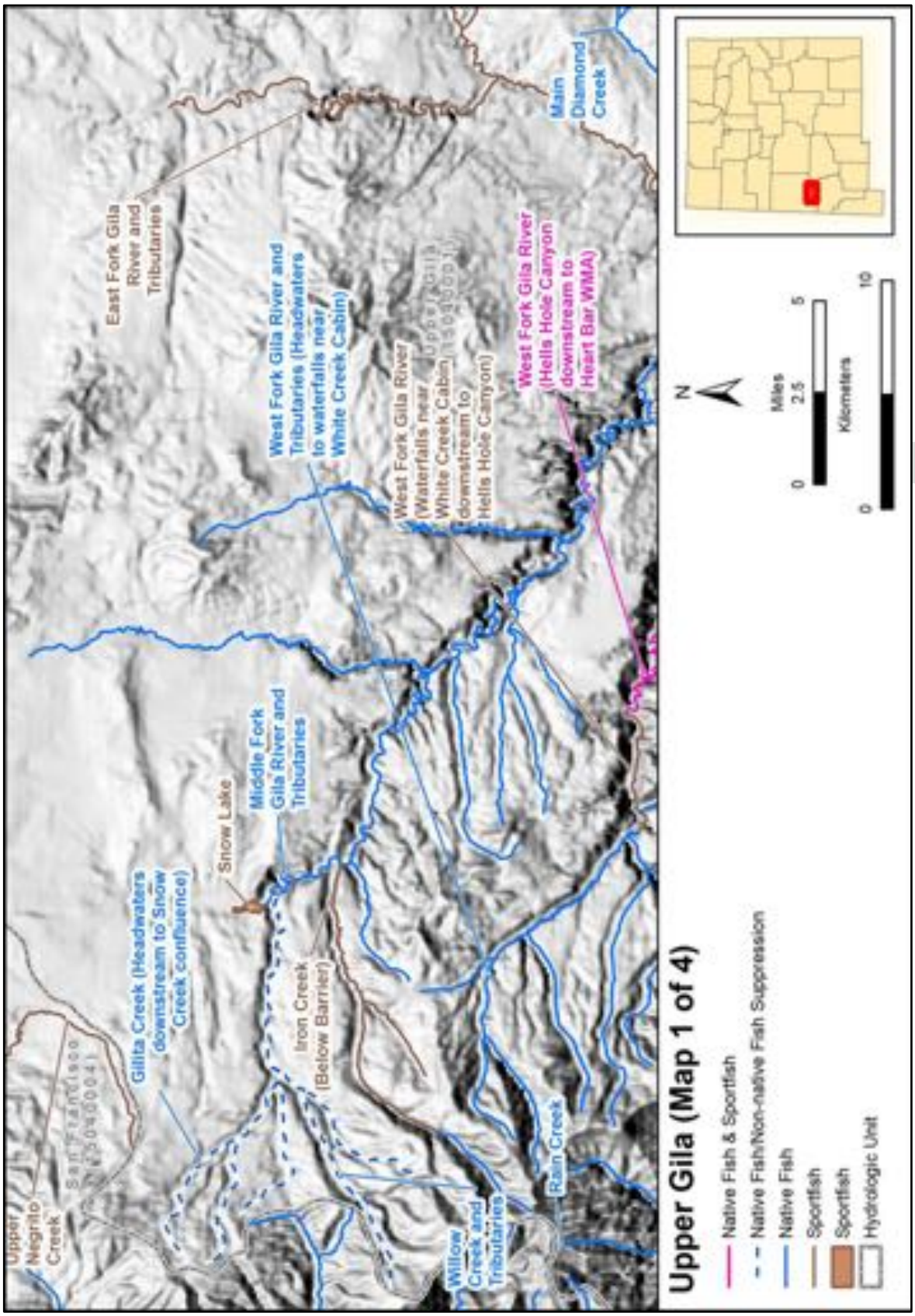

Figure 58. Upper Gila (Map 1 of 4)

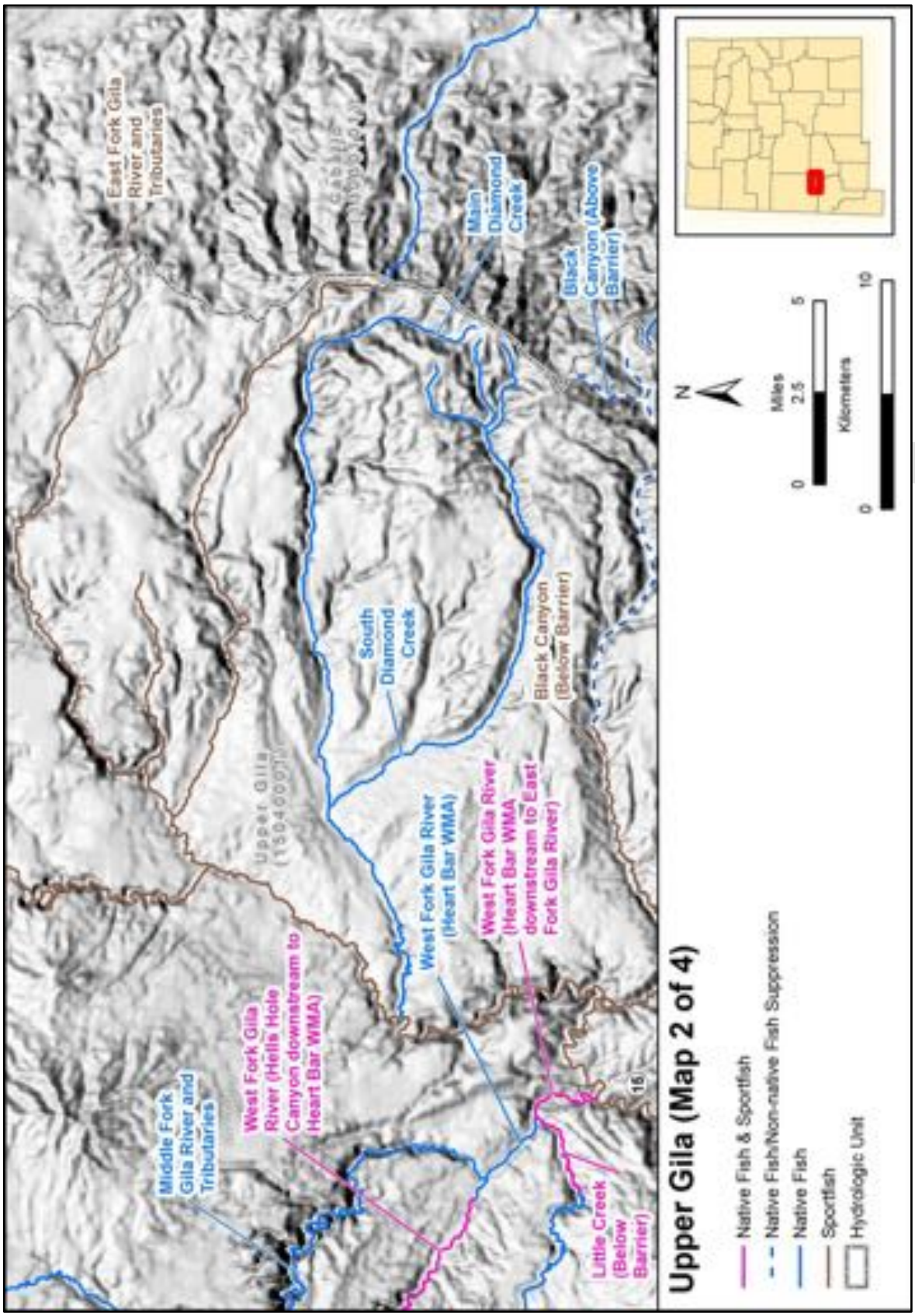

Figure 59. Upper Gila (Map 2 of 4)

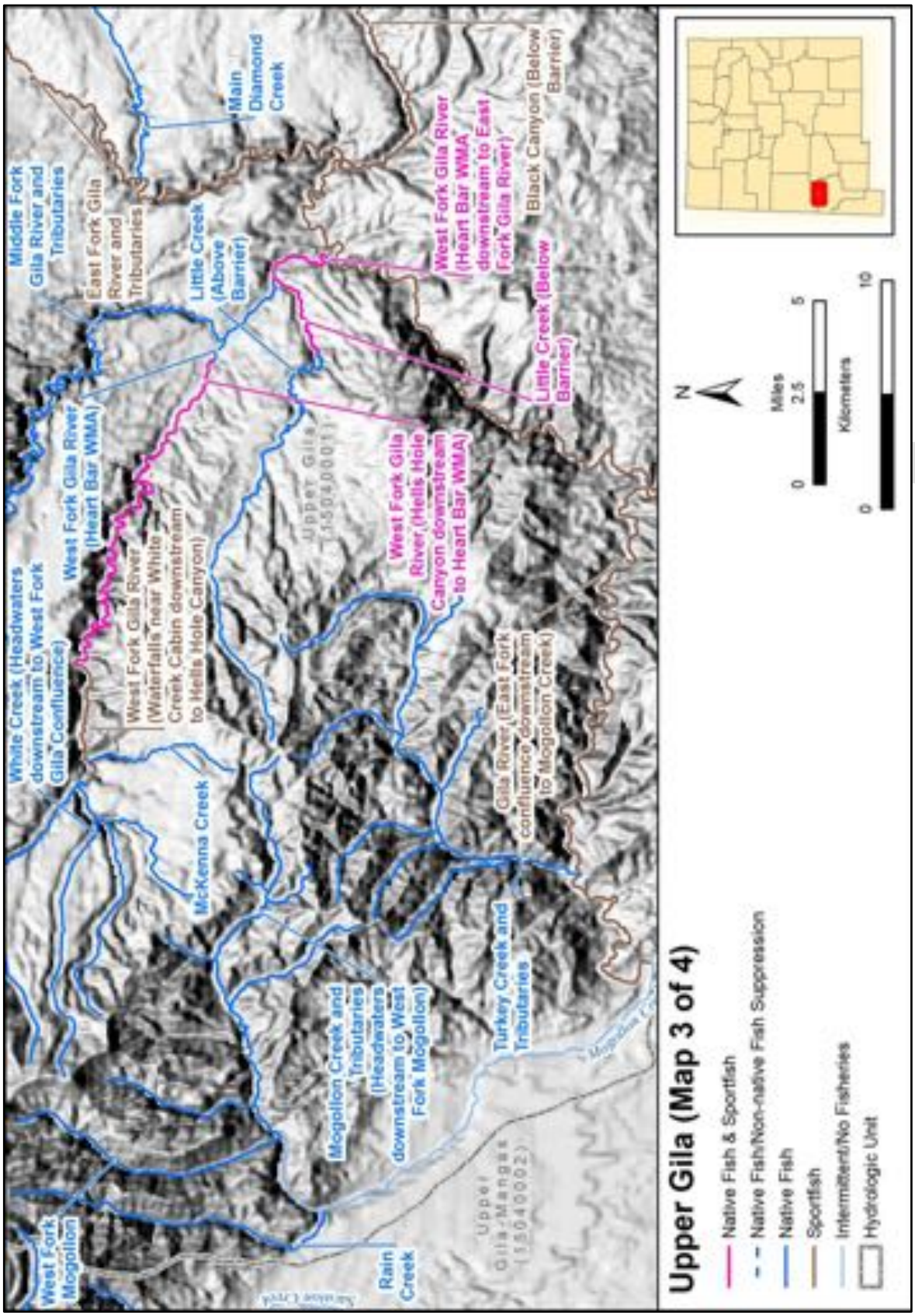

Figure 60. Upper Gila (Map 3 of 4)

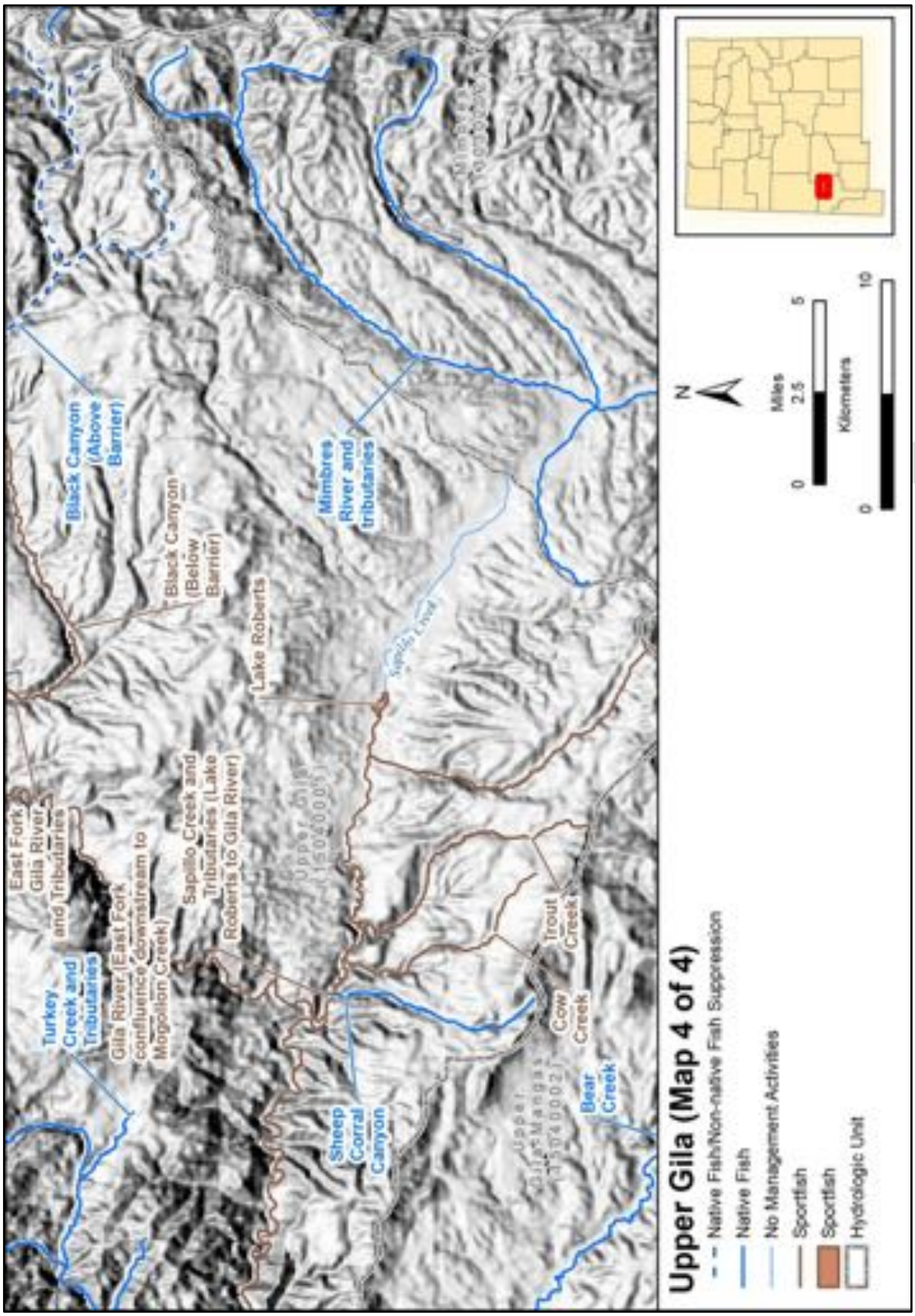

Figure 61. Upper Gila (Map 4 of 4)

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	Includes Designated Critical Habitat for loach minnow and they are present in this reach.
	Spikedace	Native Fish	Includes Designated Critical Habitat for spikedace and they are present in this reach.
	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	Includes Designated Critical Habitat for loach minnow and they are present in this reach. NMDGF recently purchased large ranch with perennial section of Bear Creek.
Mangas Creek	Loach Minnow	Native Fish	Includes Designated Critical habitat for loach minnow. Almost entirely on private land.
Sacaton Creek (Headwaters to Diversion Ditch)	Gila Trout	Native Fish	Previously occupied by Gila trout but believed to be extirpated by wildfire. Investigate potential for stocking Gila trout.
Bill Evans	Channel Catfish	Put, Grow and Take	Stock subadult channel catfish annually. Monitor to assess growth rate and recruitment.
	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 angling regulations to support catfish angling.
	Spikedace	Native Fish	Includes Designated Critical Habitat for spikedace.
	Loach Minnow	Native Fish	Includes Designated Critical Habitat for loach minnow.
Duck Creek and Tributaries	N/A	N/A	Intermittent throughout reach. No current data.
Red Rock Pond	Gila Chub	Native Fish	Establish refuge populations of Gila chub.
	Gila Topminnow	Native Fish	Establish refuge population of Gila topminnow

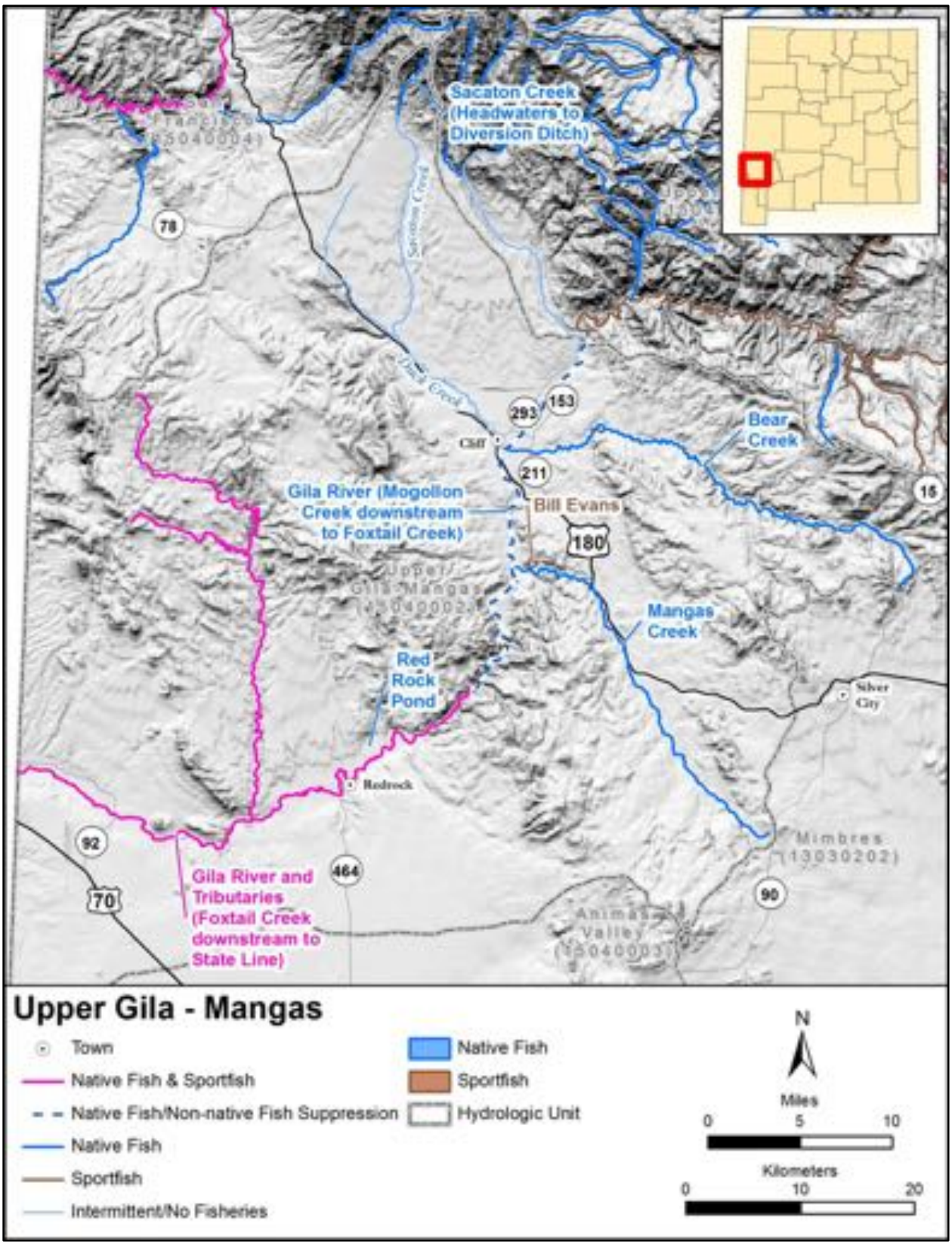

Figure 62. Upper Gila - Mangas

HUC 15040004 San Francisco

Management Direction for HUC 15040004 San Francisco			
Water	**Fish Species**	**Management Type**	**Management Direction**
Tularosa River	Loach Minnow	Native Fish	Includes Designated Critical Habitat for loach minnow and they are present in some reaches.
Lower Negrito Creek	Loach Minnow	Native Fish	Designated Critical Habitat for loach minnow.
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	Repatriate loach minnow 2016-2020 and monitor to assess effectiveness. Source loach minnow from San Francisco River or Bubbling Ponds Hatchery (AZ).
San Francisco and Tributaries (Headwaters downstream to Pleasonton Diversion)	Loach Minnow	Native Fish	Includes Designated Critical Habitat for loach minnow.
	Spikedace	Native Fish	Includes Designated Critical Habitat for spikedace. Spikedace repatriation conducted in the past though inconsistent stocking limited effectiveness. Need to repeat stocking over multiple years and evaluate.
Mineral Creek	Gila Trout	Native Fish	Identified as a potential Gila Trout recovery stream in the Gila Trout Recovery Plan (2003). Severely impacted by the Whitewater-Baldy fire in 2012 and non-native trout were eliminated. Stock appropriate lineage of Gila trout 2015 to 2017.
Whitewater Creek and Tributaries (Headwaters to Catwalk)	Gila Trout	Native Fish	Identified as a potential Gila trout recovery stream in the Gila Trout Recovery Plan (2003). Severely impacted by the Whitewater-Baldy fire in 2012. Non-native trout nearly eliminated (2014). Complete necessary environmental compliance and restore for Gila trout. South Fork Whitewater is currently occupied by small number of brook trout.
Glenwood Pond	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout annually. Investigate feasibility of stocking Gila trout in Glenwood Pond.
Big Dry Creek	Gila Trout	Native Fish	Gila trout recovery stream. Severely impacted by the Whitewater-Baldy wildfire in 2012 though population persisted.
Spruce Creek	Gila Trout	Native Fish	Gila Trout recovery stream and relict population. Severely impacted by the Whitewater-Baldy fire in 2012 and Gila Trout were eliminated. Repatriate Gila trout upon watershed recovery. Maintain angling closure.

Management Direction for HUC 15040004 San Francisco			
Water	**Fish Species**	**Management Type**	**Management Direction**
Mule Creek	Gila Chub	Native Fish	Stocked with Gila chub 2012-2014 and planned through 2015. Gila chub recovery stream. If successful, will meet objectives for Colorado River Basin Chubs Recovery Plan.
San Francisco River and Tributaries (Pleasanton Diversion downstream to Stateline)	Catfish	Wild	Channel and flathead catfish present. Maintain regulations to support flathead and channel catfish fishery. Includes Designated Critical Habitat for loach minnow and spikedace but not occupied.
	Smallmouth Bass	Wild	Maintain regulations to support smallmouth bass fishery.
Blue River and Tributaries	Loach Minnow	Native Fish	Includes Designated Critical Habitat for loach minnow.
	Spikedace	Native Fish	Includes Designated Critical Habitat for spikedace.

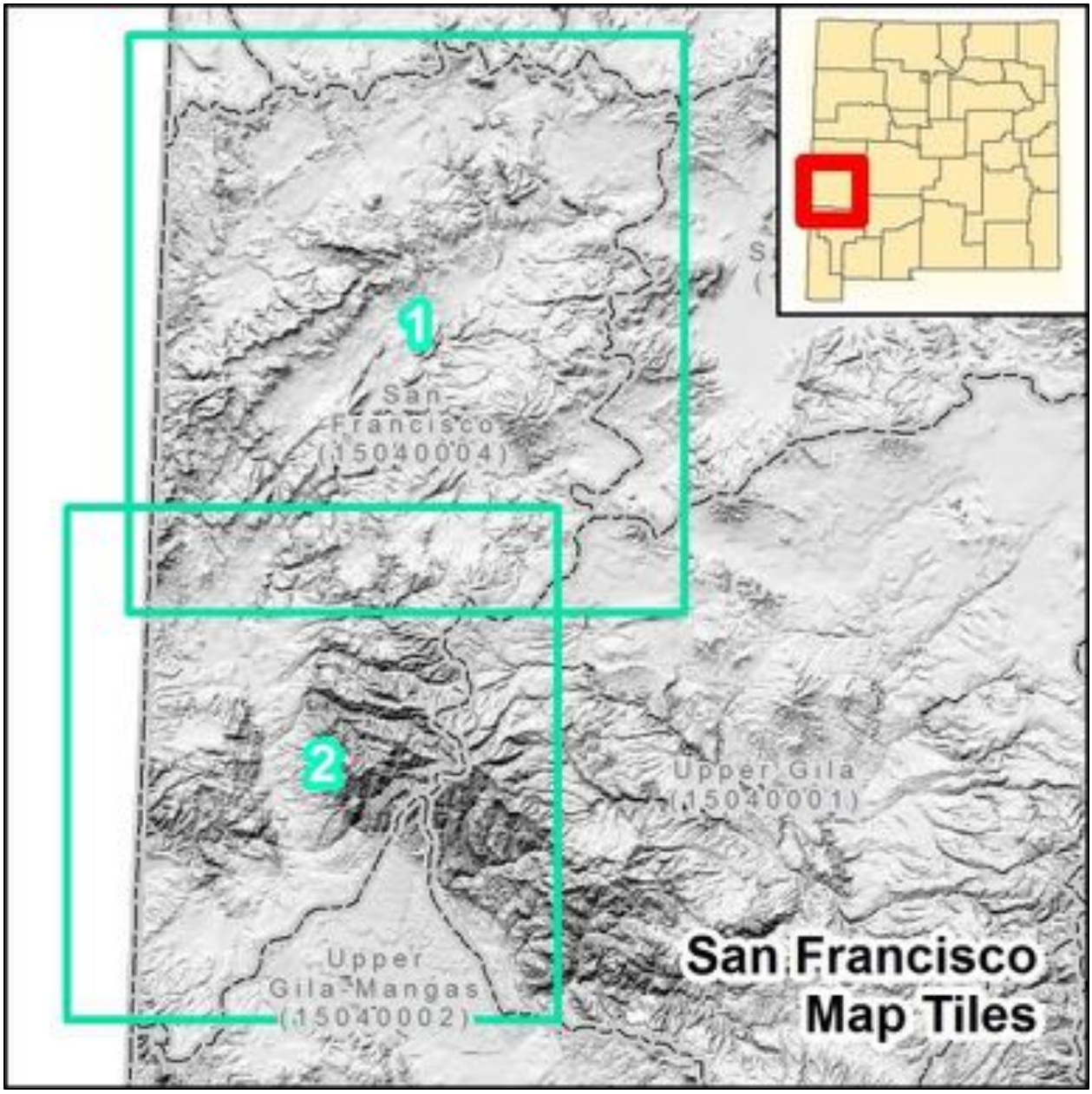

Figure 63. San Francisco Map Tiles

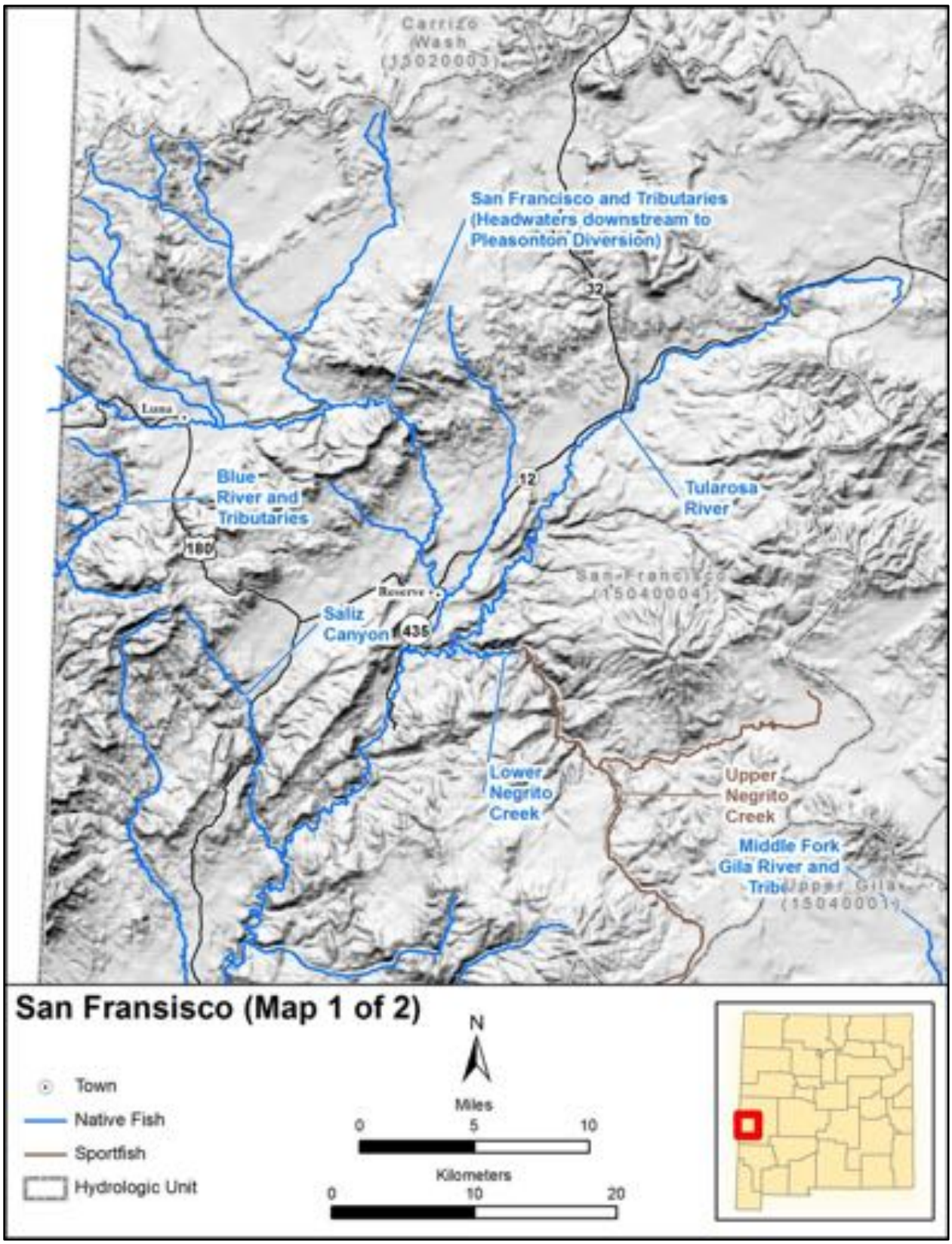

Figure 64. San Francisco (Map 1 of 2)

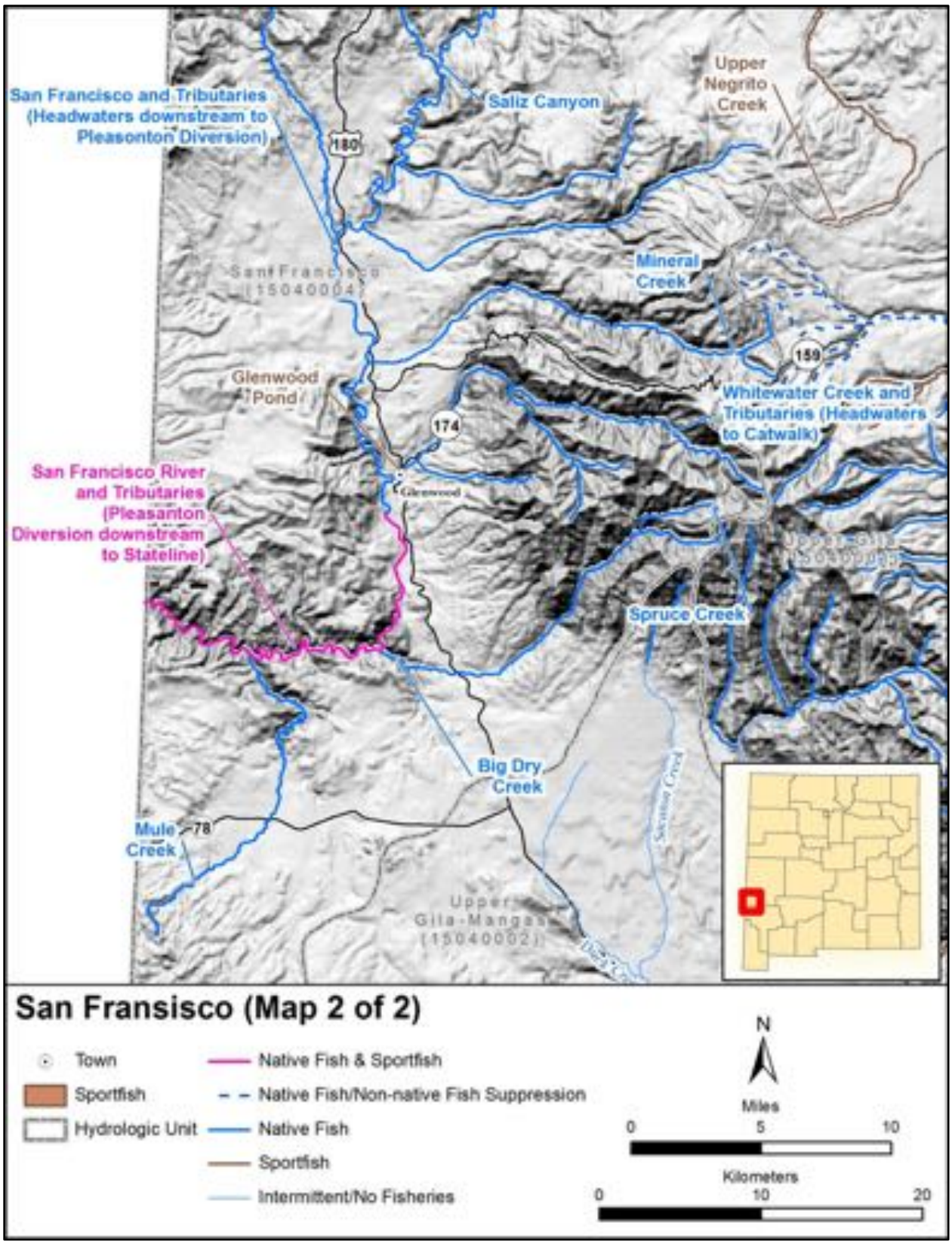

Figure 65. San Francisco (Map 2 of 2)

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 operates to mimic a natural hydrograph 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 sportfisheries 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 Rainbow and Brown 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 the recovery program activities for both of these species including non-native fish suppression, annual monitoring trips, and development of research projects that could assist with recovery of both species. The Department is also a signatory to the Rangewide Conservation Agreement for Roundtail Chub, Flannelmouth Sucker, and Bluehead 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. Historic 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.
	Smallmouth Bass	Wild	Managed as a Recreational Bass water.
	Kokanee	Put, Grow and Take	Stock fingerling Kokanee. Historic Kokanee broodstock water.
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 fishery. Special Trout Water (Catch and Release, Artificial Fly or Lure, Single Barbless Hook) from Navajo Dam downstream 3.5 miles.
	Brown Trout	Wild	Managed as a Trophy Trout fishery.
San Juan River (Downstream Boundary of Special Trout Water downstream to Hammond Diversion)	Triploid Rainbow Trout	Put, Grow and Take	Stocked catchable and fingerling triploid rainbow trout annually.
	Brown Trout	Wild	Maintain regulations to support wild trout fishery.
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.

Management Direction HUC 15040001 Upper San Juan, 15040002 Animas, 15040004 Middle San Juan			
Water	**Fish Species**	**Management Type**	**Management Direction**
Jackson Lake	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout.
Lake Farmington	Triploid Rainbow Trout	Put and Take	Stock catchable triploid rainbow trout.
	Smallmouth Bass	Wild	Managed 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	Roundtail chub do not currently inhabit this reach. La Plata River was specifically identified aa a potential restoration site in the Colorado River Basin Chubs Recovery Plan (2006).
	Bluehead 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)	Colorado Pikeminnow	Native Fish	Designated Critical Habitat for Colorado Pikeminnow. Participate in the San Juan River Basin Implementation Program (SJRIP) activities.
	Razorback Sucker	Native Fish	Designated Critical Habitat for razorback sucker.
	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 carp though all non-native species are removed in this reach.

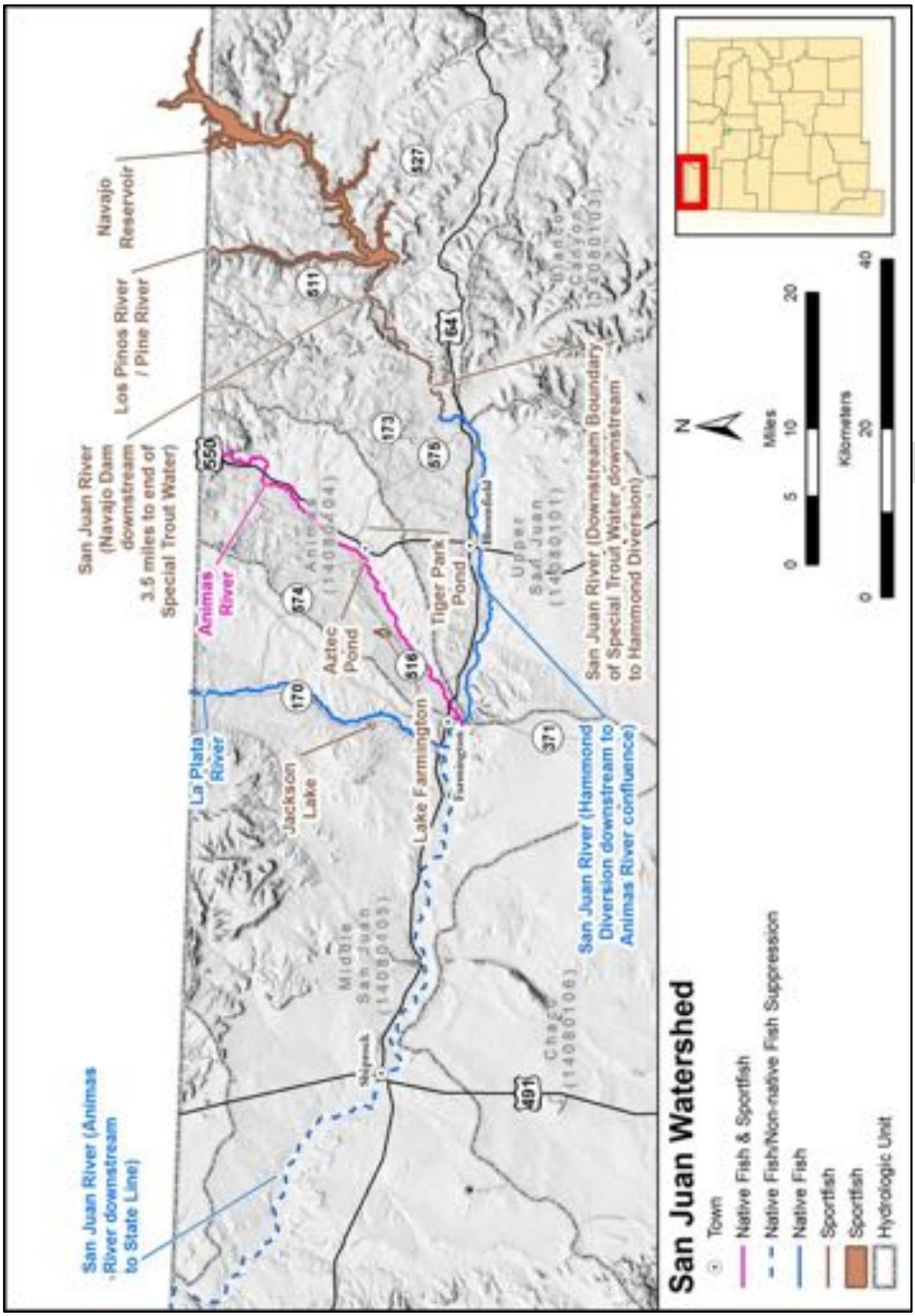

Figure 66. San Juan Watershed

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 sportfishery 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	Rio Nutria, Tampico Draw, and 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. Lake has been low and unsuitable to stock for past several years.
	Channel Catfish	Put and Take	Big Cat Water - Stock catchable channel catfish between May and September. Maintain two fish daily bag limit.
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.

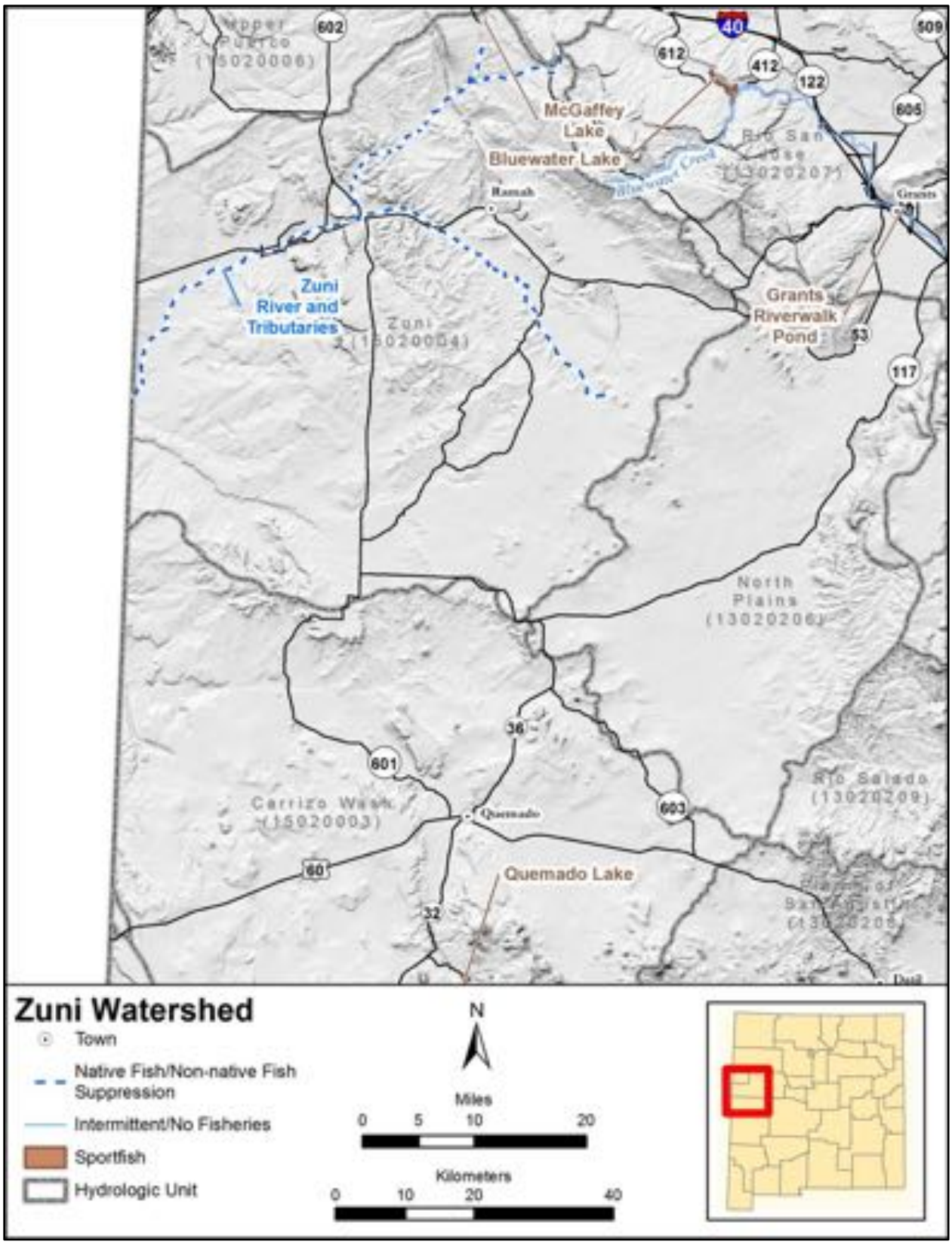

Figure 67. Zuni Watershed

Appendix I. 2015 Stocking Schedule

Species	Water	Length (inches)	Annual Stocking Rate
Channel Catfish	Alumni Pond	16	300
	Bataan Lake	16	2,100
	Bear Canyon Reservoir	8	1,100
	Bill Evans Lake	8	3,100
	Blue Hole Park Pond	16	542
	Bluewater Lake	6	150,000
	Bosque Redondo	16	542
	Burn Lake	16	1,968
	Carrizozo Recreation Lake	16	542
	Chaparral Park Lake	16	1,142
	Clayton Lake	8	4,400
	Conoco Pond	16	542
	Tingley Beach	16	2,908
	Corona Pond	16	602
	Dennis Chaves Pond	16	542
	Escondida Lake	16	1,142
	Estancia Park Lake	16	542
	Eunice Lake	16	542
	Grands Riverwalk Pond	16	602
	Green Meadow Lake	16	1,742
	Greene Acres Lake	16	1,742
	Grindstone Reservoir	6	4,500
	Jal Lake	16	542
	Lake Roberts	8	3,550
	Lake Van	16	2,370
	Ned Houk Ponds	16	542
	Oasis Park Lake	16	1,742
	Recos River	16	542
	Perch Lake	16	542

Species	Water	Length (inches)	Annual Stocking Rate
Channel Catfish	Roswell Kids Pond	16	542
	Young Pond	16	542
Rio Grande Cutthroat Trout	Middle Fork Lake	2	3,500
	Trampas Lakes Upper	2	1,500
	Hidden Lake	2	1,000
	Trampas Lakes Lower	2	15,000
	Goose Lake	2	3,500
Triploid Rainbow Trout	Abiquiu Reservoir	3	490,000
	Albuquerque Drain	10	2,000
	Albuquerque Drain (South)	10	4,500
	Alumni Pond	10	3,300
	Animas River	10	4,000
	Aztec Pond #1	10	2,330
	Aztec Pond #1	15	70
	Bataan Lake	10	15,000
	Bear Canyon Reservoir	10	13,750
	Belen Riverside Drain	10	4,000
	Bernalillo Drain	10	1,200
	Bill Evans Lake	10	35,926
	Black River	10	2,000
	Blue Hole Park Pond	10	2,888
	Bluewater Lake	3	415,000
	Bonito Lake	10	48,000
	Bosque Redondo	10	4,000
	Bottomless Lakes	10	4,000
	Brazos Lodge Pond	10	330
	Brazos River	10	7,250
	Burn Lake	10	22,000
	Canjilon Lakes	10	10,500
	Canjilon Lakes	15	920

Species	Water	Length (inches)	Annual Stocking Rate
Triploid Rainbow Trout	Carlsbad Municipal Lake	10	15,000
	Carrizozo Recreation Lake	10	3,000
	Cebolla River	10	14,550
	Chama River (Above El Vado)	10	12,600
	Chama River (Below Abiquiu)	10	9,000
	Chama River (Below El Vado)	10	5,800
	Chaparral Park Lake	10	4,000
	Charette Lake Lower	10	12,000
	Charette Lake Lower	15	500
	Cimarron River	10	26,675
	Gravel Pit Lakes	10	3,995
	Gravel Pit Lakes	15	405
	Clayton Lake	10	19,200
	Clayton Lake	15	800
	Tingley Beach	10	50,040
	Tingley Beach	15	960
	Corona Pond	10	2,000
	Corrales Riverside Drain	10	2,400
	Rio Costilla	10	4,800
	Cow Creek	10	5,000
	Coyote Creek (Rio Arriba)	10	1,700
	Coyote Creek (nr Guadalupita)	10	8,000
	Coyote Creek Pond	10	6,000
	Dennis Chaves Pond	10	2,000
	Eagle Nest Lake	3	600,000
	Eagle Rock Lake	10	5,568
	Eagle Rock Lake	15	432
	El Rito Creek (Santa Rosa)	10	1,200
	El Vado Lake	3	320,000
	Escondida Lake	10	8,000

Species	Water	Length (inches)	Annual Stocking Rate
Triploid Rainbow Trout	Estancia Park Lake	10	1,650
	Eunice Lake	10	4,000
	Fawn Lakes	10	4,224
	Fawn Lakes	15	476
	Fenton Lake	10	28,180
	Fenton Lake	15	1,120
	Gallinas Creek	10	11,200
	Gallinas Ice Pond	10	2,000
	Glenwood Pond	10	5,760
	Goose Lake	10	3,600
	Green Meadow Lake	10	9,000
	Greene Acres Lake	10	8,000
	Grindstone Reservoir	10	51,000
	Harris Lake	10	1,500
	Harry McAdams Park Pond	10	1,000
	Heron Reservoir	4	0
	Holy Ghost Creek	10	3,600
	Rio Hondo	10	1,000
	Hopewell Lake	10	10,020
	Hopewell Lake	15	1,110
	Jackson Lake	10	15,500
	Jal Lake	10	4,000
	Jemez River	10	25,000
	East Fork Jemez River	10	2,200
	Laguna del Campo	10	4,320
	Laguna del Campo	15	630
	Laguna Larga	10	800
	Lagunitas Lakes	10	3,000
	Lake Alice	10	5,000
	Lake Farmington	10	24,500

Species	Water	Length (inches)	Annual Stocking Rate
Triploid Rainbow Trout	Lake Maloya	10	26,900
	Lake Maloya	15	1,600
	Lake Roberts	10	22,500
	Lake Van	10	20,000
	Los Pinos River	10	14,400
	Manzano Lake	10	7,600
	Maxwell Lake 13	10	6,000
	McGaffey Lake	10	16,900
	Monastery Lake	10	23,990
	Monastery Lake	15	1,330
	Rio Mora (Pecos)	10	12,600
	Morphy Reservoir	10	22,500
	Morphy Reservoir	15	1,500
	Cowles Ponds	10	1,280
	Cowles Ponds	15	120
	Navajo Reservoir	5	362,500
	Ned Houk Ponds	10	5,000
	Nutrias Lakes (aka Trout Lakes)	10	5,910
	Oasis Park Lake	10	8,000
	Pecos River (Cowles to Village of Pecos)	10	55,132
	Pecos River (Lake Sumner to Roswell)	10	3,000
	Pecos River (Village of Pecos to Villanueva)	10	5,800
	Pecos River (Villanueva to I-40)	10	3,400
	Peralta Drain	10	5,000
	Perch Lake	10	5,000
	Quemado Lake	10	20,000
	Red River	10	41,800
	Red River Hatchery Pond	10	3,760
	Red River Hatchery Pond	15	640
	Rio Bonito	10	4,000

Species	Water	Length (inches)	Annual Stocking Rate
Triploid Rainbow Trout	Rio Grande (Elephant Butte to Caballo)	10	10,400
	Rio Grande (Pilar to Cochiti Lake)	10	27,650
	Rio las Vacas	10	9,250
	Rio Pueblo	10	17,000
	Roswell Kids Pond	10	3,000
	Rio Ruidoso	10	20,000
	Rio San Antonio	10	9,000
	San Gregorio Lake	10	8,000
	San Juan River (below Quality Waters)	10	59,500
	San Juan River (below Quality Waters)	3	140,000
	San Juan River (Quality Waters)	6	100,000
	Santa Cruz Reservoir	10	32,400
	Santa Cruz Reservoir	15	600
	Santa Fe River	10	500
	Seven Springs Brood Pond	10	3,828
	Seven Springs Brood Pond	15	672
	Shuree Ponds	15	2,000
	Sipapu Pond	10	364
	Sipapu Pond	15	36
	Snow Lake	10	10,000
	Snow Lake	3	22,000
	Storrie Reservoir	10	30,810
	Storrie Reservoir	15	900
	Storrie Reservoir	3	96,000
	Rio Fernando de Taos	10	2,100
	Tiger Park Pond	10	10,700
	Tiger Park Pond	15	300
	Young Pond	10	3,300