

# What is the status and trend of watershed conditions in the CFLR area, with a focus on the physical and biological conditions that support key soil, hydrologic and aquatic ecosystem processes?

## Intended monitoring:

## Completed monitoring:

Calculate watershed condition scores for each priority and focal HUC12 - per Forest Service Watershed Condition Framework.

Condition scores were compiled for the 3 priority and 12 focal watersheds (see below for background on selection). Only applicable to Forest Service managed HUC12s.

Tally the number (and miles) of streams meeting state standards.

303d stream data pulled from the New Mexico Environment Department and Colorado Department of Health and Environment.

Summarize proper functioning condition assessments - per Bureau of Land Management

N/A - Has not been summarized for CFLRP.

Tally # of fish passage barriers corrected, miles of road closed/improved, and # of stream miles treated.

Summarized accomplishments using Forest Service databases and 232 Partner interviews.

Tally # of 'essential' projects implemented - per Forest Service Watershed Restoration Action Plans (WRAPs)

N/A - 3 WRAPs (from 2011) exist within CFLRP. No known project completion within these HUC12s but more WRAPs are in development.

Monitor riparian geomorphology and riparian vegetation utilizing photo points.

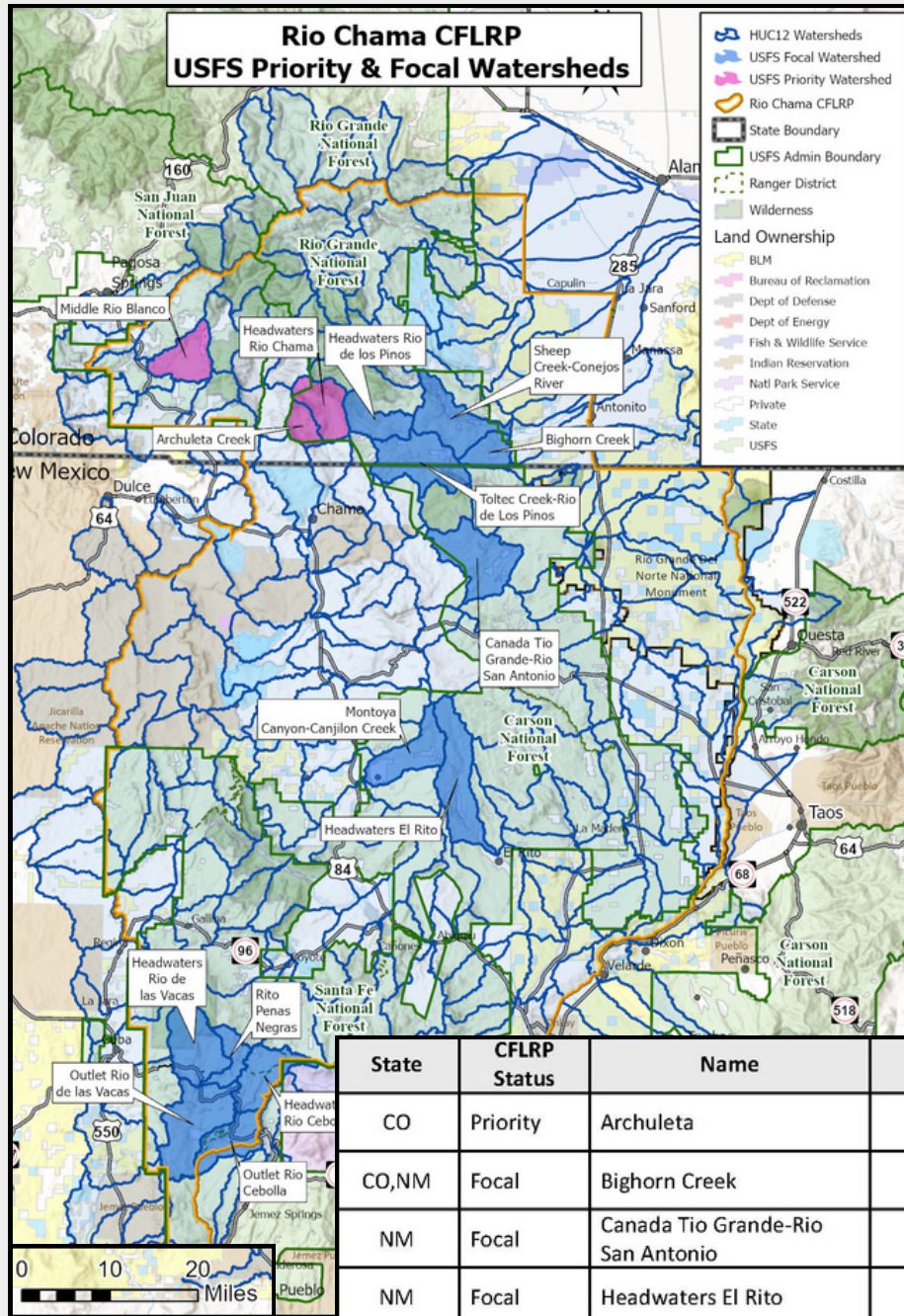
N/A - Riparian photo points have not been collated for CFLRP landscape.

Measure stream temperature and stream intermittency in relation to riparian treatments.

Installed 4 temperature/intermittency loggers and 2 game cameras measuring stream flow on one pilot stream reach.



# Overview of results:



The 2-3-2 Partnership Multiparty Monitoring Plan for the Rio Chama CFLRP suggests focusing water monitoring efforts (and the associated limited resources) in priority and focal watersheds: **Priority watersheds** were determined by each National Forest based upon the agency's Watershed Condition Framework (WCF). Of the 203 HUC12 subwatersheds within the CFLRP, three have "priority" designations. To supplement this, 12 **focal watersheds** were selected by US Forest Service district, forest, and regional staff based upon where projects are underway and/or where future projects are planned. The 2-3-2 Partnership can select additional focal watersheds, across all-lands in the CFLRP, that are important to regional water health and/or other partner values.

Map created by Steven del Favero

State	CFLRP Status	Name	Acres	Date of last WCF Rating	% of HUC12 with recorded disturbance since WCF rating
CO	Priority	Archuleta	9,136	2021	0
CO,NM	Focal	Bighorn Creek	11,289	2021	5
NM	Focal	Canada Tio Grande-Rio San Antonio	33,714	2011	329
NM	Focal	Headwaters El Rito	36,056	2011	587
NM	Focal	Headwaters Rio Cebolla	22,739	2015	138
CO	Priority	Headwaters Rio Chama	19,603	2021	0
NM	Focal	Headwaters Rio de las Vacas	29,735	2015	364
CO	Focal	Headwaters Rio de los Pinos	16,363	2015	79
CO	Priority	Middle Rio Blanco	19,734	2011	25
NM	Focal	Montoya Canyon-Canjilon Creek	22,997	2011	667
NM	Focal	Outlet Rio Cebolla	19,632	2015	34
NM	Focal	Outlet Rio de las Vacas	37,480	2015	168
NM	Focal	Rito Penas Negras	10,883	2015	525
CO	Focal	Sheep Creek-Conejos River	28,581	2021	2
CO,NM	Focal	Toltec Creek-Rio de Los Pinos	32,784	2021	1

Right: HUC12 Watershed disturbance since Watershed Condition Framework rating date. NOTE: Area of HUC12s affected by disturbance may exceed 100% due to overlapping disturbances across years.

### 303d (impaired waterways) within Rio Chama CFLRP:

- 68 bodies of water
- 1317.23 miles of waterway

Reported Restoration Activities (10/01/22 – 09/30/23)	Forest Service	Non-Forest Service
Road Improvement	1 mi	-
Road Maintenance	88 mi	-
Terrestrial Wildlife Habitat Restoration	10,978 ac	250 ac
Stream Crossings Mitigated	-	-
Stream Habitat Enhanced	20 mi	1.4 mi
Water or Soil Resources Protected/Maintained/Improved	5,156 ac	-

Note: Listed restoration activities (above) are specifically designated by USFS performance measures.

#### Notes from the field:

303d stream data was collected from the New Mexico Environment Department and Colorado Department of Health and Environment. All listed 303d data is from 2020.

Stream temperature was selected as a key indicator for overall watershed health. The national stream temperature database, NorWeST (supported by the US Forest Service Rocky Mountain Research Station) has limited repeat, up-to-date, long-term data within the CFLRP. As of October 2023, NorWeST has data for 132 measurements across 104 unique temperature loggers, meaning 36 sites have multi-year data that ranges from 1995-2014. Due to data currency and the uncertainty around NorWeST temperature loggers in relation to past riparian treatments, 2-3-2 Partners could work together to install temperature loggers in a targeted manner (above and below riparian treatments) throughout priority and focal watersheds.

Site-specific stream flow monitoring was piloted in summer 2023 following low-cost protocols developed by the USGS (Flow Photo Explorer). Two game cameras were installed (1 above and 1 below a given riparian treatment) and machine learning will create a relative hydrograph to see if there are differences between the upstream and downstream flows.

Repeat photo points are used across different projects and by various 2-3-2 Partners to monitor riparian changes. However, there is not currently a consistent protocol or central photo library for CFLRP-wide review.

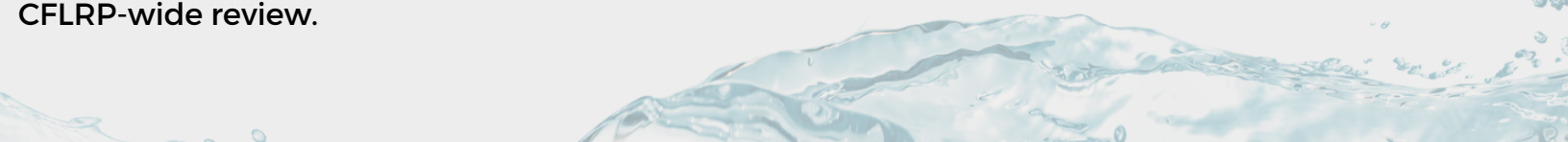


Table summarizes adaptive management (AM) watch-outs as defined in Edition 1 of the 232 Partnership Multiparty Monitoring plan. AM watch-outs were determined by the 232 Partnership at the February 2023 meeting in Taos, NM. Yellow boxes indicate the watch-out was met, or not measured, and should be considered for collaborative discussion.

**AM Watch-out**

**Commentary**

Decrease in stream reach rating from one measurement to the next.

Baseline data only - no comparative data.

Increase in number of defunct barriers.

Baseline data only - no comparative data.

Grazing allotments re-opened within riparian areas.

Unclear measurement approach.

Repeat photos indicate:

- Increase in extent of invasive plants.
- Decrease in vegetation diversity.
- Stagnation or decrease in large wood recruitment.
- Reduced bank stability.
- Algae presence.

No photo point standardization across CFLRP. Individual orgs/practitioners implement repeat photos with varying frequency and focus.

Stream temperature loggers indicate:

- different story than state water data
- increase in maximum seasonal stream temperatures
- earlier peak temperature
- increased days of intermittency

Baseline data only - no comparative data. Planning for expanded # of monitoring sites.

**Monitoring Committee Recommendations and Takeaways**

- Flip USFS-WCF and 2-3-2 order -> meet FS requirements + build 2-3-2 around it.
- Citizen science networks + survey of community water associations + LiDAR -> ground truthing.
- Determine what is actionable on-the-ground.
- 2-3-2 to color (select as priority of focal) more HUC12 watersheds.
- Review of existing focal and priority watersheds -> source water areas (water storage opportunities) + stream gages + turbidity/stream bank stability.

Rio Chama CFLRP monitoring efforts and collaborative discussions are ongoing. Please direct comments and questions to [cody@forestguild.org](mailto:cody@forestguild.org)