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Outcomes and Suggested Next Steps from the 2019 MRG-CAP Symposium

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Outcomes and Suggested Next Steps from the 2019 MRG-CAP Symposium

Overview

- The event began with opening remarks from Adrian Oglesby and Jonathan Tyrrell, giving a brief history on the origins of the Middle Rio Grande Conservation Action Plan and the Conservation Action Planning process that it follows, as well as the steps already completed (the definition and evaluation of the viability of five ecosystem targets and nine critical threats as of 2015 and 2025 goal states) and the steps still to come (the development and implementation of measurable strategies to reach target goals).
- Esteban Muldavin spoke regarding the content of the MRG-CAP and its conceptual approach to management in the Middle Rio Grande, outlining a guiding image which supports a dynamic patchwork mosaic (DPM) model for restoration.
- Paul Tashjian spoke regarding the historical trends in hydrology in the Middle Rio Grande, in the context of evolving management regimes.
- Five speakers discussed the five conservation targets under the DPM framework of the MRG-CAP:
 - Ondrea Hummel discussed the target of **riparian and wetland vegetation communities**, with recommendations to update the categories of landscape context of hydrology and channel morphology based on completed restoration projects since 2015 as well as 2016 and 2019 flows and the DPM condition with Hink and Ohmart data from the 2016 survey.
 - Max Smith discussed the Rocky Mountain Research Station's fuels and fires project, specifically in changes of **native bird habitat** and ecosystem use. RMRS research methods may be helpful in informing MRG-CAP guided restoration.
 - Tom Turner recommended the use of stable isotope analysis to track ecosystem characteristics in **native fish communities**, a technique which shows promise for its cheap and effective results.
 - Chuck Hayes recommended the use of the New Mexico Riparian Map and the Crucial Habitat Assessment Tool (CHAT) to track the key ecological attributes and associated indicators for the **wildlife corridors** target.
 - Yasmeen Najmi discussed research to re-evaluate the **ditch and drainage habitat** target indicators, specifically vegetation transects in multiple counties, the 2011 MRGCD noxious weed inventory, and interviews with MRGCD employees.
- The day concluded with a panel discussion with Grace Haggerty, Michael Scialdone, Dave Simon, and Gina Dello Russo. The panelists discussed the MRG-CAP's current and future role in management in the MRG, as well as how the MRG-CAP could engage and enhance collaborative efforts between stakeholders throughout the MRG.
- Mike Hamman concluded the symposium with a forty-year perspective on the MRGCD's management in the MRG, and how it plans to move forward in management with the MRG-CAP to help guide it.

Opening Remarks

Speaker: Adrian Oglesby (oglesby@law.unm.edu)

- Outlined a plan for the day, which involved presentations from subject matter experts on the five conservation targets defined in the Middle Rio Grande Conservation Action Plan, with a goal to re-assess the five targets in respect the most current data.
- Additionally, a Q&A panel with individuals with expertise at the state, city, pueblo, and private management would end the day, to discuss the opportunities the MRG-CAP presents to bolster current management, guide future management planning, and enhance collaboration and communication between agencies.
- Detailed the MRG-CAP to its preceding documents, Crawford et. al.'s 1993 Bosque Biological Management Plan and the subsequent 2003 BBPM update. The MRG-CAP shows promise of being the long-needed conceptual update to the Bosque Biological Management Plan.

An Overview of the Conservation Action Planning Process

Speaker: Jonathan Tyrrell (jtyrrell@unm.edu)

- Detailed the steps of the conservation action planning process, as laid out in 2005 by The Nature Conservancy. He outlined a four-step plan, which the 2015 document: *The MRG-CAP: A framework and status assessment* completes the first half of. Thus far, the MRG-CAP has (1) defined its scope and identified its key stakeholders and (2) identified and assessed the viability of five conservation targets and the scope and severity of nine critical threats, as well as defined the goals for the MRG-CAP with a target date of 2025.
- Moving forward, the MRG-CAP team plans to engage in the second half of the conservation action planning process: (3) the development of metric-based strategies to achieve the goals outlined in the first half of the CAP and (4) the implementation and modification of those strategies to achieve the desired goal-states.

An Overview of the Middle Rio Grande Conservation Action Plan

Speaker: Esteban Muldavin (muldavin@unm.edu)

Outcomes:

- The MRG-CAP was contextualized around “the five commandments for ecologically successful river restoration”:
 1. Guiding image exists
 - The 22 recommendations in the 1993 BBPM
 - Restoration on the Gila River
 - The Dynamic Patch Mosaic (DPM) concept (from MRGCD’s *Bosque landscape alteration strategy*)
 2. Ecosystems are improved
 3. Resilience is increased
 4. No lasting harm

5. Ecological assessment is completed

Next Steps:

- Updates to the attributes, indicators, and goals
- Identification of operational objectives
- Implementation steps

Other notes/discussion:

- The sunseting Rio Grande Environmental Management Program was discussed as a good fit for future planning and implementation of the MRG-CAP

Hydrology of the Middle Rio Grande

Speaker: Paul Tashjian (ptashjian@audubon.org)

Outcomes:

- Discussed trends in surface and groundwater regarding previous management:
 - Spring pulse management by reservoirs, ESA, NM RG Basin study
 - Low flows
 - Supported through the string of pearls strategy and supplemented by sustainable farming
 - Managed wetlands
 - Managed floodplain: natural and planted recruitment for cottonwoods
 - Linked farmland economy as critical to maintaining system levels at low flow conditions

Riparian and Wetland Vegetation Communities

Speaker: Ondrea Hummel (Ondrea.Hummel@tetrattech.com)

Outcomes:

- Discussed the overall DPM model and addressed the key ecological attributes within the categories of landscape context and condition
- Discussed strategies for wetland and meadow creation within the current constraints of hydrology and river morphology, proposed necessity of “bringing the bosque to the river,” i.e. lowering the floodplain to promote its inundation at adequate flows
- More detail in cottonwood studies may be needed, to illustrate age class, die off, and future tree replacement

Next Steps:

- Update the landscape context based on completed restoration projects, changes in hydrology and channel morphology based on 2016 and 2019 flows
- Recalculate current status of the DPM condition with 2016 Hink and Ohmart (H&O) survey data, completed habitat restoration projects since 2015

- Update meadows, cottonwood age classes, and species composition/abundance with 2016 H&O, HR project information, and herbaceous inventory

Other notes/discussion:

- Further questions on how to restore and create wetlands and wet meadows (e.g. where does the water come from?), and revisit FWS Wetlands inventories to detail current acreage.
- Restoration is largely focused on cottonwood and willow species. What woody species could be viably re-incorporated into the management scheme of the modern bosque?
- Floodplain connections were reiterated to enhance recruitment and success of cottonwood species (e.g. pole plants)
- Succession, an essential part of the DPM, is not well monitored, and could be built into the MRG-CAP. Successional elements were contrasted with a horticultural riparian bosque.

Native Bird Habitat

Speaker: Max Smith

Outcomes:

- Discussed Rocky Mountain Research Station fuels and fires project, detailing habitat formation response to fire disturbance in woody species, native (cottonwood and willow) and nonnative (Siberian Elm and Russian olive)

Next Steps:

- The RMRS project may inform future monitoring efforts to evaluate current trends with respect to MRG-CAP KEAs and indicators.

Other notes/discussion:

- The MRG-CAP represents a shift from the 25 year species specific structure, but it remains to be understood how engineered habitats can be maximized and well balanced. It seems these strategies need further development.
- The issue of horticulture was brought up again: while working within the financial and spatial constraints of the system, how can strategies be planned to maximize habitat restoration without becoming horticulturalist in management? The MRG-CAP provides a framework to look at reach wide impact, not necessarily constrained to site-specific projects. What does it mean to be horticultural in management?
- A look back at successful management efforts is required, to gain a better understanding of what works and doesn't for native birds. As described in the presentation, species within the patchwork may need to be adjusted to reflect the habitat benefit Russian olive may have.

Native Fish Communities

Speaker: Tom Turner (turnert@unm.edu)

Outcomes:

- The use of stable isotope analysis to track ecosystem characteristics such as heterogeneity, ecosystem size, productivity, and trophic complexity, among other factors, in a variety of native fish species, was detailed at length. Both current and past data can be used to model trends in dispersion (“isotopic niche”), lending to their predictive value.
- Isotopic data was shown to respond well to river management and trends in hydrology (i.e. the installation of Cochiti Dam, channelization), and may make a promising indicator to measure restoration efforts and point-source effects.
- Data is also cheap to obtain from fish samples, and can be modeled to predict future conditions

Next Steps:

- Stable isotope analysis could be incorporated as an indicator for the MRG-CAP, especially to describe community diversity, and develop the implementation of this monitoring over time. Details need to be worked out, but this approach looks promising.
- Further, this data could be used to track sediment and floodplain connectivity restoration work beyond the MRG-CAP, with further testing of the approach.

Other notes/discussion:

- Food may not be the only driver of dispersion: data may need supplementation.
- DNA is also a powerful tool to study distributions of fish, although any materials to improve methodologies are much welcomed.
- When engineering solutions to fragmented systems, what other strategies could be used? Is there a place for Whoosh! (fish tube) Technology in the MRG? Other strategies to fish restoration are worth considering.

Wildlife Corridors

Speaker: Chuck Hayes (chuck.hayes@state.nm.us)

Outcomes:

- Expected a lack of significant change in connectivity between communities and ecosystems; expects future change to occur in “quantum jumps” as acreage is re-allocated and managed in large swaths.
- Discussed the New Mexico Riparian Map as a method to measure the MRG-CAP indicator of connectivity of riparian patch types, which is supposed to come online by the end of the year.
- Discussed issues with current trap and collar studies as the predominant method of measuring population dynamics, i.e. incidental movement data. Instead proposed the Crucial Habitat Assessment Tool (CHAT) to model the CAP indicator species composition/abundance

- Discussed fragmentation issues due to fire and using fragmentation as a good metric for connectivity. Although riparian fires are frequent, clearing understory fuel also has adverse effects on animal habitat.

Next steps:

- Local refinement of corridor models could guide the development of strategies within the reach and illustrate a clearer picture of current CAP target status. The identification of connectivity points could be used to focus future restoration.
- Add fragmentation with respect to fire and fuel reduction treatments as an indicator to the MRG-CAP target.

Other notes/discussion:

- Use the NM Environmental Review Tool to enhance clarity of species on individual parcels when planning future management efforts.
- How do agricultural lands factor into fragmentation? Should agricultural lands be included in greater detail or from a different perspective in the MRG-CAP?

Ditch and drain habitat

Speaker: Yasmeen Najmi (yasmeen@mrgcd.us)

Outcomes:

- Conducted vegetation transects at four sites in three counties (i.e. Socorro, Valencia, Bernalillo), talked to MRGCD employees, and reviewed 2011 MRGCD noxious weed inventory in Bernalillo and Valencia counties, to estimate current status of 2015 indicators.
- Found: less than 25% right of way (ROW) with perennial veg (Poor rating, downgraded from the 2015 Fair rating); 25-33% woody vegetation in outer ROWs (Good rating, same as 2015); >50% of cover is non-native trees or shrubs (poor rating, same as 2015); and 1-5% New Mexico class A & B weeds (good rating; upgrade from 2015 poor rating). However, these projections are estimates, and more current data is needed.
- Control over noxious weeds seems to be improving.
- The threats of housing and urban areas (development of paved trails), introduced species, and recreation activities (ATV use), should be upgraded in threat assessment.

Next steps:

- Some goals may need revision regarding their feasibility. For example, the Siberian Elm seems to dominate woody ROW veg communities and is unlikely to decrease over time.
- However, different strategies may need to be employed, with movement of dominant vegetation down to foot height coincident with reduction of tall vegetation.
- The feasibility of goal achievement may be within the range of the next ten years (2030), not within the next five (2025). Further discussion is required.

Other notes/discussion

- Drains and ditches could function as seed banks for increased wetlands, or nurseries for other plants, at the edges of fields.
- Both large woody species and small shrubs may need to be cleared out in some areas, because both cause sedimentation.
- However, the edge of ditch banks may be useful to sustain growth of other woody species, although this requires work with public and private landowners. Again, the issue of incorporating agricultural lands is salient, as most often ditch banks become potential sites of interface with these communities. If it is too complicated to include these landowners in the CAP, partnering with conservation easement properties may provide an insightful model instead.
- Older native trees on ROWs have sociocultural and aesthetic value, but is more coincidence, not MRGCD policy

Q&A Panel discussion

Panelists: Grace Haggerty (grace.haggerty@state.nm.us), Michael Scialdone (mscialdone@sandiapueblo.nsn.us), Dave Simon (dsimon@cabq.gov), and Gina Dello Russo (gdellorusso@wildblue.net)

Note that responses are paraphrased.

Q: How can the MRG-CAP bolster current management and does it fit within current management framework?

- Haggerty: A great amount of information and depth of knowledge can be utilized to communicate why the MRG-CAP goals are important, among and within different agencies. Additionally, the plan communicates why monitoring is critical in understanding the ecosystem, and can bolster future and continued monitoring efforts.
- Scialdone: The patch mosaic model can inform fuel reduction and non-native removal efforts, and bolster habitat creation, which may be useful in planning at Sandia Pueblo
- Simon: It is great to see a data-driven plan which reminds management of the importance of monitoring. The goals of the CAP and MRGCD align with the management work at the City of Albuquerque Open Space Division. While much of open space policy is reactive and funding constrained, projects such as the Candelaria Farms Nature Preserve plan represent proactive management work aligned with the CAP.
- Dello Russo: The language in the CAP gives a good vocabulary to communicate management needs to stakeholders, enhance a greater human community along the MRG, and bring ecosystem management to the forefront of the management discussion in the MRG. The CAP will serve as a useful tool in updating the 2004 conceptual restoration plan because of the conservation metrics used, and thorough discussion of the threats involved.

Q: How can the MRG-CAP inform future management projects?

- Haggerty: The CAP shows potential to start the discussion between different agencies to integrate individual management and make challenges and strategies understandable for a broad group. In moving forward, the CAP needs to start planning strategies with measurable indicators.
- Scialdone: The CAP could easily be tweaked to represent the stretch of and incorporate into management design in the Sandia pueblo bosque. The CAP currently provides a baseline of information, but more work needs to be done on the implementation end of the process.
- Simon: There is critical value of the CAP as a tool to educate a diverse number of stakeholders. The framework established will help us to do future work. In developing strategies, lead and lag indicators need to be distinguished, and the lead indicators should then be focused on – those will drive the report.
- Dello Russo: The plan can be used to educate the farming community on the concerns, threats, driving forces, and efforts already underway along the river. Public awareness should be added as an indicator to the CAP: social metrics do not come comfortably but do matter when communicating with the government. A diverse group of educated stakeholders can keep a pulse on the threats in different places.

Q: How can the MRG-CAP foster or enhance interagency collaboration?

- Haggerty: The MRGESCP has been ongoing since 2003. Collaborative restoration requires a framework to ensure funding is used effectively, which hopefully leads to positive feedback for more funding.
- Scialdone: Today's symposium has been the first step in revitalizing the MRG-CAP, but outreach needs to go to a larger audience. For the MRG-CAP to have long term use, their must be increased awareness about it.
- Simon: Broad collaboration is necessary, with an ecosystem focus in addition to the ESA. Funding seems to be the biggest issue and requires a lot of coordination among different stakeholders.
- Dello Russo: There are ecosystem services, funding sources, and community issues to address. Upstream and downstream communication is needed, to maintain concerted work and spread expertise among communities.

Other notes/discussion:

- Emma Kelly from BOR highlighted the Rio Grande Basin Study, which has the potential for funding and collaboration with the MRG-CAP.
- Richard Barrish with the Sierra Club urged the development of a simple plan to take to voters, on the back of advocacy groups such as Sierra Club and Audubon.
- Lynette Giesen with USACE talked about the Rio Grande Environmental Management Program, which is sunsetting, but would otherwise be the perfect home for something like the MRG-CAP.

Closing Remarks

Speaker: Mike Hamman (mikeh@mrgcd.us)

- Mike gave a forty-year perspective of the evolution of water management in the MRGCD. ESA challenged the district to begin the development of policies and processes to improve water management practices. The MRG-CAP can be the next step in this, as continued work remains to be fundamentally hinged on water management and availability. The MRGCD will continue to follow their original mission of water delivery in the context of Rio Grande Compact obligations. The maintenance and enhancement of agricultural communities is essential, in providing incentives for young farmers. The MRGCD will continue to assess their practices while improving internal management and resources while leveraging funds for the MRG.

Next Steps

Speaker: Adrian Oglesby

- Education and outreach efforts need to be amplified, especially with respect to county commissioners.
- The first half of the conservation action process was the easy part – future steps will require collaborative workshops to develop strategies and adaptation plans which remain relevant and in the hands of managers.