Background
On March 26th, 34 practitioners from Colorado and Utah met in Grand Junction, Colorado for a “Cross Visit”. One of the developing programs of the Cross-Watershed Network (XWN), a peer-to-peer network focused on improving watershed health in the Arid West, Cross-Visits are organized site visits with practitioners from adjacent watersheds to share lessons learned and identify future opportunities for collaboration.

This particular Cross-Visit brought practitioners together that work on the Colorado River and its tributaries in western Colorado and eastern Utah to explore opportunities for collaboration and share lessons learned around several restoration themes. These themes included: riparian restoration strategies for working effectively within the context of multiple project goals; best practices for controlling kochia, an invasive annual weed; and enhancing riparian habitat for the Western Yellow Billed Cuckoo and other bird species.

Attendees included participants from the Desert Rivers Collaborative (DRC), the Southeast Utah Riparian Partnership (SURP), the Middle Colorado Watershed Council, and the Dolores River Restoration Partnership and/or the Middle Colorado River Watershed Cooperative Weed Management Area (MCRW CWMA).

Morning at Watson Island: Strategies for Conducting Riparian Restoration with Multiple Goals
Restoration that is guided by multiple goals can be nuanced, challenging, and--at times--problematic. Participants shared insights from their experiences with riparian restoration projects that have multiple goals (e.g. ecological, social, economic), including the local effort at Watson Island:

- You don’t have to accomplish everything at one restoration site; consider the larger scale of restoration: perhaps one site is better suited for recreation, while another is better for wildlife
- Goals need to be revisited based on project monitoring and lessons learned; goal refinement is an evolutionary process that should be dictated by what native vegetation can actually be established; sites that are historic gravel pits, for example, may only be able to support limited habitat complexity and/or meet certain aesthetics
- Be clear with yourself, your project partners, and stakeholders whether you are conducting “restoration” versus “rehabilitation” or “reclamation”. These terms have different implications and one may be more appropriate than other for describing the work you are doing. While restoration is typically used to describe actions that return a site to a condition that emulates the structure, function, diversity, and dynamics of a pre-disturbance ecosystem, rehabilitation and reclamation are used to describe improving a site’s overall productivity and biotic function.
- Be clear in your ecological goals what you are restoring for. Are you trying to support a discrete species or set of species? Or, are you more generally creating diverse and complex habitat that will benefit many species?
Species have different needs across space and time. The Lower Colorado River Multi-Species Conservation Program was identified as a good model for a restoration program that explicitly identifies and develops different restoration methods around dozens of species.

Ecological goals may vary within and between sites, based on site potential; perhaps one site may be more suitable for restoration that benefits the Western Yellow Billed Cuckoo while another site downstream should have species-specific goals for benefiting big-eared bats.

Fundamentally, goals should be tied to the resource concerns and integrate human values. Given the complexity and dynamism of human values, goals should embrace some level of flexibility; promote open & continued discussion; and perhaps include outreach goals to educate and engage user groups in stewardship.

**Site Visit at Pollinator Garden: Effective Methods for Treating Kochia**

Kochia is a non-native, invasive weed from Eurasia that has dominated many regions in the West, including vast stretches of the riparian corridor of the Colorado River and its tributaries. Are practitioners prioritizing the control of kochia? And if so, how?

- Some prioritize controlling it along roadways for safety (i.e. visibility along the travel corridor)
- Others prioritize controlling it where it competes with active revegetation projects
- There was pragmatic recognition that some kochia is ok if not unavoidable in some areas

Collectively, there was lots of experience with effective methods for controlling kochia. These include:

- **Use of herbicides:** Prospective, Streamline, and a mix of 2-4-D, Vanquish, and Escort.
  - These herbicides are the name-brand options; however, other products with the same active ingredients may be equally suitable.
  - In a pollinator garden, when there is particular concern about each individual native plant and the pollinators, consider using a wick applicator (i.e. wipe an herbicide like Roundup on individuals kochia plants to avoid or minimize non-target impacts)
- **Beyond chemical treatments,** outcompeting kochia with native plants was underscored by many
  - Native plants to consider planting: bunch grasses, blue grama, side-oats grama
  - Focus on early successional species (i.e. not late seral)
  - An alternative approach might be using an early, sterile annual cover crop (e.g. cereal wheat grass, cereal rye) to outcompete kochia
- **Physical treatments** were also discussed:
  - Sheep and goats love eating young kochia
  - When you have grasses and kochia competing together, use a mower with a raised blade (e.g. eight inches) in the summer and knock the top of the kochia off.
  - Consider avoiding physical disturbance in the first place that might foster new establishment or expansion of kochia

Two questions were posed:

- **Will kochia mulch suppress itself?**
  - This has been observed on the Rio Grande, but several attendees were skeptical based on their own observations
- **Has anyone used a fully Integrated Pest Management approach to treating kochia (e.g. sheep foraging in the spring, mowing in the summer, and treating with herbicide in the fall)?**
  - No one knew of such a comprehensive case, but this did spark some interest

A brief discussion about treating Russian Knapweed followed. Key takeaways include:

- In terms of elevation thresholds, attendees had seen Russian Knapweed as high up as the Book Cliffs and in Glade Park (upwards of 7,000 – 8,000 feet). Russian knapweed has also been observed to have shade tolerance (e.g. in dense stands of tamarisk, even in a raised tent-structure).
- Avoid disking or plowing; these methods are ineffective for controlling Russian knapweed.
- Current biological control has limited effect, but there may be other options in the future that impose more effective control.
- Use of herbicide is the best approach for treating Russian knapweed: Milestone is best, but Clopyralid and Transline are also suitable options.
- Fall season is best for application, but one land manager even had success spraying knapweed stubble in December (in the spring, emerging root buds came into contact with the residual in the soil).

**Opportunities for Future Collaboration – Early Detection and Control**
Given the shared interest in controlling invasive plants and recognition that these plants disperse across state lines through several means (e.g. wind, vehicles, the river, birds), attendees discussed collaborative opportunities to conduct early prevention on the spread of certain problem species.

These plant species included:
- Purple loosestrife - *Lythrum salicaria*
- Ravenna (Pampas) grass - *Saccharum ravennae*
- Perennial pepperweed - *Lepidium latifolium*
- Canada thistle (while pervasive in Colorado, relative little in portions of Utah) - *Cirsium arvense*
- Bull thistle - *Cirsium vulgare*
- Common teasel (discrete populations found on Green River & in Uinta County, UT) - *Dipsacus fullonum*
- Giant Reed - *Arundo donax* (prevent establishment along waterways)

**Afternoon at Connected Lakes: Strategies for Enhancing Bird Habitat**
The Colorado Parks and Wildlife has been working with Tamarisk Coalition, Western Colorado Conservation Corps, and local contractor Stan Young to enhance habitat around Connected Lakes. These lakes provide important bird habitat as well as a variety of recreational opportunities (e.g. fishing).

Management and Outreach Lessons Learned from this Project:
- When controlling tamarisk in areas with public use, make sure that treatments are not creating tripping hazards;
- Make sure workers provide adequate space for tractors hauling slash away;
- Provide park users information about the project (e.g. timing, intent, rationale for project) before, during, and after project completion; managing expectation and getting buy-in is paramount;
- Tree plantings that interfere with shore fishing may be considered problematic and removed by users; consider alternative sites;
- If you have concerns about erosion that might be spurred by tamarisk control on a cut bank, perhaps use a technique that leaves the tree’s root structure intact (e.g. girdle, hydroaxe, or skip treating select trees altogether);
- Have a comprehensive restoration plan in place (e.g. covering weed removal, planting, monitoring), before you start meddling;
- Several pilot projects have been initiated, using different forms of mulch, seeding, and fertilizer coupled with tamarisk removal; results will be shared with practitioners in the future.

**Habitat for Western Yellow Billed Cuckoos (WYBC)**
- There is a distinction between habitat for nesting versus the migratory corridor; while some WYBC have been seen in the Grand Valley, it is unclear whether or not they are nesting here.
- For nesting sites, the WYBC needs wet, fairly pristine old riparian forests; cottonwood galleries with a thicket of multi-tiered understory; typically looking for sites that meet these descriptions that are at least 10 acres in size for prime habitat.
- While the WYBC has been officially listed as threatened, the critical habitat designation is still pending. If you have a site that fits the specs listed above, consider reaching out to the US Fish and Wildlife Service (USFWS) before initiating restoration work in order to comply with federal regulations; consider a phased approach, removing tamarisk over several years, while filling in the gaps with native woody species.
- The USFWS decision on the WYBC’s critical habitat will be finalized in December.
- The number of breeding pairs of WYBC is thought to be around 5 pairs, found near Craig and Paonia, Colorado.
- A WYBC training will be held in Hotchkiss on June 8th and 9th; contact FWS or Tamarisk Coalition for more information.