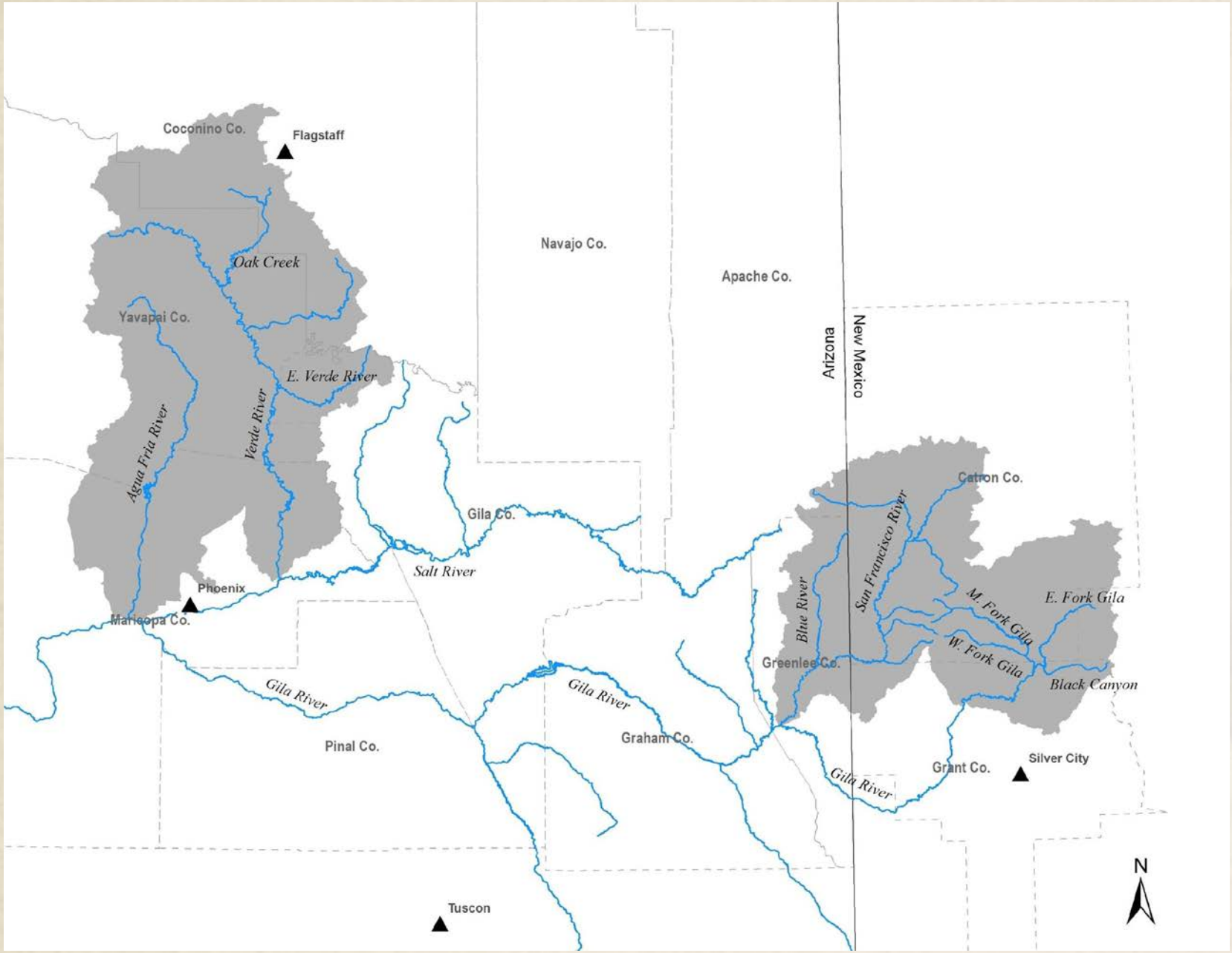
Gila Trout Conservation in New Mexico

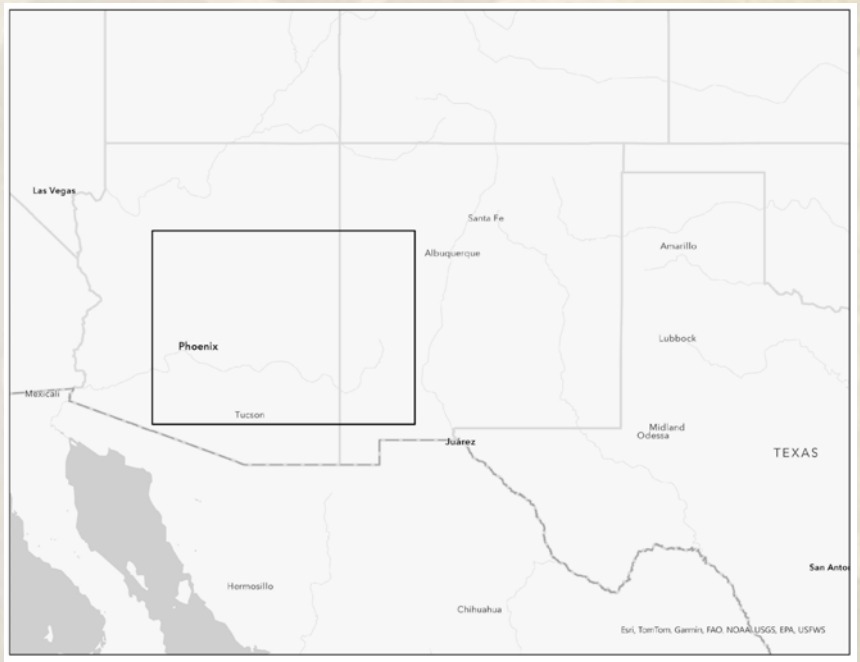
Daniel A. Trujillo

Gila Trout Biologist, NM Department of Game and Fish

Fisheries Division

Historical distribution of Gila Trout





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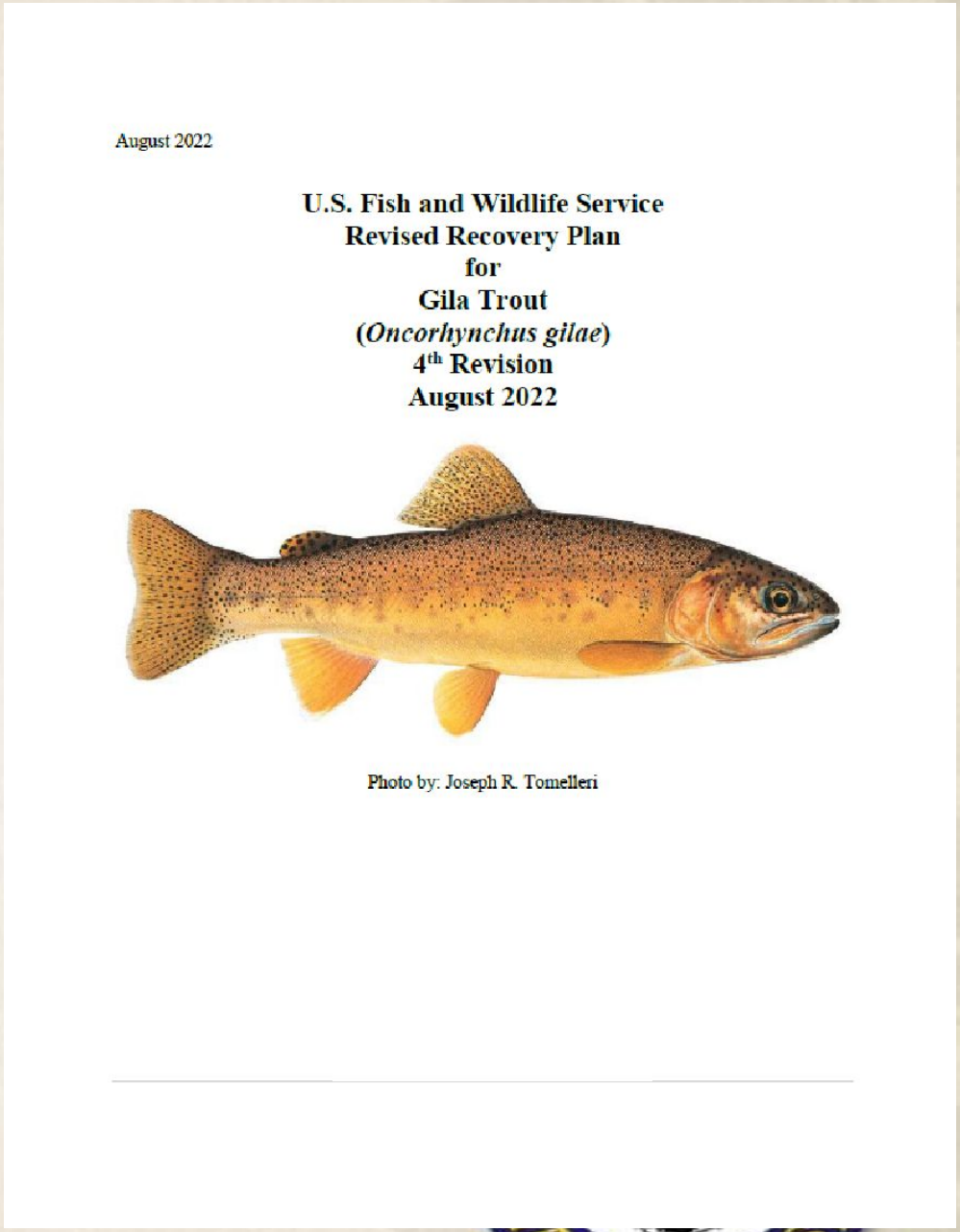
Life History

- Endemic to perennial cold water streams in Southern AZ and NM
  - NM: San Francisco and Gila headwaters
  - AZ: Verde, Agua Fria, San Francisco
- More closely related to Rainbow Trout than Cutthroat Trout
  - 5 genetic lineages
- Reach maturity around age 3, can survive up to 10 years
  - Lay eggs in redds
  - Fry emerge late spring/early summer
- Insectivorous

Species Status

- State and Federal Threatened species



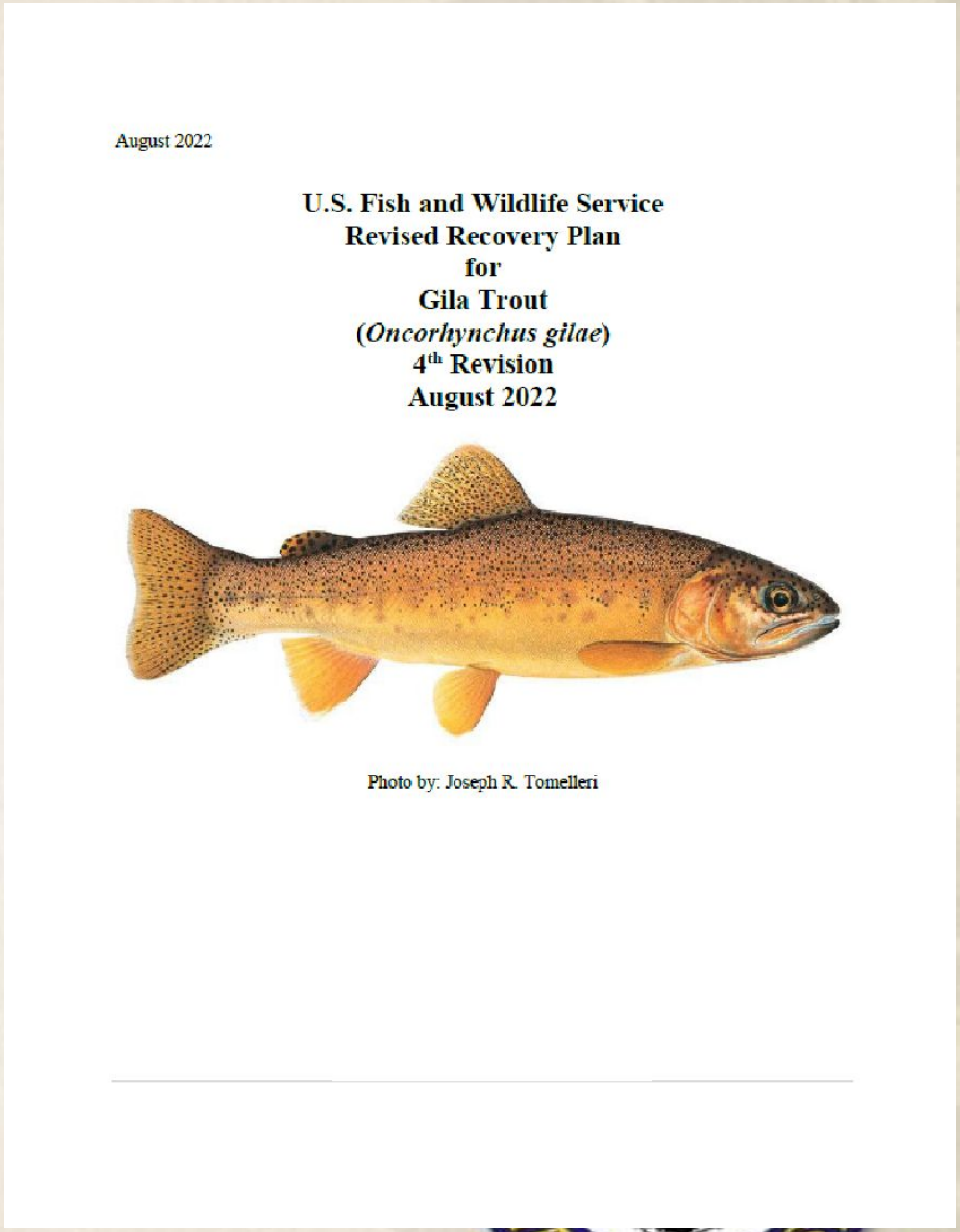
August 2022

U.S. Fish and Wildlife Service
Revised Recovery Plan
for
Gila Trout
(*Oncorhynchus gilae*)
4th Revision
August 2022

Photo by: Joseph R. Tomelleri

Species Status

- State and Federal Threatened species
- Recovery Plan- “Guiding Document”
  - Describes Criteria for delisting
  - Drives almost all Gila Trout work



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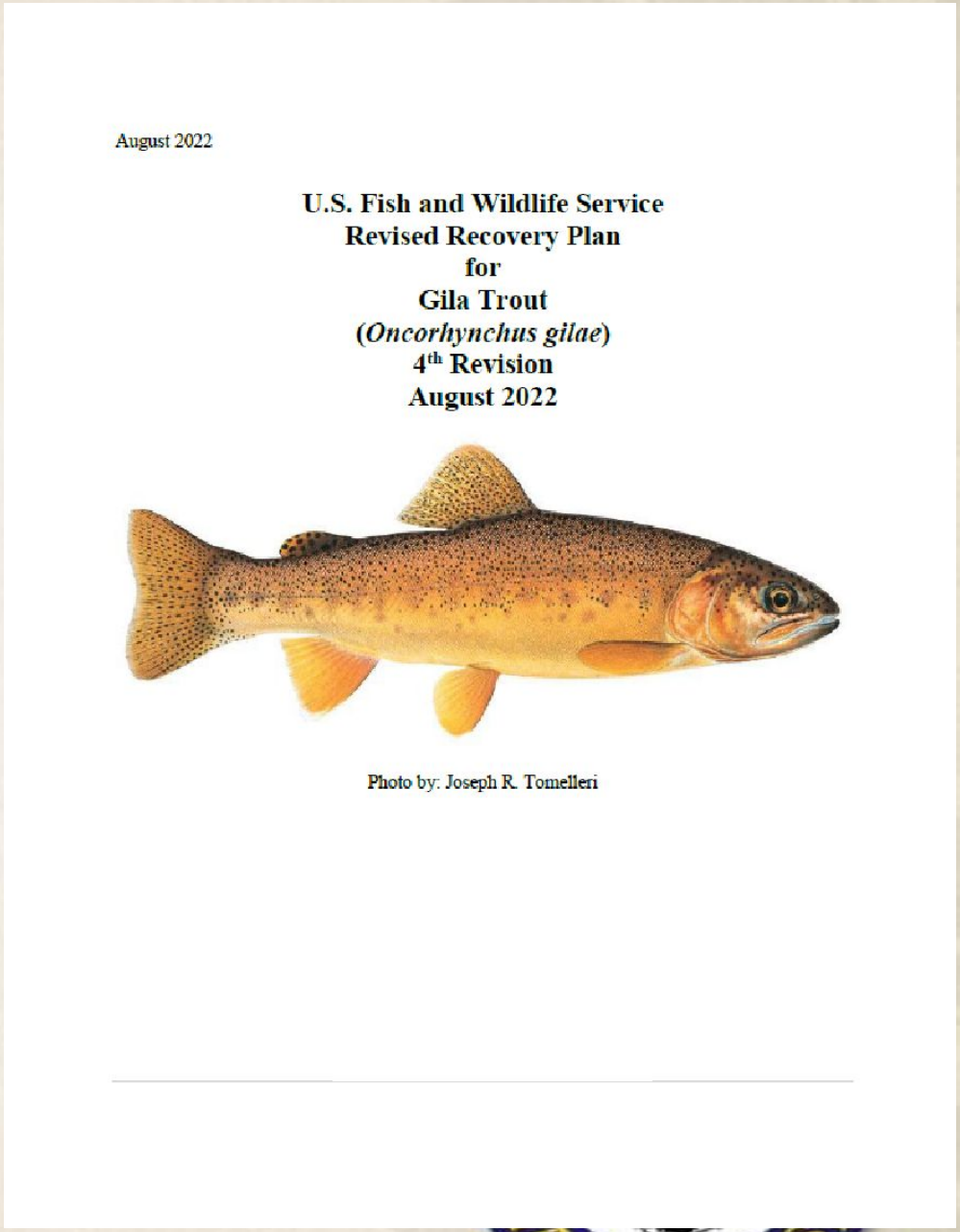
Species Status

- State and Federal Threatened species
- State Listed as Threatened
- Recovery Plan- “Guiding Document”
  - Describes Criteria for delisting
  - Drives almost all Gila Trout work
- Endangered Species Act
  - 4d rule
  - Allows fishing to occur
  - Monitoring
  - Gila Trout Angler Survey



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Conservation Challenges

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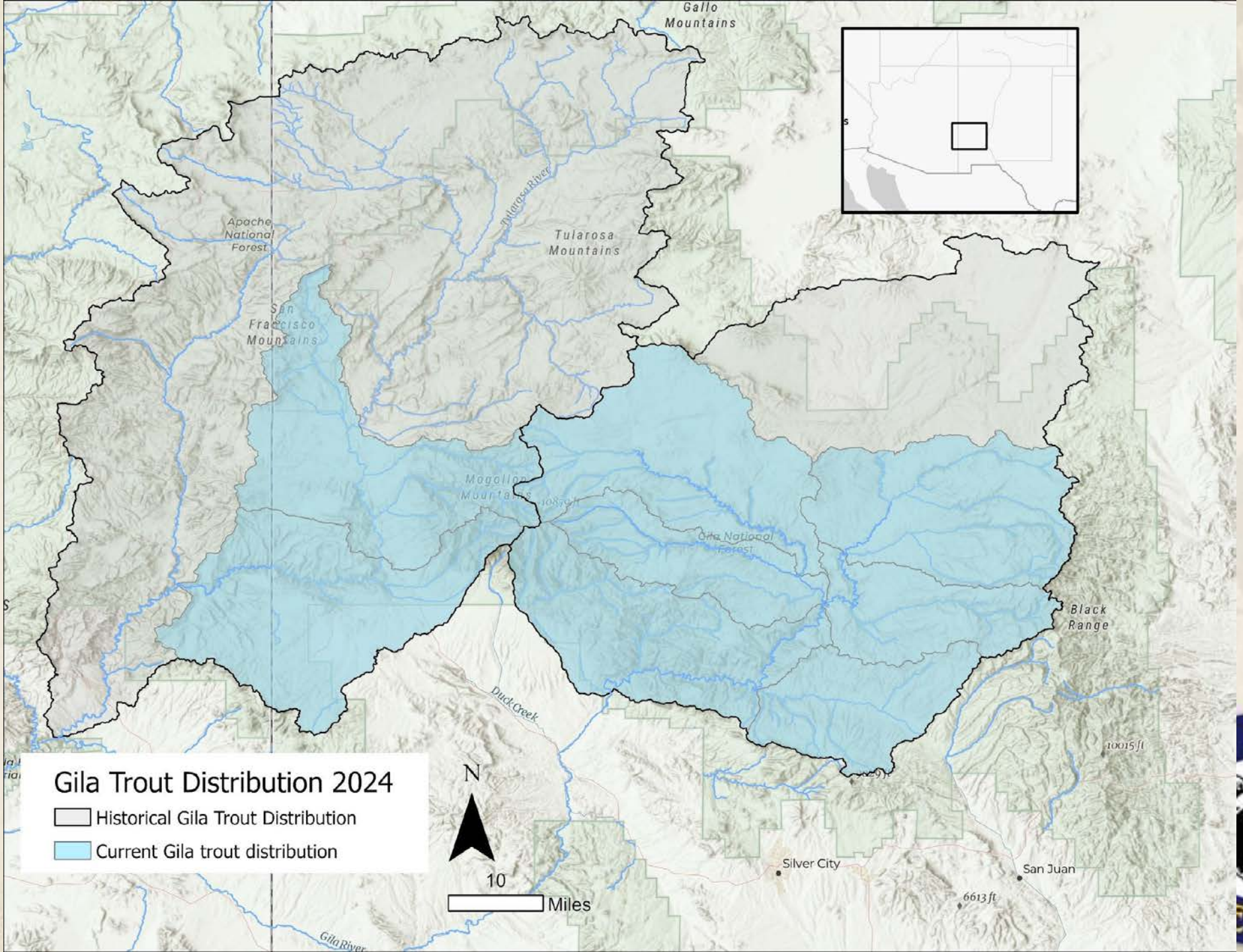
Gallo Mountains
Tularosa River
Apache National Forest
Tularosa Mountains
San Francisco Mountains
Mogollon Mountains
Gila National Forest
Black Range
Duck Creek
10015 ft
Silver City
San Juan
6613 ft
Gila River
Gila Trout Distribution 2024
Historical Gila Trout Distribution
Current Gila trout distribution
N
10
Miles

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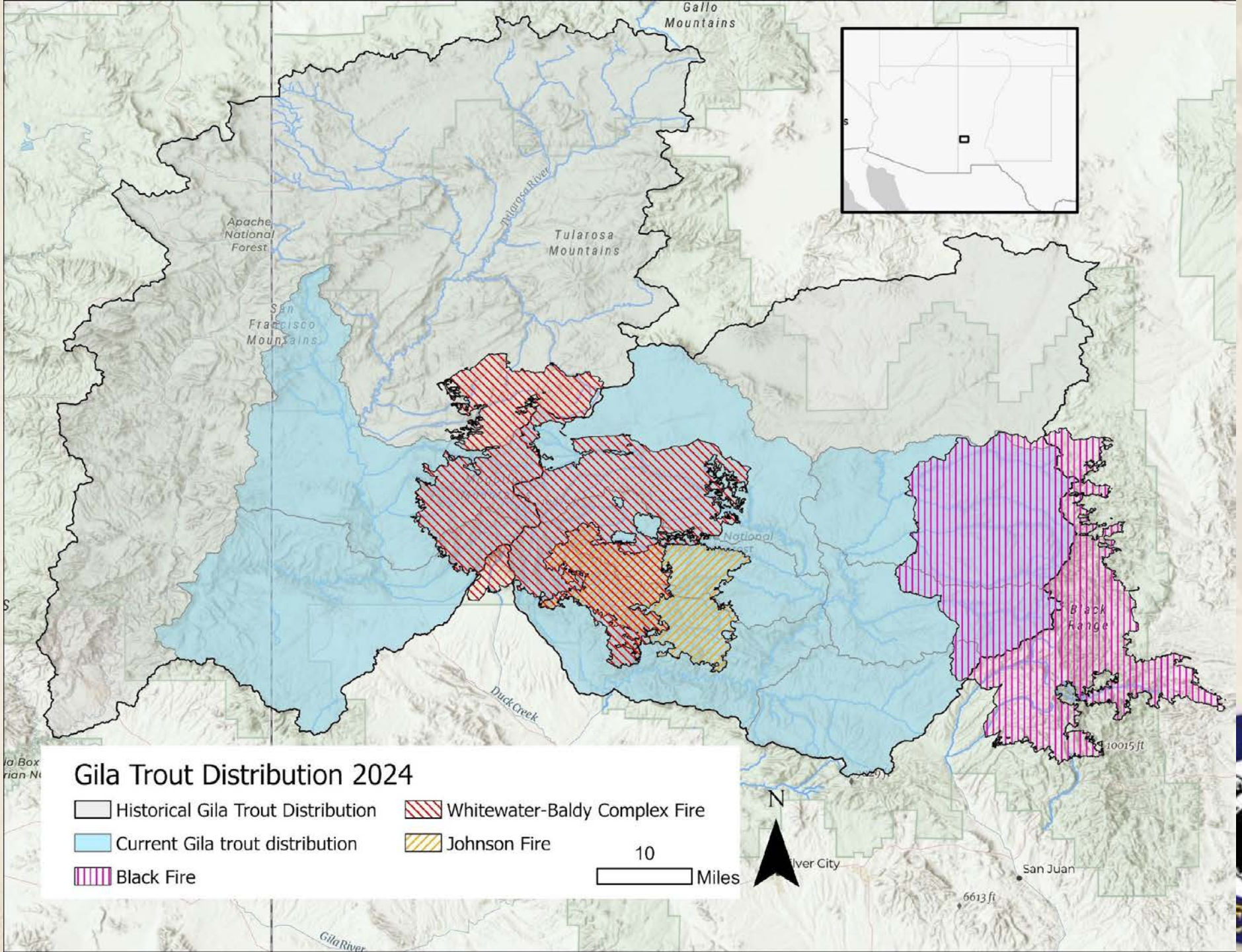

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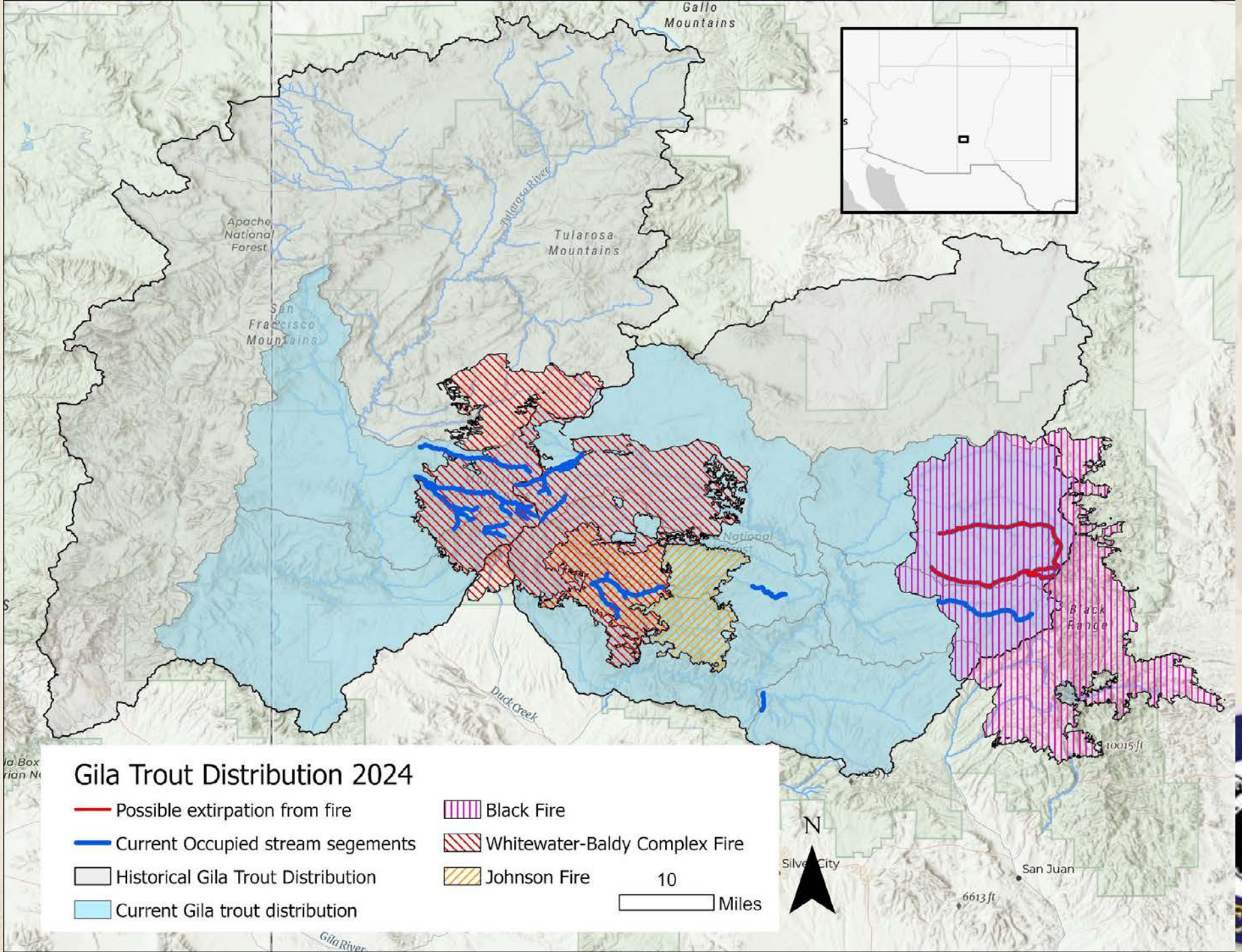
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Possible extirpation from fire
Current Occupied stream segements
Historical Gila Trout Distribution
Current Gila trout distribution
Black Fire
Whitewater-Baldy Complex Fire
Johnson Fire

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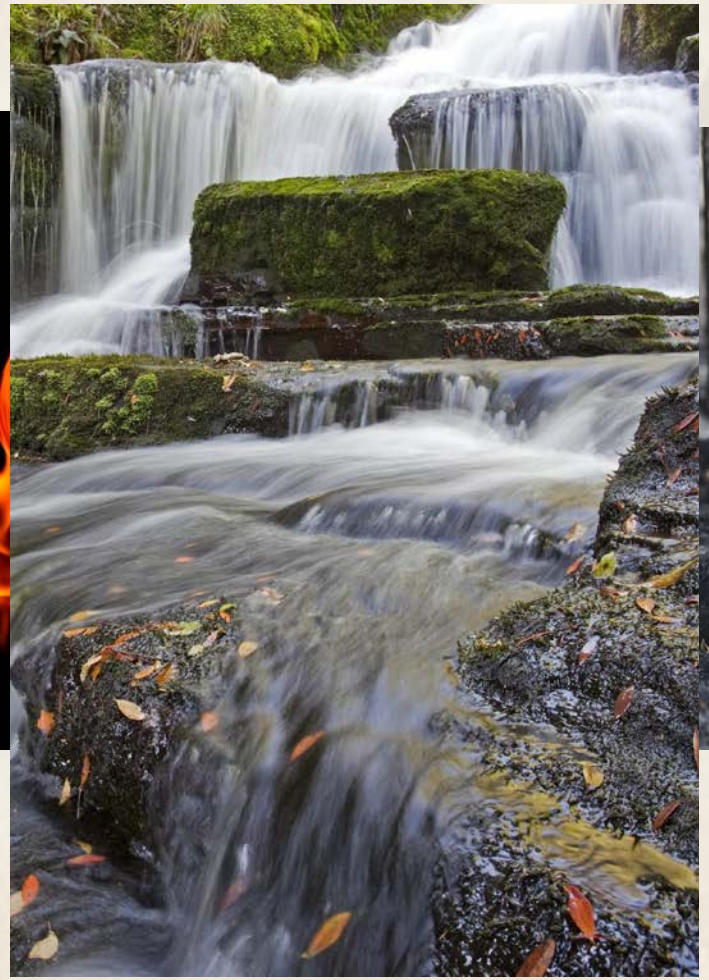
Wildfire

- How does fire kill fish?



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Conservation Challenges

- Wildfire
  - History of fire suppression
  - Flooding and ash flows
  - Need resilient ecosystems
  - Need multiple populations
- Non-native Salmonids

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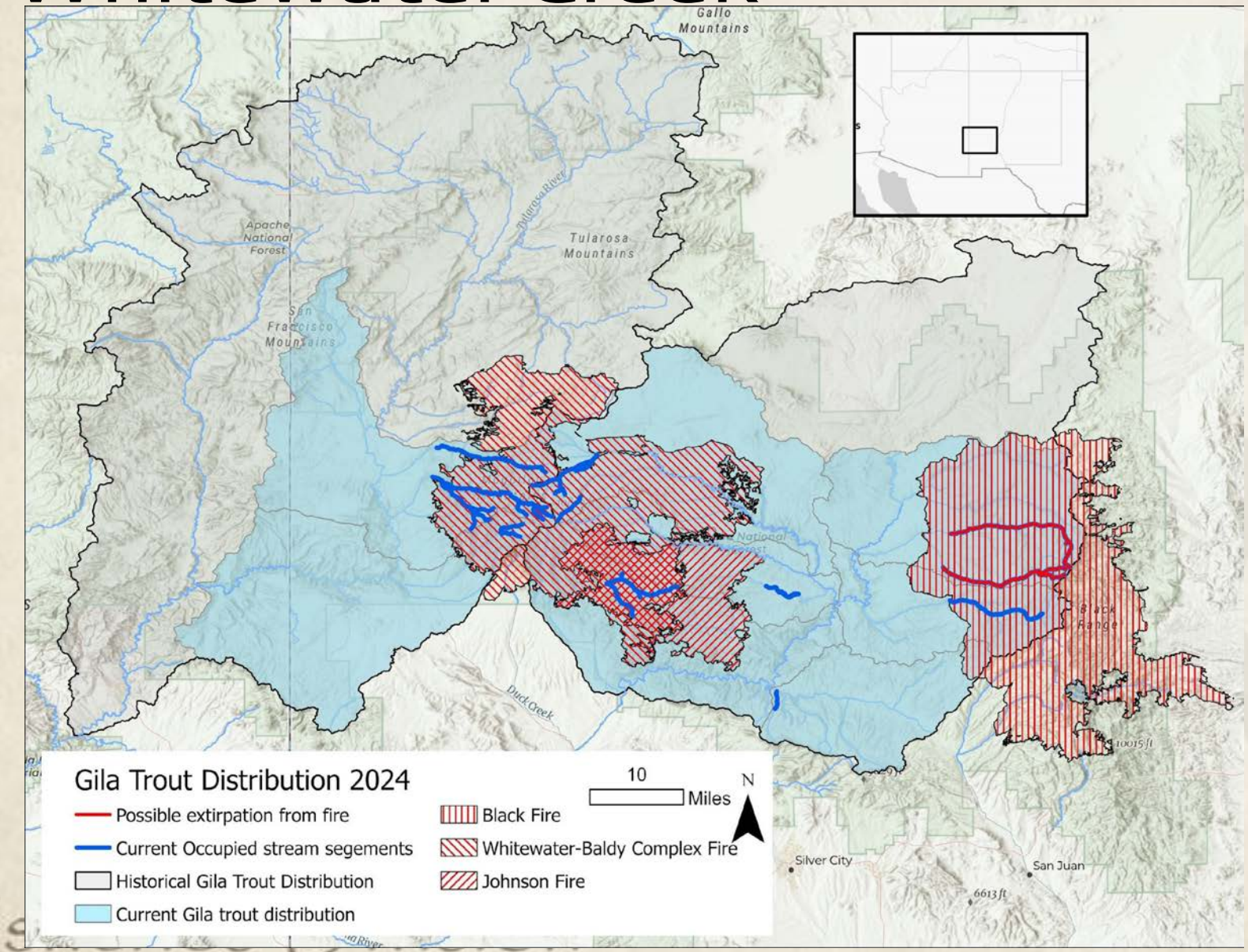
- Wildfire
  - History of fire suppression
  - Flooding and ash flows
  - Need resilient ecosystems
  - Need multiple populations
- Non-native Salmonids
  - History of stocking and moving nonnative fish
  - Hybridization- Rainbow Trout and congeners
  - Competition/predation- other Salmonids

Whitewater Creek



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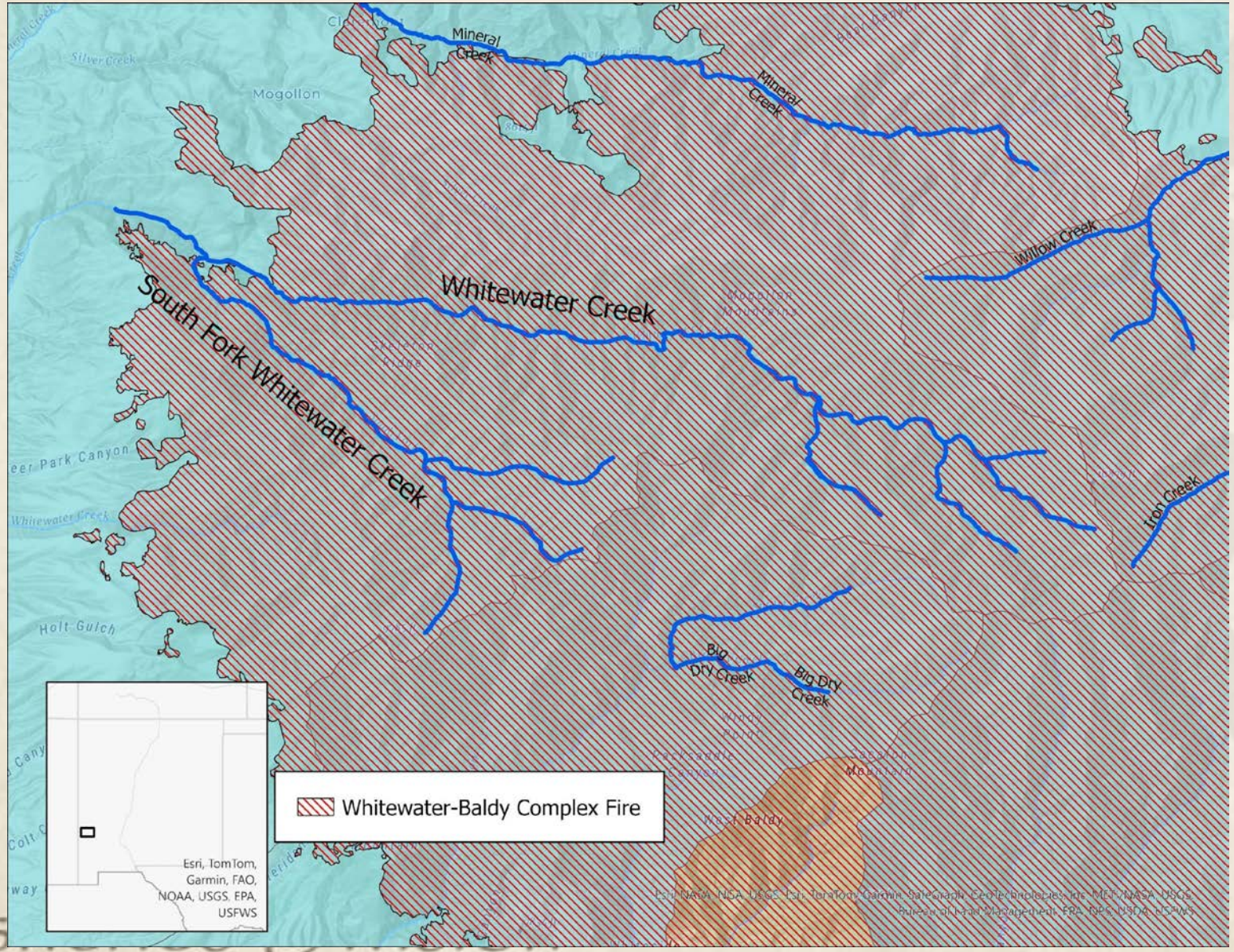

Whitewater Creek

- Identified as a potential Gila Trout stream
  - Large
  - Cold
  - Complex (dendritic)
- Nonnative salmonid population
  - Yellowstone Cutthroat hybrids
  - Brook Trout

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- Whitewater Baldy Fire in 2012…

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Whitewater Creek

- Identified as a potential Gila Trout stream
  - Large and long (rare)
  - Complex
- Nonnative salmonid population
  - Yellowstone Cutthroat hybrids
  - Brook Trout
- Whitewater Baldy fire in 2012
- Identified as high priority for Gila Trout
  - Restoration efforts began in 2015

Population Restoration

- Simple Goals…
  - Remove 100% of non-native salmonids
  - Return Gila Trout to the watershed

Population Restoration

- Not so simple process…
  - Federal and State compliance (NEPA, etc)
  - Public meetings
  - Logistic hurdles
  - Timing

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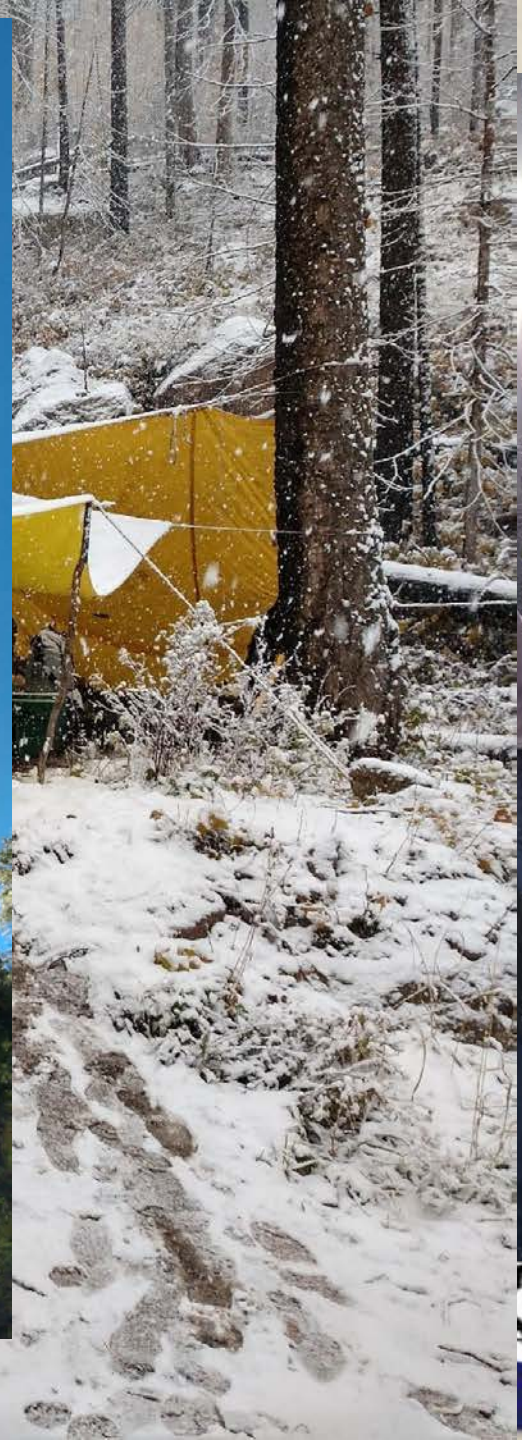

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Population Restoration

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- Results
  - Stocked for 3 years

Population Restoration

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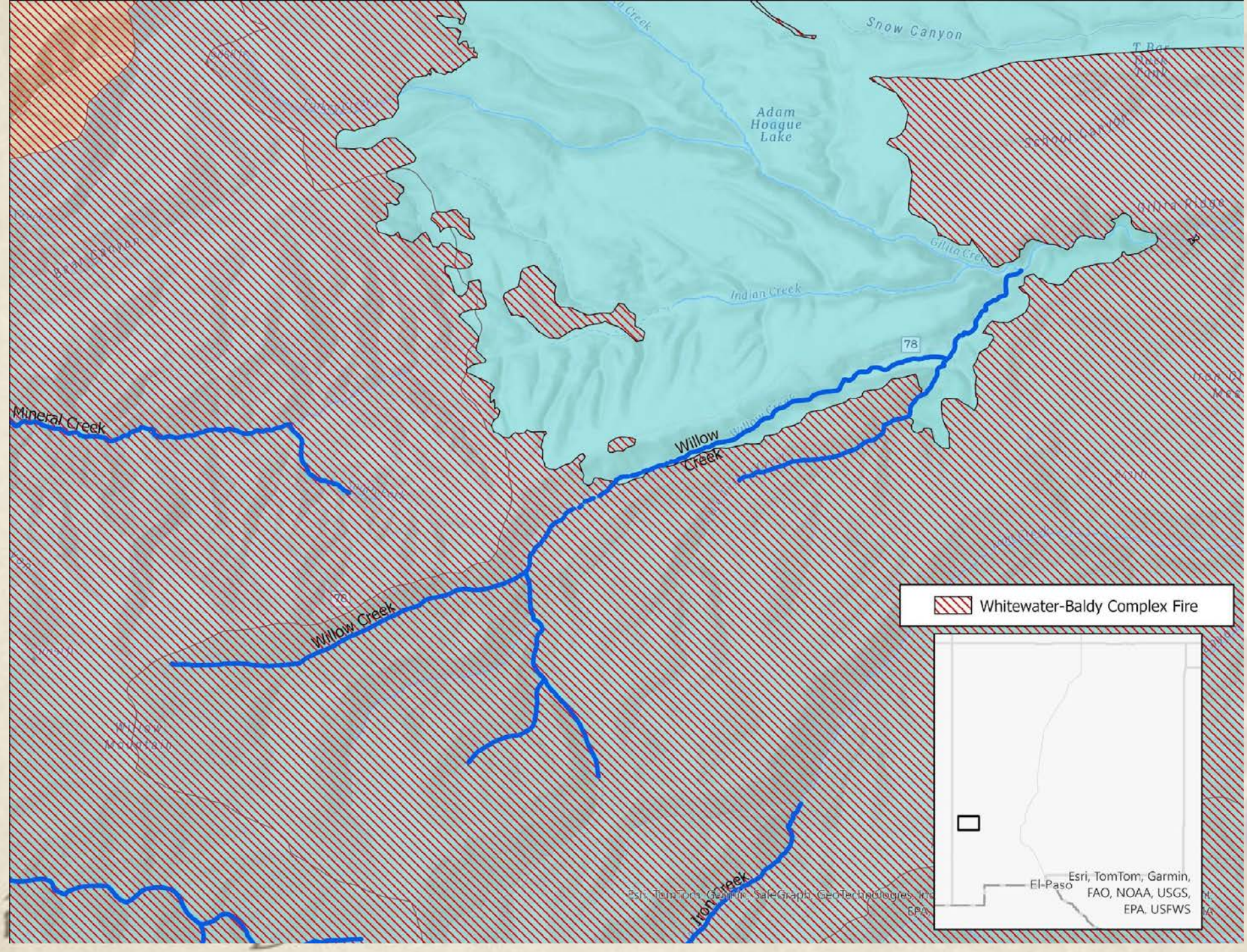
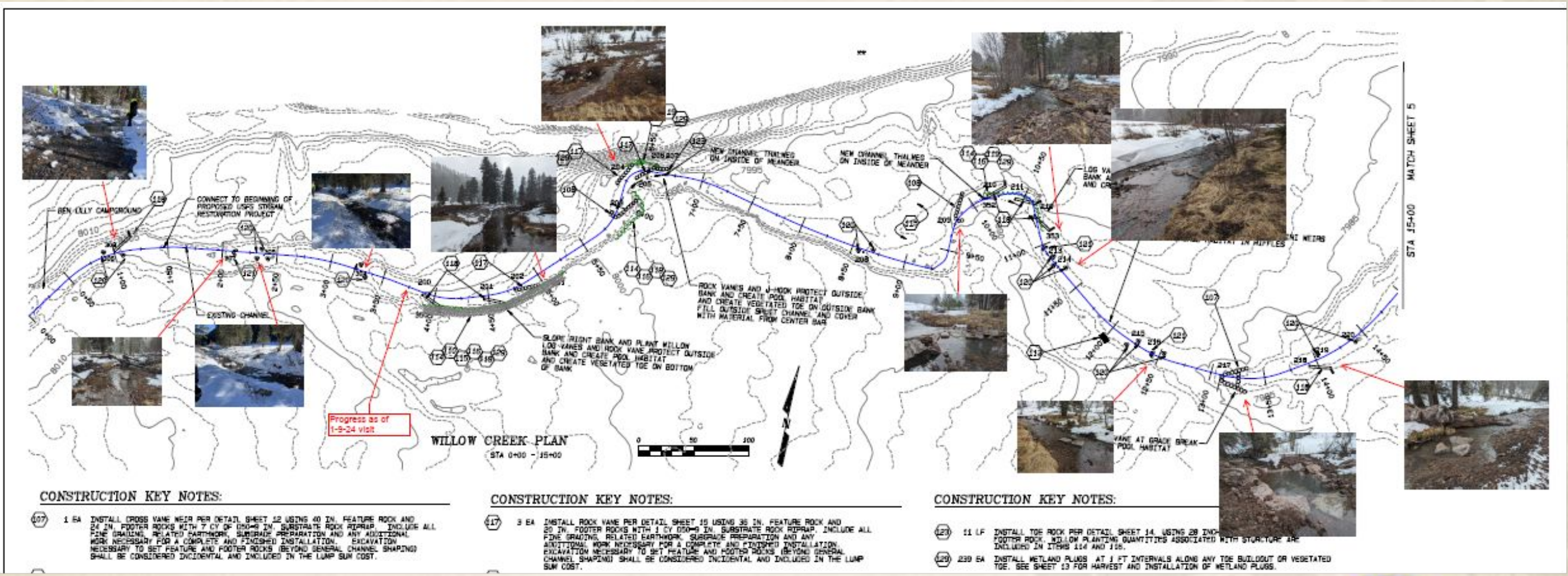
Population Restoration

- Not so simple process…
- Results
  - Stocked for 3 years
  - Surveyed in 2023
  - Found stocked adults and wild young-of-year
    - Expect population to continue expanding
    - Represents a 39 km addition to Gila Trout range

Habitat restoration- Willow Creek

- Willow Creek was heavily impacted by wildfire
- Depressed population
- Objectives- increase Gila Trout population through:
  - Habitat improvements
    - Shade
    - Water depth
    - Cover


Snow Canyon
Adam Hoague Lake
Indian Creek
78
Mineral Creek
Willow Creek
Willow Creek
Iron Creek
Whitewater-Baldy Complex Fire
El-Paso
Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc



CONSTRUCTION KEY NOTES:

(107) 1 EA INSTALL CROSS VANE WEIR PER DETAIL SHEET 12 USING 40 IN. FEATURE ROCK AND 24 IN. FOOTER ROCKS WITH 7 CY OF D50=9 IN. SUBSTRATE ROCK RIPRAP. INCLUDE ALL FINE GRADING, RELATED EARTHWORK, SUBGRADE PREPARATION AND ANY ADDITIONAL WORK NECESSARY FOR A COMPLETE AND FINISHED INSTALLATION. EXCAVATION NECESSARY TO SET FEATURE AND FOOTER ROCKS (BEYOND GENERAL CHANNEL SHAPING) SHALL BE CONSIDERED INCIDENTAL AND INCLUDED IN THE LUMP SUM COST.

CONSTRUCTION KEY NOTES:

(117) 3 EA INSTALL ROCK VANE PER DETAIL SHEET 15 USING 36 IN. FEATURE ROCK AND 20 IN. FOOTER ROCKS WITH 1 CY D50=9 IN. SUBSTRATE ROCK RIPRAP. INCLUDE ALL FINE GRADING, RELATED EARTHWORK, SUBGRADE PREPARATION AND ANY ADDITIONAL WORK NECESSARY FOR A COMPLETE AND FINISHED INSTALLATION. EXCAVATION NECESSARY TO SET FEATURE AND FOOTER ROCKS (BEYOND GENERAL CHANNEL SHAPING) SHALL BE CONSIDERED INCIDENTAL AND INCLUDED IN THE LUMP SUM COST.

CONSTRUCTION KEY NOTES:

(123) 11 LF INSTALL TOE ROCK PER DETAIL SHEET 14, USING 28 INCH FOOTER ROCK. WILLOW PLANTING QUANTITIES ASSOCIATED WITH STRUCTURE ARE INCLUDED IN ITEMS 114 AND 115.

(129) 239 EA INSTALL WETLAND PLUGS AT 1 FT INTERVALS ALONG ANY TOE BUILDOUT OR VEGETATED TOE. SEE SHEET 13 FOR HARVEST AND INSTALLATION OF WETLAND PLUGS.

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Thanks!

- U.S. Fish and Wildlife Service
- U.S. Forest Service
- Conservation Groups
  - Trout Unlimited
  - Bat Conservation International
  - NMSU Student Chapter of American Fisheries Society

Questions?