

**SAN FRANCISCO RIVER SUBWATERSHED, CENTERFIRE CREEK TO ARIZONA BORDER**

**TMDL reach length:** 14.9 mi; **Subwatershed area:** 151 sq. mi.(Centerfire Creek to headwaters in AZ)

**Elevation range:** 6700-8800 ft.

**Watershed cover:** 86% forested; 7% rangeland; 6% agricultural; <1% wetland; <1% urban

**Watershed management:** 93% USFS (Quemado RD); 7% private

**Wilderness:** none

**Counties [SWCDs]:** Catron [San Francisco]

**TMDL:** [http://www.nmenv.state.nm.us/swqb/Temperature\\_TMDL\\_in\\_San\\_Francisco\\_River\\_11-05-01.pdf](http://www.nmenv.state.nm.us/swqb/Temperature_TMDL_in_San_Francisco_River_11-05-01.pdf)

**Record of Decision:** <http://www.nmenv.state.nm.us/wqcc/303d-305b/2004/AppendixB/2004-2006ROD.pdf>

**WQS reference:** <http://www.nmcpr.state.nm.us/nmac/parts/title20/20.006.0004.pdf> (Section **20.6.4.602**)

**TMDL parameter exceeded:** Temperature

**Current exceedance:** 6% of readings exceeded 25°C standard

**Unsupported use:** high-quality coldwater aquatic life

Possible mechanisms	Action (identification of MPs)	Possible MPs
Loss and inhibited regeneration of streambank vegetation (shading) Increased sediment runoff and delivery to channel: uplands, unstable banks, or roads Sediment loading from eroding banks Increased width-depth ratio Upstream impoundment Recreational use, including OHVs and campgrounds Reduced base flow from loss of riparian cover or impacts to upstream spring sources	Evaluate streambank and channel morphology condition for potential rehabilitation sites Evaluate campground and road effects, including crossings (travel management planning underway; GNF & partners) Evaluate potential for thinning or prescribed burn projects (Apache/Gila NFs) Measure riparian bank cover Investigate historic wetland/spring sources for potential impacts	Pole/post plantings for shade canopy, sediment filtration; riparian exclosures In-channel structural controls Brush layer or filter strips Road/culvert realignment or paving; seasonal or OHV closures Thinning/burning/seeding to improve herbaceous upland cover Wetland/spring reclamation

**SAN FRANCISCO RIVER SUBWATERSHED (CENTERFIRE CREEK TO ARIZONA BORDER)—continued**

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**Watershed cover:** 86% forested; 7% rangeland; 6% agricultural; <1% wetland; <1% urban

**Watershed management:** 93% USFS (Quemado RD); 7% private

**Wilderness:** None

**Counties [SWCDs]:** Catron [San Francisco]

**TMDL:** [http://www.nmenv.state.nm.us/swqb/Plant\\_Nutrients\\_TMDL\\_for\\_San\\_Francisco\\_River\\_12-18-2000.pdf](http://www.nmenv.state.nm.us/swqb/Plant_Nutrients_TMDL_for_San_Francisco_River_12-18-2000.pdf)

**Record of Decision:** <http://www.nmenv.state.nm.us/wqcc/303d-305b/2004/AppendixB/2004-2006ROD.pdf>

**WQS reference:** <http://www.nmcpr.state.nm.us/nmac/parts/title20/20.006.0004.pdf> (Section **20.6.4.602**)

**TMDL parameter exceeded:** Plant nutrients

**Current exceedance:** Aquatic productivity exceeds standard by 1.3 lbs/day (684%)

**Unsupported use:** coldwater aquatic life

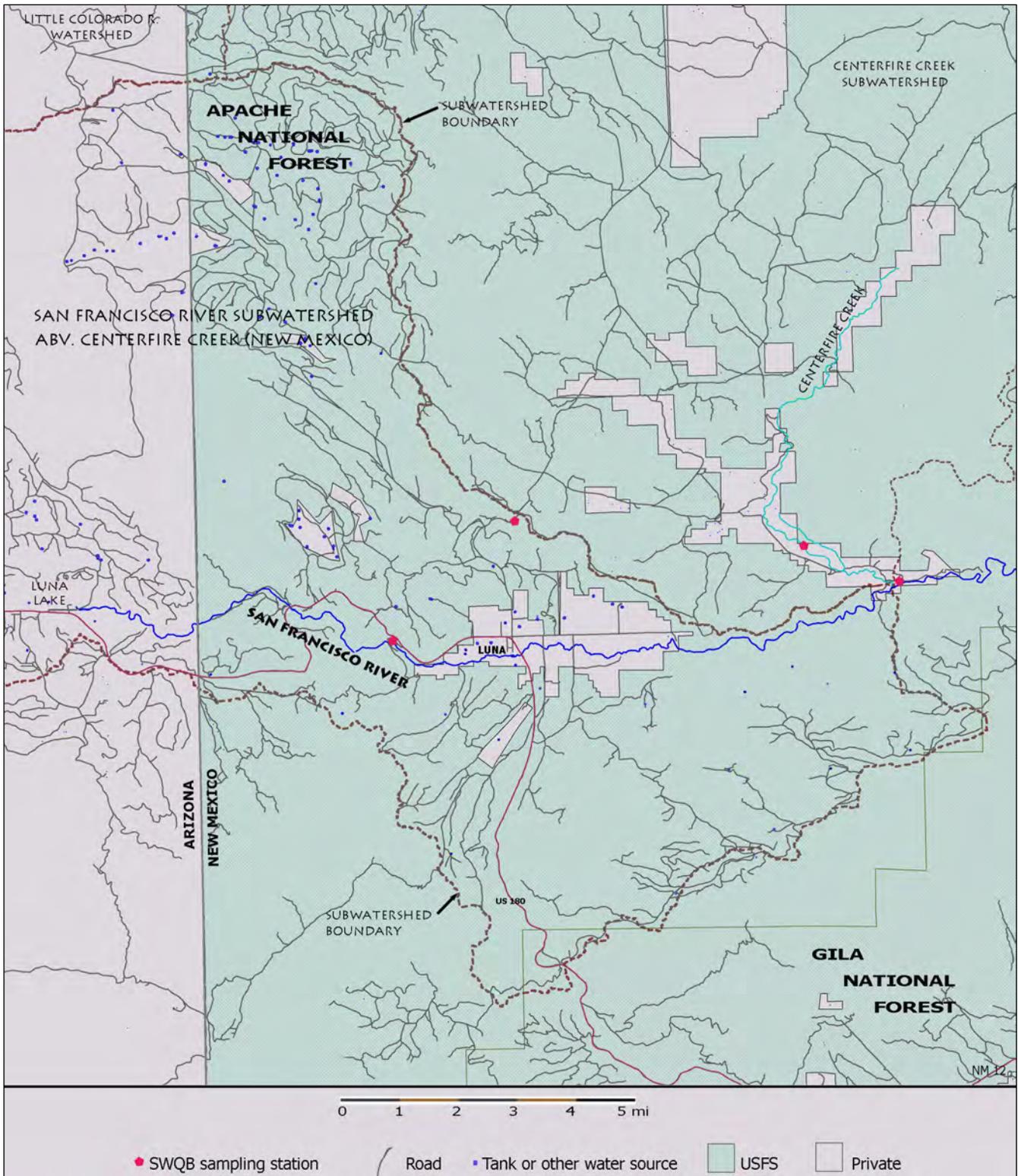
<b>Possible mechanisms</b>	<b>Action (identification of MPs)</b>	<b>Possible MPs</b>
Loss and inhibited regeneration of streambank vegetation (shading) Nutrients bound to sediments delivered to stream through excess sediment runoff (roads, campgrounds, uplands) Septic tank leaks (identified in Luna Lake, Alpine, AZ, by ADEZ) Grazing practices (AZ; per ADEQ)	Evaluate riparian grazing effects (including elk)  Evaluate road/vehicle/campground impacts (roads are under evaluation by GNF) Evaluate stream bank condition and measure riparian vegetative cover  Follow-up with ADEQ	Pole/post plantings to provide filtration; riparian exclosures (elk); filter strips Road/culvert/low water crossing realignment or paving; seasonal or OHV closures In-channel brush layers or willow fascines Thinning/burning/seedling to improve herbaceous upland cover Detention basin or wetland reclamation As determined by ADEQ for AZ impacts

**SAN FRANCISCO RIVER SUBWATERSHED (CENTERFIRE CREEK TO AZ BORDER)—continued**

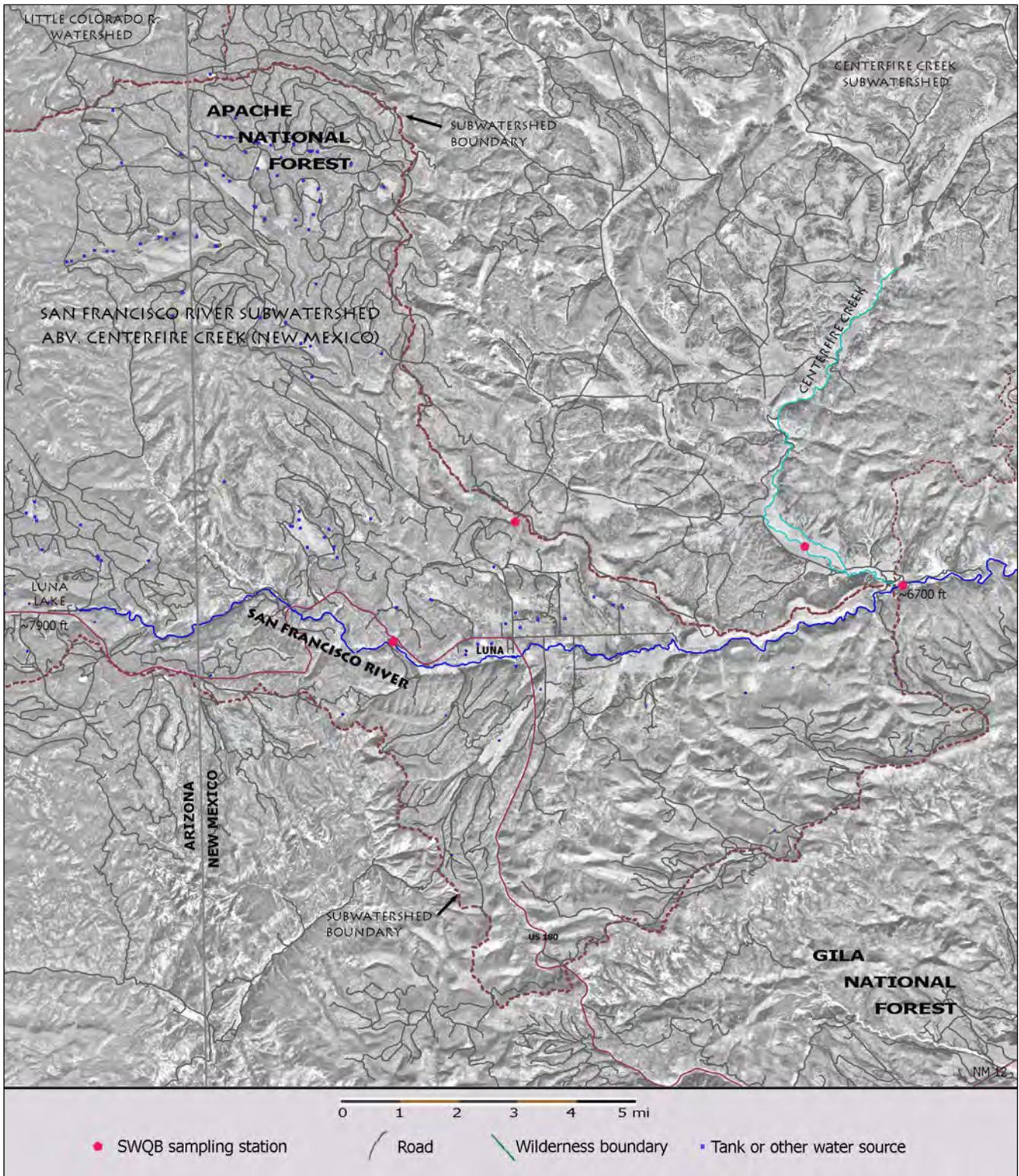
Milestones	Schedule	Target criteria
<p>Filter or bank planting; channel remediation sites targeted</p> <p>Completion of forest travel management planning complete</p> <p>Evaluation of potential thinning projects completed</p> <p>Potential wetland reclamation sites identified</p>	<p>2008</p> <p>2008?</p> <p>Dependent on USFS schedules</p> <p>2008-2009</p>	<p>Temperature:</p> <p>Create buffer/filter strip on 25% of targeted reach; increase canopy cover by 4-10%</p> <p>Sediment delivered from roads/campgrounds identified; road closures or improvements completed</p> <p>10% increase in herbaceous cover for project areas</p> <p>2012 target: Reduce temperature exceedances to 0%</p> <p>Plant nutrients:</p> <p>Improve buffer/filter strip; increase bank vegetation cover by 10%</p> <p>2012 target: Reduce aquatic vegetation productivity by ~25%, from 3.7 mg/L dry weight to 2.8 mg/L (~1.2 lbs/day)</p>
<p><b>Monitoring (suggested monitoring protocols are described in Section 6):</b></p> <ul style="list-style-type: none"> <li>▪ SF SWCD currently monitors water quality on the San Francisco mainstem just downstream of the Centerfire Creek confluence under a QAPP developed by NMED, in addition to regular NMED/SWQB monitoring and sampling at established stations..</li> <li>▪ Photo points</li> <li>▪ Monitor riparian tree canopy at selected locations</li> <li>▪ Establish and monitor channel morphology cross-sections at selected intervals</li> <li>▪ Coordinate with ADEQ to obtain results on Luna Lake monitoring</li> </ul>		



Map TMDL-34. Topographic map, San Francisco River subwatershed, Centerfire Creek to Arizona state line. Base image: USGS 1:24000 quads. All data from USGS, NMED, and USFS Gila National Forest.

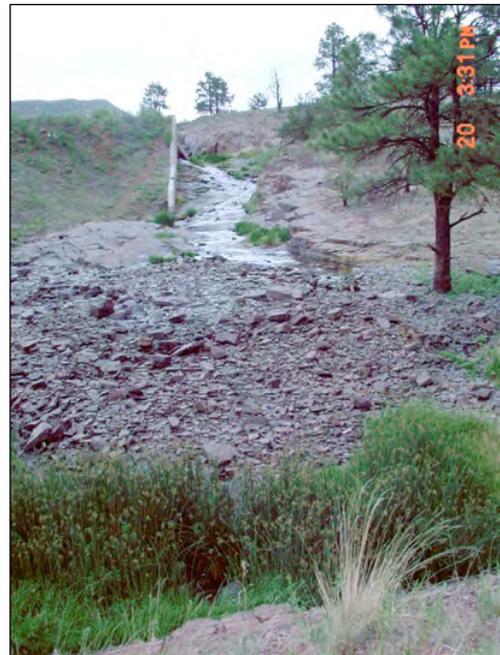


Map TMDL-35. Land management status map, San Francisco River subwatershed, Centerfire Creek to Arizona state line. All data from NMED, USGS, and USFS Gila National Forest.



Map TMDL-36. Aerial photography relief map, San Francisco River subwatershed, Centerfire Creek to Arizona state line. Base image: USGS 1996–2002 digital orthophotoquads. All data from USGS, NMED, and USFS Gila National Forest.

*SAN FRANCISCO RIVER—continued*



**San Francisco River above Centerfire Creek photos. Clockwise from upper left: between Luna Lake, AZ and Luna, NM; NMED sampling site upstream of Luna; flowing from spillway at Luna Lake; headwaters at Alpine, AZ. All photos from June 2001; courtesy NMED, Silver City.**