# Mancos Restoration and Resilience Group

December 1, 2016

Draft Meeting Notes

**Meeting Agenda**

December 1, 2016 | Mancos Valley Grange | Mancos, Colorado

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| **SESSION I** | | | |
| 8:30 – 8:45 | **Introductions and Welcome** | | |
| 8:45 – 9:15 | **Review Purpose of Group and 2015 Meeting** | | |
| 9:15 – 9:40 | Gary Kennedy, Mancos Water Conservancy District - **MWCD Water Distribution and Activities** | | |
| 9:40 – 10:05 | Becca Samulski, Firewise or BLM – **Fire Management and Risk** | | |
| 10:05 – 10:35 | Shauna Jensen, San Juan National Forest - **Watershed Health and Hydrology** | | |
| 10:35 – 10:45 | **Break** | | |
| 10:45 – 11:10 | Jim White, Department of Natural Resources - **Fisheries and Aquatic Health** | | |
| 11:10 – 11:35 | Travis Custer, Mancos Conservation District and High Desert Conservation District - **Soil Health and Ranching/Farm Practices** | | |
| 11:35 – 12:00 | Colin Larrick, Ute Mountain Ute Tribe Environmental Department - **Water Quality and River Restoration** | | |
|  | | **LUNCH!** |  |
| **SESSION II** | | | |
| 1:00 – 2:30 | **Discussion of Direction of Report**  - Identify Existing Information  - Decide Metrics for Measuring Resilience  - Identify Known Data Gaps | | |
| 2:30 – 2:45 | **Break** | | |
| 2:45 – 3:15 | **Process – Science Synthesis**  - Sub-committee for Moving Report Forward  - Who Will Contribute and Write Report?  - Who Directs Final Report?  - What Does the Report Look Like? | | |
| 3:15 – 4:00 | **Stakeholder Process – Proposed**  - Meetings  - Review | | |

**Wildfire in the Mancos Watershed** – **Becca Samulski, Firewise**

Objective - Provide information about fire: risk = chance or probability a fire might start

Define the values that are at risk

* Water quality > increased erosion, hydrophobic soils, sedimentation
* Property

Values – Previous FireWise focus was on Wildland Urban Interface / expanded in recent years to watershed as whole (Forest Health).

Lower portion of Mancos watershed has higher risk for low frequency-high intensity fires.

Both Tres Rios and SJNF are in process of resource and asset assessment. Identify areas on landscape of net benefit (e.g. / net hazard (e.g. powerline). Data will be available in Spring and could be plugged into MRR report or added later.

Wildfire background – 1959 to recent show high probability in some part of watershed for high severity fire in near future (~10 years).

Impacts of mitigation and treatment – goal is restoration of natural fire regimes, using methods including thinning and other methods.

Discussion and Comments:

* + - * What effect does beetle kill have on forest and on wildfire behavior?
        + Answer = recent studies have shown beetles do not increase risk of catastrophic wildfire.

**USFS Activities in the Mancos Watershed – Shauna Jensen, San Juan National Forest**

Portion of Mancos watershed managed by USFS is relatively small, but there is lots of activity on these lands.

Landscape scale initiatives on SJNF

* Aquatic Riparian and Wetland Assessment
  + Completed by SJNF in 2006.
  + Purpose of assessment was to describe, rate, and identify management needs.
  + Portions of the Mancos watershed had high levels of disturbance due to anthropogenic impacts.
* Watershed condition classification
  + Completed by SJNF in 2012.
  + One objective of condition classification is to prioritize watersheds for restoration.
  + East Fork of Mancos River (for water quality) and West Fork of Mancos River (for diversions affecting quantity) Mancos were rated at Risk; Chicken Creek rated as Impaired (for quantity re diversion, riparian, roads and trails, soils, fire regime outside historic range of variability in Ponderosa, invasive species). Ongoing process done at forest level.
* Watershed Restoration Action Plan
  + Thinning in Ponderosa, prescribed burns, removal of invasives, ongoing analysis of grazing impacts
* Historic fire regimes based on frequency and severity
  + Fire Regime Condition Classes - significantly altered at lower elevations, moderate and mid-level and low in upper portion of watershed.
* Wildfire Risk Assessment
  + Tools for assessing and mitigating wildfire risk; working w Firewise
* Post Fire Risk Modeling
  + Use AGWA to model flood flows and total sediment (is necessary input data available?);
  + Firewise is working with UofA on AGWA model for Dolores, and may expand to entire SJNF, could include Mancos early on.
* Timber/Fuels activities
  + Thinning pine and oak, aspen coppice, prescribed burns; collaborative effort working w agencies and tribe.
  + Future management goals: increase target area, reduce costs, mimic natural fire regime.
* Range management activities
  + NEPA on all allotments, boundary changes, reduction in numbers, changes in livestock type, fencing, water developments, exclosures.
* Recreation/travel management
  + identify motorized routes, establish minimum road and trail system, eliminate unauthorized routes.
* USFS monitoring in the Mancos watershed
  + Timber, Fuels, Range, Watershed, Wildlife.
  + Data is available and can be requested.

Discussion and Comments:

* What is the extent of instream channel structures in watershed?
  + There are very few and none are major, mostly due to funding limitations.
* Is there a broadscale EA in works?
  + No.
* Are other groups using USFS data for watershed condition evaluations?
  + Yes, for example TNC’s watershed assessment (beershed); and State 303d lists.

**Status of Fisheries in the Mancos River – Jim White, Colorado Parks and Wildlife**

Distribution

* + Coldwater species upstream (reaches where water is 60F or less)
    - rainbow, brook and a few brown trout, perch, sculpin, (no cutthroat)
  + Warmwater species downstream
    - natives – roundtail chub, speckled dace, pikeminnow, flannelmouth and bluehead suckers (no white suckers). Natives are very mobile, moving as much as 20-30 miles;
    - Non-natives – sunfish, bass, minnows.
  + Hwy 160 is approximate cold/warm breakpoint. Shifting now or in future?

Abundance

* + Overall density of fish in the Mancos River is very low for both cold and warm water species relative to other watersheds. Why?
  + Low density is due to multiple limiting factors
    - Low flows or lack of flow at some times of year;
    - Fire effects (debris flows - sedimentation);
    - Limited habitat connectivity;
    - Haven’t looked in detail at water quality, but most of these species are resilient to wide ranging water quality conditions.

Management goals

* + Stocking, flannelmouth and bluehead sucker – issues hatchery fish don’t have same instincts or behaviour as wild fish, potential for interbreeding w white sucker;
  + Use of genetic characterization to support stocking and fish movement decisions.
  + Barrier on UMUT 5-7 miles upstream from confluence w SJ. Prevents non-natives from moving upstream.
  + Habitat improvement (flows);
  + Stream reconnection (provision for movement to refugia during low flow periods);
  + Protection (maintain the existing barrier on lower portion of river).

**Soil Health and Ranching/Farm Practices Travis Custer, Mancos Conservation District and High Desert Conservation District**

16,000 acres 35 diversions- pretty complicated for the size of the drainage in how water moves

1100 farms in Montezuma, 600 ac average, 97,000 acres of cropland in County. Mostly ranching and hay (60% in Montezuma County), plus growing number of small food production.

Hay production, cattle ranches, and smaller growing acreages. 15-20 acres are more common. Larger scale farms are also combining.

Soil heath and how it affects water quality and quantity- We are running into issues with the Colorado Water Compact, because we know understanding of watersheds and watershed health that we didn’t have before.

Organic content of soils 2-5% on average across the County (obvious challenges with an average as soils vary). Annual croplands have reduced to 1% organic matter. The typical rotation/rest farming method used for alfalfa and pinto beans has affected the soil structure.

Four goals to maintain soil health

* Keep soil covered as much as possible (reduce erosion);
* Maintain living plants to fuel the factors of biology, structure and water holding capacity;
* Promote and maintain biodiversity in mimicking natural processes (crop rotations)
* Reduce disturbance (e.g. deep tillage);
* Incorporate livestock based on research showing beneficial role w appropriate management.

Challenges

* Increased runoff from poor soil structure. Place emphasis on importance of storing water in soil. Ability to do this is based on soil structure. Good structure allows infiltration (water and air) and supports bacteria and fungi – creating ‘living filter’;
* Sedimentation and nutrient pollution accompanying runoff. Increases in soil condition improves water quality and potentially runoff;
* Concerns that water conservation and efficiency measures will put water rights at risk
* Diversions are not necessarily measured (old systems or lacking), so hard to track improvements.
  + Can estimate from Crop ET, but hard to get a number
* Changes in practices take several years to see the payout for the investments. So the conversion is hard to show impact in short term.

We have a lot of old water rights and lack transboundary diversions in the watershed. There is fear that any change in the water rights system would weaken/threaten the security of their rights.

Improvements in Mancos Valley (or Montezuma County)

* Reduction in salinity loads due to BMPs (less flood irrigation);
* Trial technologies- dragging driplines (saves center pivot by 25-35%);
* Infiltration improvements;
* Looking for funding for improving larger ditches (efficiency);
* Lund Ditch as added telemetry to monitor their head gate remotely;

Measurable Outcomes

* Salinity projects
* Percent BMPs in the basin

Future Considerations

* What process and/or language will be helpful to how can agriculture participate in river health?
  + Can we forge partnerships between farmers/ranchers and instream flows?
* What are the changes in farming practices, crops, and acreages going to change in the future?
  + Small food crop acreages
  + Transitions of land to other uses
* What role can soil health have in absorbing carbon as a climate strategy?
  + Peter Donovan working with volunteers to monitor carbon levels and BMPs
* What other technologies are out there?
  + Biochar is challenging in alkaline soils, so may not be an option. Lack examples of broad application in
  + Combined methods- wood chips, biochar with manure, Elcelsoir mulch,
  + Management practices
* What monitoring would be worth installing to improve efficiency and precision of water usage?

Discussion and Comments:

* Is salt load delivered to SJ regularly measured?
  + Not currently.
* What are the challenges in monitoring water use in the Mancos Valley?
  + Difficulty in monitoring water use in Mancos is mostly due to large number of small ditches and high cost of gages/remote controls.
* Has there been talk of conservation group taking test water rights case to court to improve definition of understanding of law?
  + Not yet, but this would be helpful.
* To what extent is potential changes in flow (~-23% or more) due to drought or climate change being considered in ag community.
  + Leads to importance of language used to address climate in report.

**Andrea Phillips – Mancos Town Administrator**

The river is a key and vital resource for Mancos community, including part of the naming of the town. The administration also sees it as a neglected and missed opportunity in the past. They want to see it embraced as an asset. The Town also uses the river as a major drinking water source. Public works is working on bringing in improvements to the headgates for the Town water supply. Working on improving infrastructure, including settling ponds (control overflow) and piping.

Town of Mancos has a Comprehensive Plan (2011) including a vision for the town. It includes environmental sustainability, quality and affordable housing, infrastructure, and sustainable development to maintain the small town atmosphere of Mancos. The plan is available at: http://www.mancoscolorado.com/admindocs/2011CompPlan.pdf

The Board recognizes that in Mancos there is a mix of income levels, employment types, including many people that rely on the town for necessities as well as a component that consider it a bedroom community. It is very diverse in age, economics, politics, and demographics. The town is growing slowly, but positive growth. There is a mix of businesses here and also tie into businesses others. The Town is working to secure high speed internet- the lack of the infrastructure is holding the town back.

Emergency response planning, including drought, wildfire risk, serious winter storms, and climate change.

* The Town feels it has enough water 240 AC feet in Jackson Reservoir in addition to the river. Challenges are aging distribution lines and the water treatment plant. They just built a new water tank and also need to the old one.
* Thee water system serves approximately 500 accounts. They do have the ability to restrict watering and enforce water restrictions. They provide information to residents on xeriscaping. Increasing water rates has increased water conservation. It used to cost $10,000 for 28g/m. They lowered their base gallons to 7,000. People are paying for what they are using.
* The Town is a third tier water user, and has irrigation rights at Cottonwood Park, although they would like to better utilize it, improving efficiency.
* FEMA flood zone maps, show Chicken Creek and the Mancos River have many residences in the 100-year flood plain. They have a flood zone regulations.
* Concerns related to climate change are extreme winter storms, droughts and wildfires.

Development of the Mancos River Walk

* Working towards connecting Cottonwood Park with Boyle Park. Have 1 miles of soft surface path. Working on easements.
* Planning on improving Cottonwood Park, including intentional access points (rather than social trails). Finding issues with trash, social trails, and accessibility. The Town has a GoCO Grant in 2017 for improvements to trails and facilities at Cottonwood Park.

**Afternoon Discussion Session**

**Report Objectives and Structure**

What is the current health? Looking forward, what are the risks/vulnerability?

Use ‘what do we value’ as proxy for what are the risks/vulnerability (aka what are the problems?)

What proportion of watershed is public or private?

Who is this immediate group trying to serve? Who is the audience? There are enough tech reports available to drown us all. Suggest the audience be the community (see Ann’s Yampa 2006 report).

Need to remember importance of engaging larger audience, particularly those who are not part of current group.

*Suggestion - We want this report to read like a story.*

* Convey to the readers why they should care.
* Engage the people who are using the water/support the agencies making the decisions.
* This is an informational/planning document. Remember to make sure it is accessible to community.

What is the organizational/business structure for current project and ongoing effort towards building/keeping group alive?

Long-term plan and funding options drive form and content of report.

Recreation was dropped out, but should we bring it back in?

* Probably not necessary.

Report could be a foundational piece that can branch to meet diverse needs.

*Suggestion - Redefine as a foundational document/springboard that future communications to specific audiences can tier their information.*

Measure what you value and value what you measure.

Focus on fundamental data

When doing trend analysis direct familiar and useful variables (e.g. use water balance to explain status and trend of water availability).

**Topics & Goals**

Water Quantity

* Identify what (if any) instream water rights are associated with sections of the river.
* Where are there existing protections for water in the stream? e.g. wilderness, instream…
* What water conservation practices should be implemented?
* Add storage to available water sources (reservoir or on landscape)

Agriculture

* Topic questions from Ann O.:
  + How many acres are in ag?
  + How many acres in different uses?
  + What is level of parcelization (size)?
  + What is the salt load delivered downstream?
* Identify how ag contributes to river health. Anecdotes/examples that can show this (e.g. water conservation practices implemented).
* Make the best use of a commons resource.
* Land use/Water use breakdown – from MCD?
* Agricultural lands play an important role in watershed health (not in opposition). Bringing agriculture to the table is a positive light is necessary to address water rights issued in CO.
* Economic importance.
* How resilient is the valley to flooding/drought?

River Health

* Change the form of questions from Yes or No to e.g. ‘What is the extent and location of invasive weeds?’
* Add ‘Riparian’ to the ‘River Health’ section? Then Separate out Riparian and Aquatic.
* How does the Mancos fit into the ‘Big Three’?
* Add sub-questions under Riparian and Aquatic that call out specific species of concern.
* What are we talking about when we say ‘healthy’?
* Best fish metrics to use: 1) Presence/Absence, 2) Species Composition, 3) Demographics, 4) Density, 5) Distribution

Forest Health

* Consider change to Upland – Forest / Range / Urban. Or not.
* Promote forest health that promotes a healthy and functioning watershed.

Climate

* Focus on question, leave metrics to later.
* Start with fundamental data
* Trend analysis and projections – turn data to variables audience can relate to (e.g. water balance)
* NPS is resource for data / summaries.

Resiliency

* Fundamental resiliency question: What to What?
* Should we use Resistance and Resilience or go with Transition?
* Do we need to define Resilience?

Threats

* Frequency of extreme events / disturbance (drought, fire, floods, debris flows…)
* Invasive species
* Loss of instream flows
* Economic prosperity
* Vulnerability of ag to disturbance

**Report Sub-committees**

Water Quality and Quantity – Celine, Steve, Shauna, Gary

Agriculture – Travis, Jack, Bob, Joel

River Health – Ann, Celine, Steve, Duncan, Paul, Tova, Chris

Forest Health – Becca, Derek, Shauna

Climate – John, Duncan, Marcie, Steve, Tova

**Report Time Frame**

* Steering committee reconvene mid-January – revise matrix
* January/February - Sub-committees zero in on primary metrics.
* Content March 15
* April 1 first draft
* May 1 – final draft
* May - Review
* Final deadline = June

**List of Attendees**

Marcie Demmy Bidwell, Mountain Studies Institute, Climate Program manager

Derek Padilla, San Juan National Forest, District Ranger

Steve Monroe, Hydroecologist

Shauna Jensen, San Juan National Forest, Hydrologist

Becca Samulski, FireWise Communities of Southwest Colorado, forest health and wildfire protection

Shaun Bliss, NRCS Rangeland Management Specialist, private land owner assistance

Bob Decker, Mancos Conservation District, Water Commissioner

Josh Irving, Mesa Verde National Park, Biologist

Jim White, Colorado Parks and Wildlife, Aquatic Biologist

Travis Custer, Mancos Conservation District, District Conservation Technician, soil health, water conservation

Tova Spector, Mesa Verde National Park, Plant Ecologist, riparian area, and springs

Jack Burk, Montezuma Land Conservancy, Mancos Conservation District, rancher, land owner

Duncan Rose, Trout Unlimited Dolores River Anglers, Upper Dolores fisheries assessment

John Gross, National Park Service Climate Change Response Program, climate adaptation

Celene Hawkins, The Nature Conservancy, Water Project Manager, agriculture efficiency

Paul Morey, Mesa Verde National Park, Wildlife Biologist, Mancos River restoration efforts

Gretchen Rank, Mancos Conservation District, District Manager

Garrett Hanks, Trout Unlimited Public Lands, Program Manager

Ann Oliver, Mancos Conservation District Project Manager for Phase III, consultant for water resources

Andrea Phillips, Town of Mancos Administrator