

Science and Adaptive Management Committee Meeting

November 3, 2021

Meeting Materials:

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[SWFL and YBCU CEM Refinement Ad Hoc Group Charge \[read-ahead, not included\]](#)

[RGSM CEM/Genetics Ad Hoc Group Charge \[read-ahead, not included\]](#)

[Draft 2022 SAMC Work Plan \[read-ahead, draft, spreadsheet\]](#)

[Long-Term Plan Excerpt from Science & AM Plan \[read-ahead\]](#)

[Revised Draft Long-Term Plan Project Evaluation Criteria \[read-ahead, draft\]](#)

[Draft SAMC Year 1 Accomplishments \[read-ahead\]](#)

[Draft Peer Review Process with SAMC Comments \[read-ahead, draft\]](#)

[Proposed MRGESCP Biennial Schedule \[presentation\]](#)

[SWFL and YBCU CEM Refinement Ad Hoc \[presentation\]](#)

[Revised 2022 SAMC MRGESCP Work Plan \[follow-up, draft, spreadsheet\]](#)

[SWFL and YBCU CEM Refinement Ad Hoc Report to SAMC \[follow-up\]](#)

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Science and Adaptive Management Committee Meeting
November 3, 2021

See the following meeting material on the page below:

Agenda



Middle Rio Grande Endangered Species Collaborative Program

Est. 2000

Science and Adaptive Management Committee (SAMC)

November 3, 2021

8:00 AM - 12:00 PM

Location: Zoom

<https://west-inc.zoom.us/j/8983593120?pwd=bU54V3NGeG93bXVISlJFcElzcE9wZz09>

Meeting Agenda

Meeting Objectives:

- Hear progress reports from current Science & Technical (S&T) Ad Hoc Group leads.
- Discuss Draft 2022 Middle Rio Grande Endangered Species Collaborative Program (MRGESCP) Work Plan.
- Discuss Long-Term Plan (LTP) update process, schedule, and project evaluation criteria.
- Discuss SAMC Annual Summary Report to Executive Committee (EC).
- Discuss Draft Peer Review Process.

8:00 – 8:05	Welcome, Introductions, and Agenda Review Read-Ahead: <input type="checkbox"/> Draft November 2021 Meeting Agenda ✓ Decision: Approval of November 2021 Agenda	<i>Catherine Murphy, Program Support Team (PST)</i>
8:05 – 8:10	August Meeting Minutes and Actions Items Review Read-Ahead: <input type="checkbox"/> Draft August 2021 Meeting Minutes ✓ Decision: Approval of August 2021 Minutes	<i>Catherine Murphy, PST</i>
8:10 – 8:20	Update from October EC Meeting	<i>Debbie Lee, PST</i>
8:20 – 8:40	S&T Ad Hoc Group Updates <ul style="list-style-type: none">• NEW: RGSM Research Hypothesis Development Ad Hoc• UPDATE: RGSM Integrated Population Model Ad Hoc	<i>Catherine Murphy, PST</i>
8:40 -9:10	Avian CEM Refinement S&T Ad Hoc Group Report <ul style="list-style-type: none">• Presentation from Amy Erickson, group lead• Group discussion of changes to avian CEMs ✓ Decision: S&T Ad Hoc changes to avian CEMs (approve or recommend for peer review)	<i>Amy Erickson, Audubon</i>

- **Action Item:** PST will incorporate approved changes to avian CEMs and propose a list of critical uncertainties for SAMC review (or initiate peer review process).

Read-Ahead:

- Avian CEM Refinement S&T Ad Hoc Group Charge (for reference)

9:10 – 10:00

RGSM CEM/Genetics S&T Ad Hoc Group Report

Wade Wilson, U.S. Fish and Wildlife Service

- Presentation from Wade Wilson, group lead
 - Group discussion of changes to RGSM CEM and remaining tasks
- **Action Item:** PST will summarize SAMC feedback for the ad hoc group
 - **Action Item:** PST will draft a charge for a peer review ad hoc group.

Read-Ahead:

- RGSM CEM/Genetics S&T Ad Hoc Group Charge (for reference)

10:00 – 10:10

Break

10:10 – 10:30

Draft 2022 MRGESCP Work Plan

Debbie Lee, PST

- Group discussion of science tasks and SAMC-specific tasks in the Draft 2022 MRGESCP Work Plan

Read-Ahead:

- Draft 2022 Work Plan

10:30 – 11:15

MRGESCP Long-Term Plan Update

Facilitated discussion

- Discuss purpose of LTP, schedule, process for updating, and use of Science and Adaptive Management Information System (SAMIS)
- Discuss and finalize scoring rubric for project evaluation

Read-Aheads:

- LTP Excerpt from Science & Adaptive Management Plan (for reference)
- Revised Draft LTP Project Evaluation Criteria - SAMC

11:15 – 11:35

SAMC Annual Summary Report to EC

Facilitated discussion

- Discuss pilot year of SAMC, accomplishments and lessons learned, and suggest changes to SAMC charter

- Discuss preliminary recommendations regarding MRGESCP science initiatives

Read-Ahead:

- Draft SAMC Year-1 Accomplishments

11:35 – 11:50 **MRGESCP Peer Review Process**

Facilitated discussion

- Discuss SAMC comments regarding Draft Peer Review Process

Read-Aheads:

- Draft Peer Review Process – SAMC Comments

11:50 – 12:00 **Action Items, Next Steps and Announcements**

Michelle Tuineau, PST

- **Seminar:** Katey Driscoll (USFS) seminar on habitat restoration and ecosystem function – 10 a.m., January 12, 2022
- **Next Meeting:** January XX, 2022

12:00 **Adjourn**

[Link to full Meeting Materials List](#)

Science and Adaptive Management Committee Meeting
November 3, 2021

See the following meeting material on the page below:

Minutes



Middle Rio Grande Endangered Species Collaborative Program

Est. 2000

Science and Adaptive Management Committee (SAMC) Meeting Minutes

November 3, 2021; 8:00 AM–12:00 PM

Location: Zoom Meeting

Decisions

- ✓ Approval of November 3, 2021 SAMC meeting agenda
- ✓ Approval of August 26, 2021 SAMC meeting minutes

Action Items

WHO	ACTION ITEM	BY WHEN
Dave Moore	Send a link to the Road to Recovery Symposium to the Program Support Team (PST) to share with the Middle Rio Grande Endangered Species Collaborative Program (MRGESCP)	11/3/2021
Ara Winter	Send a link to the Mastery Learning website to the PST	11/8/2021
PST	Contact Ashlee Rudolph, U.S. Bureau of Reclamation (Reclamation), for Reclamation's updated Hink & Ohmart habitat maps/models from Isleta south	11/8/2021
PST	Revise the Science and Adaptive Management Information System (SAMIS) scoring rubric based on SAMC discussion and send to the SAMC for review	11/8/2021
SAMC	Contact the PST to volunteer to discuss potential approaches to relate the different species conceptual ecological models (CEMs) with one another	11/12/2021
PST	Incorporate approved changes to the avian CEMs and propose a list of critical uncertainties for SAMC review	11/19/2021
PST	Summarize SAMC feedback and relay back to the Rio Grande Silvery Minnow (RGSM) CEM/Genetics Ad Hoc Group	11/12/2021
PST	Draft a charge for an Science & Technical (S&T) Ad Hoc Group to peer review CEM revisions by the RGSM CEM/Genetics Ad Hoc Group	11/19/2021
SAMC	Provide additional comments for the MRGESCP peer review process	11/12/2021
PST	Revise the MRGESCP peer review process based on SAMC feedback	11/24/2021
SAMC	Send feedback on the draft biennial schedule, including pertinent signatory timelines, to the PST	11/12/2021
SAMC	Send other scientific questions and hypotheses for the SAMIS Project Bank	11/12/2021
SAMC	Inform the PST of future SAMC membership plans	11/12/2021

Next Meeting: January 4, 2022; 8:00 AM – 12:00 PM

Meeting Summary

Welcome, Meeting Objectives, and Agenda Review

Catherine Murphy, PST Science Coordinator and SAMC Facilitator, opened the meeting and led introductions. Sarah Anderson was introduced as the new Project Assistant with the PST. Catherine M. reviewed the November 3, 2021 meeting agenda.

- ✓ **Decision:** Approval of the November 3, 2021 SAMC meeting agenda

August Meeting Minutes and Actions Item Review

Catherine M. and Debbie Lee, PST, reviewed the August 26, 2021 meeting minutes and action items.

- ✓ **Decision:** Approval of the August 26, 2021 SAMC meeting minutes

Update from October Executive Committee Meeting

Debbie L. gave an update on the October 27, 2021 Executive Committee (EC) meeting. Summary points are below:

- The EC approved revisions to the 2021 MRGESCP Work Plan. The two main changes that affect the SAMC are there will be no development of New Mexico jumping mouse or Pecos sunflower CEMs in 2021 and the scenario planning S&T Ad Hoc Group was delayed until 2022.
- The EC approved an addendum to the MRGESCP By-Laws revising the section on the Annual Program Evaluation.
- There was an in-depth discussion about cost share, which affects what is considered a signatory contribution and entered in the SAMIS.
- Catherine M. presented on the SAMIS and is now developing training materials. Trainings will start in January 2022.

Science & Technical Ad Hoc Group Updates

Catherine M. gave an update on the current S&T Ad Hoc Groups. Summary points are below:

- Wade Wilson (Team Lead), U.S. Fish & Wildlife Service (USFWS), will give a report on the **RGSM CEM/Genetics Ad Hoc Group** during the meeting. The group is adding in propagation, augmentation, and genetic elements to the RGSM CEM, which captures more aspects of the management of the species. The group's work product will undergo the peer review process. Members of the group that originally developed the RGSM CEM will be invited to review the modified version.
- Catherine M. will give the report on the **Southwestern Willow Flycatcher (SWFL) and Yellow-Billed Cuckoo (YBCU) CEM Refinement Ad Hoc Group** (also known as the **Avian CEM Refinement Ad Hoc Group**). The group has completed their task.
- The PST is in the process of assembling the **RGSM Hypotheses Development Ad Hoc Group**.
- The **RGSM Integrated Population Model Ad Hoc Group** is still working. Charles Yackulic (Group Lead), U.S. Geological Survey, will be working under a renewed contract for the New Mexico Interstate Stream Commission. He is preparing a manuscript, which the group will meet to work on in early December. In late February, Charles Y. will give a Collaborative Seminar to the MRGESCP on the RGSM integrated population model and expert elicitation exercise.

Avian CEM Refinement S&T Ad Hoc Group Report

Catherine M. gave a report on the Avian CEM Refinement Ad Hoc Group (see presentation recording).
Summary points are below:

- Group members included Ad Hoc Group Lead Amy Erickson (Audubon Southwest), Meaghan Conway (USFWS), Jennifer Davis (USFWS), Ondrea Hummel (Tetra Tech), and Dave Moore (Reclamation)
- All relationships between stressor/driver variables and life-stage responses in the SWFL and YBCU CEMs were originally characterized by level of importance and ability to manage. The group was tasked with adding level of uncertainty for each relationship. As the CEMs will be used to identify critical uncertainties, it was important to add this information to the models.
- The overall goal of this effort was to inform research and conservation priorities.
- The group started by individually assigning level of understanding (i.e., high, medium, and low) to the CEM relationships. Then, the answers were compared during meetings and consensus was reached on final values.
- As an example, concerning SWFL breeding stage relationships (i.e., territory and pair selection, nest building, and egg laying and incubation), level of importance was generally high, but there was low ability to manage. Level of understanding was higher for some territory and pair selection variables, but mostly low for the other variables.
- The top five critical uncertainties for both species identified by the Caplan et al. (2018) report concerned breeding habitat availability and suitability, population structure, and resource availability.
- The group identified priority variables by species and life stage useful for basic research (e.g., biology and life history studies) or applied research (e.g., habitat studies and restoration). Identifying variables with influence on multiple life stages will help prioritize studies in the future.
- The next steps for the avian CEMs need to be decided. The CEMs could be peer reviewed, hypotheses for selected relationships could be explored, and/or recommended priorities could be formalized.

Comments are summarized below:

- RE: Aleatory versus epistemic uncertainty
 - We may need to characterize uncertainty in the CEMS as aleatory (i.e., irreducible; resulting from probabilistic variability) or epistemic (i.e., reducible; resulting from lack of knowledge or information). Distinguishing between the two can help prioritize research efforts.
 - Some uncertainties are irreducible due to stochasticity in the system.
 - Adding this characterization can be a next step.
- RE: Feedback on Avian CEMs
 - Prioritization of CEM relationships and uncertainties should be reviewed by others before formalizing.
 - Priorities should be linked with hydrologic variables and the RGSM CEM, to coordinate across species.
 - The five species of interest for the MRGESCP hit on different parts of the ecosystem, and it would be useful to connect them all and create one system-wide CEM.

- Ara Winter, Ryan Gronewold, and Ari Posner are interested in discussing linking the CEMs. They will be a part of a group to outline an approach to discuss with the full SAMC.
- RE: Long-Term Plan
 - The MRGESCP has Science Objectives and Strategies, but there are also basic research questions coming out of CEM uncertainties and independent science panels that need to be investigated. The MRGESCP needs to reconcile all of these to determine what is included in the Long-Term Plan.
 - A Long-Term Plan facilitates the U.S. Army Corps of Engineers (USACE) funding of activities in support of the MRGESCP. Signatories should voice their needs for the Long-Term Plan to make it more useful.
- RE: Channel Width in the Middle Rio Grande (MRG)
 - Reclamation previously channelized the Rio Grande to convey less-than-flood flows. There is a lot of discussion about what that means. In 1996, the channel could convey 9,000 cubic feet per second (cfs) through Los Lunas to Bosque Farms. Today, only 2,500-3,000 cfs is conveyed.
 - Since the listing of the RGSM, Reclamation stopped channel maintenance. There has been lots of vegetation growth and half of the area has been lost. Since then, Cochiti Dam was built, making a wide channel less important.
 - There are now questions about the appropriate width of the channel and its effect on the RGSM, SWFL and YBCU. Priorities for the species are sometimes at odds; a narrow channel is not beneficial for RGSM but does improve habitat for SWFL and YBCU.
 - As of late, habitat has been reduced for the RGSM to benefit the avian species. Habitat efforts need to be shifted back in favor of the RGSM, while maintaining high quality avian habitat. Reclamation is currently determining how much habitat to modify and where.
 - Obligate and facultative wetland plant species will reestablish at the new pushed back bank lines.
 - Reclamation needs to optimize channel width in the MRG, and the SAMC may have a role in that. Reclamation is still determining if the channel could have both wide and narrow stretches or will choose one or the other.
 - Reclamation is working within the 550-ft max width; there are additional complications outside of that width.
 - If Reclamation comes up with a scheme for the entire river that improves conveyance and meets other habitat needs, the State will not charge for depletions. For piece-by-piece plans, the State will charge for depletions.
 - The MRG project also includes USACE dams and levees. Reclamation is charged with conveying less-than-flood flows (~5,000 cfs) to Texas for the Rio Grande Compact. Islands and bars are RGSM habitat. RGSM and avian habitat might not be at odds.
 - It depends on elevation; elevated islands and bars do not inundate as often and do not serve as good RGSM habitat.
 - Questions the SAMC and MRGESCP can work on:
 - What does optimization of the channel look like?
 - Where should the channel be wider or narrower?
 - Where is there habitat overlap for the RGSM and SWFL, and how can we restore habitat to benefit both?
 - How can we account for habitat variability over time?

- The Bosque Ecosystem Monitoring Program (BEMP) pitched a research project to University of New Mexico (UNM) to look at the spatial and temporal scales of changes in wetland and aquatic habitats.
 - Reclamation updated the Hink & Ohmart maps/models from Isleta south this summer.
- **Action Item:** The PST will incorporate approved changes to the avian CEMs and propose a list of critical uncertainties for SAMC review
 - **Action Item:** The SAMC will contact the PST to volunteer to discuss potential approaches to relate the different species conceptual ecological models (CEMs) with one another
 - **Action Item:** The PST will contact Ashlee Rudolph, Reclamation, for permission to post Reclamation's updated Hink & Ohmart habitat maps/models from Isleta south onto the Program Portal (once funding is available)

RGSM CEM/Genetics S&T Ad Hoc Group Report

Wade W. gave a report on the RGSM CEM/Genetics Ad Hoc Group (see presentation recording).

Summary points are below:

- Group members include Ad Hoc Group Lead Wade W., Jane Rogosch (Cooperative Fish & Wildlife Research Unit, Texas Tech University), Megan Osborne (UNM), and Eric Gonzales (Reclamation).
- The group was tasked with 1) adding genetic components to the RGSM CEM, 2) defining the new components, and 3) characterizing relationships among components. Tasks 1 and 2 have been completed.
- The group completed the modified component tables and definitions, and is working on the modified full CEM and individual life-stage transition schematics. The group will also deliver a modified table of pairwise component relationships.
- Changes to the RGSM CEM schematic summarized below:
 - The group added relevant management actions (i.e., collection, captive refugia, propagation, stocking, salvage/rescue, modified storage/release) and made changes to listed life stages (i.e., egg, larvae, juvenile, adult, broodstock, river/hatchery).
 - Vital rates were further refined by life stage survival probabilities and spawning probability.
 - The RGSM population was redefined as *in situ* (i.e., produced in the river) and *ex situ* (i.e., produced in the hatchery), both of which can later reside in the river or the hatchery, depending on the management action taken.
 - Neutral and non-neutral/adaptive genetic diversity were added and can be applied to *in situ* and *ex situ* populations. Genetic diversity increases as offspring survival at each life stage increases.
 - Components were re-grouped as follows:
 - physiology & behavior (reproductive ecology, stress, toxicology, dispersal, and predator avoidance)
 - biotic interactions (competition, predation, diseases/parasites, and symbionts)
 - food (availability per life stage and river/hatchery)
 - habitat (availability per life stage and river/hatchery)
 - vegetation
 - flow ecology (retention passive dispersal, stranding, and displacement)

- hydrology (Q, timing/duration/magnitude, floodplain inundation, channel drying, temperature, and WQ)
 - geomorphology (Qs, sediment source, sediment transport capacity, floodplain confinement, geometry, hydraulics, deposition/scouring, and base level control)
- The next steps are to complete modifications to the life stage transition schematics (e.g., juvenile to adult), characterize relationships among components, and present to the SAMC for feedback. Optionally, the group may choose to identify critical uncertainties, if time allows.

Comments are summarized below:

- RE: Function of the schematic
 - The schematic is not a communication tool for the public; it is a one-page synopsis of all relationships for internal collaboration and development.
- RE: Quantifying the CEM
 - In the future, some of the RGSM CEM relationships can be quantified, as well as relationships in other CEMs.
- RE: Modularizing the CEM
 - The RGSM CEM schematic can be simplified by focusing on one component grouping module (e.g., hydrological variables) and ignoring the others. Users can look at individual modules to facilitate discussions.
 - The life stage transition bars along the margins can also be moved around to easily add in arrows that do not cross other components.
- **Action Item:** The PST will summarize SAMC feedback and relay back to the RGSM CEM/Genetics Ad Hoc Group
- **Action Item:** The PST will draft a charge for a S&T Ad Hoc Group to peer review CEM revisions by the RGSM CEM/Genetics Ad Hoc Group

Biennial Schedule

Debbie L. presented the Biennial Schedule (see presentation). Summary points are below:

- The Biennial Schedule is intended to get the science and administrative sides of the MRGESCP on a schedule. The SAMC plays a vital role in integrating it.
- The Biennial Schedule is on a two-year cycle with certain priorities for each year. The SAMC and EC will meet at minimum once a quarter, and not in the same month. The schedule is set up to evaluate scientific findings, to adaptively learn from those findings, and to update MRGESCP tools accordingly.
- Science Key Points:
 - The Science Symposium and Collaboratory will alternate each year. The Science Symposium will focus on recent advances in technology, data collection, and research, and the Collaboratory will put science in management context.
 - The Collaboratory will communicate new findings back to the MRGESCP in context of the Science Objectives, Goals, and scientific uncertainties. The signatories will also provide feedback on their priorities for the next couple of years, so the SAMC can evaluate the MRGESCP's science priorities (e.g., change the Science objectives, update the scoring matrix, add new proposals, etc.).
 - There will be an adaptive restructuring of the science program every couple of years to ensure the MRGESCP is most responsive to management needs.

- There will be updates each year to the CEMs to address outcomes of the Collaboratory or Science Symposium. Updates will happen in the spring, when new members will first cycle into the SAMC. The task will get them engaged and up to speed.
- There will be staggered terms for SAMC members. At the end of the year, the group will develop the next year's work plan and provide recommendations to the EC for subject matter experts needed on the group. In the new year, the EC will start the search for new members.
- Administrative Key Points:
 - The schedule includes ensuring that tools (e.g., RioRestore, Hink & Ohmart maps, etc.) are updated each year and that Program Portal funding has been secured to update them. It also includes updating datasets on the Portal (e.g., population monitoring data).
- Other Points:
 - There is one topical workshop placeholder on the Biennial Schedule, but there can be more, as needed.
 - Updates to the Project Bank in the SAMIS should be ongoing, and not tied to a set schedule.
- The Biennial Schedule will be included in the updated Science & Adaptive Management (S&AM) Plan, scheduled to be presented at the March 2022 EC meeting.

Comments are summarized below:

- RE: Timing for USACE budget
 - The Long-Term Plan needs to be finalized in time to inform USACE budget requests.
 - The PST needs to be made aware of timing issues to optimize the Biennial Schedule.
- **Action Item:** The SAMC will send feedback on the draft Biennial Schedule, including pertinent signatory timelines, to the PST

Draft 2022 MRGESCP Work Plan

Debbie L. reviewed the draft 2022 MRGESCP Work Plan (see plan). Summary points are below:

- The Work Plan is split into five tasks with subtasks. The SAMC reviewed the science-related tasks on the Work Plan, which either the SAMC or an S&T Ad Hoc Group have a role in.
- Task 1 covers the administrative tasks, which include maintaining and updating the SAMIS and carrying out SAMIS trainings. The S&AM Plan will be updated and up for approval at the March 2022 EC meeting. Changes from the MRGESCP Annual Evaluation will also be up for approval.
- Task 2 covers tasking the S&T Ad Hoc Groups. There will be a review of the draft revised RGSM CEM when it is complete by a S&T Ad Hoc Group. The RGSM Hypotheses Development Ad Hoc, Habitat Restoration Guidance Ad Hoc, Scenario Planning Ad Hoc, New Mexico Meadow Jumping Mouse CEM Development Ad Hoc, and Pecos Sunflower CEM Development Ad Hoc are all planned for 2022.
 - In order to ensure adequate support, there will be no more than six Administrative and S&T Ad Hoc Groups in progress at any one time.
- The Scenario Planning Ad Hoc was moved from 2021 to 2022. The group will characterize conditions in the Middle Rio Grande that are more likely under climate change (e.g., hydrologic variables, temperature, future water needs) and identify ways the MRGESCP can increase resilience through long-term planning (e.g., science activities, recommendations, science questions).
 - Comment RE: 50-Year Water Plan

- USACE and the New Mexico Office of the State Engineer are developing the 50-Year Water Plan. One of the sectors they are looking at is the environment and water resources. There is potential overlap with scenario planning work being developed by the MRGESCP.
 - The MRGESCP should focus on the forecasting and future planning activities already in progress by the signatories, and try to inform them and be informed by them.
 - Comment RE: Peer review process
 - Before Reclamation begins large planning documents, it determines the strategy for peer review. The MRGESCP should do the same.
 - S&T Ad Hoc charges now include a plan for peer review.
 - Comment RE: Avian CEM next steps
 - The PST will add values from the avian CEM to the SAMIS and extract uncertainties to advance hypothesis development for SAMC review.
 - The SAMC agreed peer review of the avian CEM is not needed.
 - Task 3 covers identifying scientific uncertainties using the CEMs and linking them in the SAMIS. The Project Bank will also be populated.
 - There is no process for Task 3; the SAMC will help develop one.
 - Task 4 covers decision tools to facilitate adaptive learning. An Administrative Ad Hoc Group will revise the draft peer review process. The MRGESCP will conduct a survey of management needs for RGSM population monitoring, evaluate the Project Bank scoring system, and host the Collaboratory.
 - Task 5 covers information sharing and coordination. The MRGESCP will distribute regular newsletters, hold quarterly habitat restoration coordination meetings, and host topical workshops. There will also be seminars hosted throughout the year.
 - Comment RE: SAMIS training
 - Use of the SAMIS will require training. The first training will likely be an introduction with additional training required for entering information into the SAMIS. Is it more realistic for the PST to enter information and get technical and administrative details from signatory members?
 - The PST is working on an orientation for users of the Data Entry and Data Viewer applications.
 - The first year is a hybrid of both the PST and signatories entering information in the SAMIS. The PST will QA/QC all data entered with the signatories before it is live on the SAMIS.
 - Comment RE: connecting linkages in the SAMIS
 - It makes sense for the SAMC to help connect linkages in the SAMIS.
 - The SAMC and PST will continue discussing how this will be done.
- **Action Item:** The SAMC will send other scientific questions and hypotheses for the SAMIS Project Bank

MRGESCP Long-Term Plan Update

Catherine M. opened discussion on updating the Long-Term Plan (see the Long-Term Plan Project Evaluation Criteria and Long-Term Plan Excerpt from the S&AM Plan). Summary points below:

- The SAMC will help finalize the scoring criteria used to evaluate projects in the Long-Term Plan. The criteria will be adaptively revised as necessary, as with all MRGESCP tools. The criteria will be applied to activities in the Project Bank to identify items that are ready to be funded and

address MRGESCP needs, as well as items that require further development or clarification before being recommended.

- Activities in the Project Bank can connect to different pathways in the SAMIS (see SAMIS Schematic), including the Science Strategies, Independent Science Panel recommendations, and CEMs. Outcomes of the activities are project findings and management recommendations that inform efforts within and outside of the MRGESCP.
 - This framework helps structure MRGESCP work.
- Project evaluation includes a SAMIS Linkage Count, S.M.A.R.T. Score, and Resilience Planning Score.
- SAMIS Linkage Count:
 - The SAMIS Linkage Count tallies points for addressing a Science Strategy or Independent Science Panel recommendation, reducing an uncertainty from a CEM, and informing other projects. Mo Hobbs added reducing an uncertainty identified in a completed project.
 - A category for project-to-project relationships needs to be added.
 - At this time, content can be added and modified in the SAMIS, but there can be no new functionalities until after March 2022.
 - Linkages are tallied, so they all have weight of 1.0.
- Comment RE: equal scoring
 - The other criteria tally to one. To be equal, all criteria need to sum to 1.0. Otherwise, the SAMIS Linkage Count will have more weight when all three criteria are combined.
 - The scores were not initially designed to be combined; they can be displayed as a set of three. Each score represents a different quality of the project.
 - It is hard to stop people from summing the numbers and judging projects based on that score.
 - Scores will be used to help signatories evaluate and prioritize projects in the SAMIS. It would be useful to separate out the three scores when filtering in the SAMIS. This would help find projects with low scores that can be revised.
- Comment RE: project proposals
 - What form will project proposals be in when the SAMC rates them?
 - Projects will be assigned a project status when added to the SAMIS, to be updated at any time. Status choices include outlined and scoped, which provides some information on what the proposal may contain.
 - Project descriptions from previous annual report activities were added to the Project Bank. The SAMC uses project descriptions to rate projects. A separate scope could also be provided.
 - Rating is subjective; it should be clear what should be in a proposal to reduce bias in scoring.
- Comment RE: rubric descriptions instead of scores.
 - Rather than using scores for criteria, there could be descriptions (ex. Hypothesis is clearly stated without ambiguity). This presents more information on what a high or low score means.
 - Ara Winter will provide a link to Mastery Learning website with scoring rubric examples.
 - Descriptions will have to apply to a range of activities and may need to be vaguer than the SAMC discussed.
 - The scoring system will be available to all proposal submitters, so they can include essential information.

- Comment RE: scoring large versus small projects
 - Large projects will have more connections, so will they be favored more?
 - Some projects in the Project Bank are too large and need to be broken up into more focused projects. These would have a low S.M.A.R.T. scores, but very high linkage counts. Smaller projects may have fewer linkages but higher S.M.A.R.T. scores.
 - This would be an argument to normalize the three scores, so they can easily be compared.
- Comment RE: cost effectiveness score
 - Can we add a score that compares cost to the benefits a project has?
 - The cost information provided by signatories to date is fairly vague and difficult to compare.
- Resilience Planning Score
 - “Risk” was taken out of the score title as it is defined differently across organizations.
 - The scoring system will be used to develop a Long-Term Plan, so it needed a planning component for future scenarios.
 - The score statements are vague and might be difficult to score.
 - The second statement refers to whether a project will result in a new technology or technique.
 - The third statement refers to whether a project would have an effect outside its intended scope (Ex. Project in Isleta Reach applying to other reaches).
 - This may not fit into resiliency.
- The rubric will be revised based on SAMC discussion and finalized for initial use, but can be modified in the future.
- RE: USACE and the Long-Term Plan
 - USACE authorization to participate in the MRGESCP includes administrative/planning support and support for the Long-Term Plan.
 - It is best for USACE that the MRGESCP include more in the Long-Term Plan, so they have authorization to participate
 - USACE has to justify budget requests and the more value is shown for funding the MRGESCP, the better.
 - RE: Are the Project Bank and projects in the Long-Term Plan the same?
 - The Project Bank is a list of projects at the hub of the SAMIS. The Long-Term Plan is a summary of the Project Bank that is organized and contextualized. In addition, the Project Bank includes those projects that have been completed or are in progress, whereas the Long-Term Plan will only include proposed projects.
 - It would be best for USACE if the Long-Term Plan included a link to the Project Bank.
 - The Long-Term Plan Excerpt from the S&AM Plan is vague, so the MRGESCP could have the leeway to produce a useful tool. It is helpful for USACE and other signatories to provide specific needs from the Long-Term Plan.
- **Action Item:** The PST will revise the SAMIS scoring criteria based on SAMC discussion and send to the SAMC for review
- **Action Item:** Ara Winter will send a link to the Mastery Learning website to the PST

SAMC Annual Summary Report to EC

Debbie L. and Catherine M. discussed the SAMC Annual Summary Report to the EC (see SAMC Year 1 Accomplishments). Summary points are below:

- The report of SAMC accomplishments will be presented at the December EC meeting.
- The list includes inducting the inaugural SAMC members; forming, directing, and supporting S&T Ad Hoc Groups; hosting the Objectives Workshop and Habitat Restoration Workshop; finalizing the Science Objectives; informing development of the SAMIS; developing project evaluation criteria for the Long-Term Plan; beginning to incorporate climate change and resilience; informing the peer review process; and hosting the first Collaborative Seminar.

MRGESCP Peer Review Process

Debbie L. and Catherine M. briefly discussed the peer review process. Summary points are below:

- The SAMC provided some feedback on the process; the PST has not incorporated all changes. The PST will reach out for further information on some comments.
 - The process will be finalized by the March 2022 EC meeting.
 - Some signatories have brought up their internal peer review processes; it would be great for the MRGESCP peer review process to overlap with them in some ways.
- **Action Item:** The SAMC will provide additional comments for the MRGESCP peer review process
- **Action Item:** The PST will revise the MRGESCP peer review process based on SAMC feedback

Closing Items

- Matt Wunder, New Mexico Department of Game & Fish, will give Collaborative Seminar #2 on conservation tools. The PST will send a Doodle Poll to the SAMC to get the seminar scheduled for late 2021.
 - Katey Driscoll, U.S. Forest Service, works in restoration metrics and success. She agreed to give Collaborative Seminar #3 to the MRGESCP on January 12, 2022 at 10:00 AM. The seminar will be recorded and made available on the Program Portal.
 - Charles Y. will give Collaborative Seminar #4 on the RGSM population model in late February 2022.
 - The yellow-billed cuckoo symposium called the Road to Recovery Symposium is coming up in two weeks. Dave Moore will give a 10-minute presentation on YBCU habitat use on the lower Rio Grande.
 - The SAMC was asked to stay on through March 2022 to line up with the upcoming schedule; terms would have ended in October 2021.
- **Action Item:** Dave Moore will send a link to the Road to Recovery Symposium to the PST to share
- **Action Item:** The SAMC will inform the PST of future SAMC membership plans

Meeting Participants

SAMC Member

Role

Alan Hatch	Executive Committee <i>Ex Officio</i> Member
Ara Winter	Statistics/Modeling Expert
Ari Posner	Geomorphology Expert
Catherine Murphy	Program Support Team, SAMC Facilitator
Dave Moore	U.S. Bureau of Reclamation
Meaghan Conway	Ecosystem Function Expert
Megan Friggens	Climate Science Expert
Mo Hobbs	Aquatic Ecology Expert
Ryan Gronewold	Hydrology Expert

Participant

Organization

Amy Erickson	Audubon Southwest
Debbie Lee	Program Support Team
Lynette Giesen	U.S. Bureau of Reclamation
Michelle Tuineau	Program Support Team
Sarah Anderson	Program Support Team
Wade Wilson	U.S. Fish & Wildlife Service

[Link to full Meeting Materials List](#)

Science and Adaptive Management Committee Meeting
November 3, 2021

See the following meeting material on the page below:

Draft 2022 SAMC Work Plan [read-ahead, draft, spreadsheet]

[Link to full Meeting Materials List](#)

Science and Adaptive Management Committee Meeting
November 3, 2021

See the following meeting material on the page below:

Long-Term Plan Excerpt from Science & AM Plan [read-ahead]

Excerpt about the Long-Term Plan from the 2020 MRGESCP Science and Adaptive Management Plan (page 22):

4.0 TOOLS SUPPORTING THE SCIENCE AND ADAPTIVE MANAGEMENT PLAN

4.2 Long-Term Plan

A long-term plan is an important tool for implementing structured decision-making in AM of natural resources, as it uses clear and measurable goals to develop a vision for desired products. By using the Collaborative Program's goals to establish objectives and strategies, a long-term plan helps identify needed resources, develop contingencies, and prioritize strategic work along a meaningful timeline. Commitment to consistent updates makes the plan adaptive and ensures that tasks are adjusted and realigned to goals as conditions change. Providing a long-term plan with administrative schedules and deadlines facilitates the timely completion of tasks.

Development of the Collaborative Program's Long-Term Plan is guided by information in the AM Database, predominantly the Project Bank. In addition to serving as a tool for scientific planning, the Long-Term Plan informs the Collaborative Program's administrative needs (e.g., updates to science and AM decision-support tools, deadlines for work products, timetables for meaningful recommendations on management alternatives, tracking of project statuses). Using the AM Database to query priority Collaborative Program objectives and uncertainties generated a list of linked ongoing and proposed scientific activities with descriptive labels for sorting and filtering. This list helps managers prioritize activities, identify logistical concerns, and secure funding and other resources.

The Collaborative Program's Long-Term Plan provides program-wide context and describes the specific ways in which listed activities support the Collaborative Program's guiding principles, and reduce critical scientific uncertainties related to management needs. Additionally, the administrative tasks needed for carrying on normal operations and fulfilling upcoming obligations within the Collaborative Program are outlined in the plan. The Long-Term Plan is assessed and adjusted regularly in order to accommodate changing operational and/or environmental conditions.

[Link to full Meeting Materials List](#)

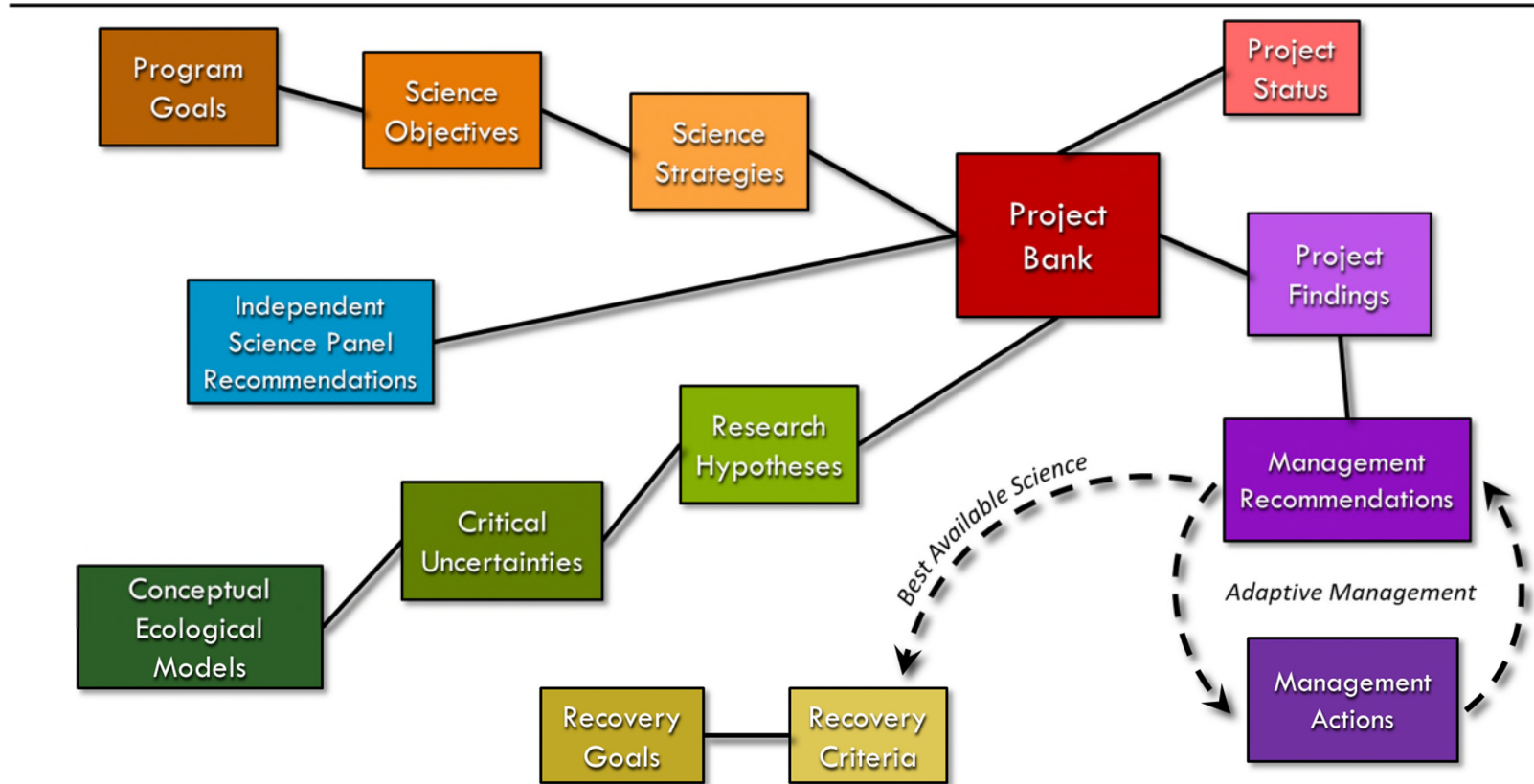
Science and Adaptive Management Committee Meeting
November 3, 2021

See the following meeting material on the page below:

Revised Draft Long-Term Plan Project Evaluation Criteria [read-ahead, draft]

EVALUATION CRITERIA	Type	Weight	Project Title
SAMIS Linkage Count			
Addresses an MRGESCP Science Strategy	count	1.0	
Addresses an Independent Science Panel Recommendation	count	1.0	
Reduces an uncertainty identified from a Conceptual Ecological Model	count	1.0	
Data or findings will inform other projects	count	1.0	
Reduces an uncertainty identified in a completed project			
Linkage Total			
S.M.A.R.T. Score¹			
<u>S</u> pecific – Hypothesis or objective is clearly articulated	score	0.3	
<u>M</u> easureable – Targets and methods are robust and appropriate	score	0.3	
<u>A</u> ttainable – Activity is feasible with achievable outcomes	score	0.2	
<u>R</u> elevant – Activity is within the purview of the MRGESCP	score	0.1	
<u>T</u> ime-bound – Timeline is defined and reasonable	score	0.1	
S.M.A.R.T. Total			
Resilience Planning Score¹			
Activity informs planning for future scenarios (e.g., changes in climatological conditions, anthropogenic impacts, species status, etc.)	score	0.4	
Activity represents an innovation or improvement over status quo	score	0.3	
Inference can be applied beyond the scope of the original activity	score	0.3	
Resilience Total			

Science & Adaptive Management Information System



- The Linkage Count is a tally of all the direct linkages a project has to important features in the SAMIS (see schematic above). The Linkage Score appraises the intrinsic value of the project to the Collaborative Program.
- The S.M.A.R.T. Score is a weighted score assigned by the SAMC that appraises the comprehensibility of a project's scope of work. Weights in the table above can be set to 1.0 if all criteria are considered equally important.
- The Resilience Planning Score incorporates a forward-looking element into the evaluation criteria and appraises the value of the project to adaptive management. Projects that address changing climatological conditions, increasing anthropogenic impacts, or changes in species status would score points here. Projects that present significant innovations or generate broadly-applicable inferences would also score highly.

[Link to full Meeting Materials List](#)

Science and Adaptive Management Committee Meeting
November 3, 2021

See the following meeting material on the page below:

Draft SAMC Year 1 Accomplishments [read-ahead]

2021 Science & Adaptive Management Committee (SAMC) Accomplishments

In 2021, the Middle Rio Grande Endangered Species Collaborative Program (MRGESCP) officially began operating as a science and adaptive management program. The SAMC is central to the MRGESCP's structure as a science program. The following are the major accomplishments of the SAMC and the related Science & Technical (S&T) Ad Hoc Groups it formed over the last year:

- Inducted inaugural members
- Formed the following S&T Ad Hoc Groups:
 - o Population Monitoring Work Group (PMWG) Summary Report
 - o Rio Grande Silvery Minnow (RGSM) Integrated Population Model
 - o RGSM Genetics/Conceptual Ecological Model (CEM) Refinement
 - o Avian CEMs Refinement
- Directed the PMWG Summary Report Ad Hoc to summarize the work of the PMWG.
 - o Worked with Rich Valdez to finalize the PMWG Summary Report, identify and clarify key findings and recommendations, incorporate and archive peer review comments, and refine essential messages for the EC
 - o Developed a memo to the EC with SAMC-recommended next steps to accompany the PMWG Summary Report
- Directed the Avian CEMs Refinement Ad Hoc Group to identify and characterize scientific uncertainties in the Southwestern willow flycatcher and Yellow-billed cuckoo CEMs
- Supported the RGSM Integrated Population Model Ad Hoc Group in their continued model development
- Directed the RGSM Genetics/CEM Refinement Ad Hoc Group to include genetic, propagation, and augmentation components into the RGSM CEM
- Hosted a program-wide workshop to gather input on the draft Science Objectives
- Finalized the Science Objectives for EC approval
- Informed the development of the Science & Adaptive Management Information System (SAMIS)
- Developed project evaluation criteria to facilitate development of the Long-Term Plan and devised a three-part weighted scoring rubric
- Began to incorporate climate change and resiliency considerations into the project development process
- Informed the development of a peer review process for the Collaborative Program
- Hosted a program-wide workshop to discuss how to define and measure habitat restoration success
- Hosted the first Collaborative Seminar: August 24, 2021, Rob Dudley, American Southwest Ichthyologic Researchers (ASIR), on RGSM Population Monitoring

[Link to full Meeting Materials List](#)

Science and Adaptive Management Committee Meeting
November 3, 2021

See the following meeting material on the page below:

Draft Peer Review Process with SAMC Comments [read-ahead, draft]

Middle Rio Grande Endangered Species Collaborative Program Internal and External Peer Review

I. Introduction

The Collaborative Program’s committees and groups are tasked with producing administrative and scientific work products in support of the Collaborative Program’s operations and implementation of the Science & Adaptive Management Plan. Administrative work products include documents such as By-Laws, a Long-Term Plan, and annual reports. Scientific work products include documents such as technical reports, literature reviews, study designs, and scopes of work, as well as adaptive management tools like conceptual ecological models and population models.

The Collaborative Program incorporates peer review into its internal processes to ensure robust and defensible work products. Additionally, the Collaborative Program has procedures for seeking external reviews if an issue merits independent appraisal due to its importance for decision support or level of contention.

The Collaborative Program delineates four categories of peer review:

- Internal Administrative Review
- Internal Scientific Review
- External Expert Review
- Independent Science Panel

Each category can involve one or more type of review: content, statistical, editorial, contextual, legal and programmatic (Table 1). Specifying the type of review that is being requested expedites the process by focusing an individual reviewer’s time and attention on appropriate aspects of the work product.

Table 1. Definitions of Review Types

REVIEW TYPE	DEFINITION
Content Review	Checking a document for completeness and accuracy of the content and cited literature
Statistical Review	Evaluating research and sampling designs and application of statistical methods
Editorial Review	Evaluating a document’s style, grammar, formatting, and references
Contextual Review	Evaluating a document’s relevance to the Collaborative Program’s mission, goals and/or management needs
Legal Review	Evaluating a document’s relationship to policy, statute, and case law
Programmatic Review	Evaluating the entirety of a program or initiative with respect to efficacy and relevance of results or targets

Internal Peer Review

Internal peer review is carried out within the Collaborative Program and administered by the Program Support Team at the direction of the Executive Committee (EC) or Science and Adaptive Management

Committee (SAMC). The two internal categories of peer review utilized by the Collaborative Program, internal administrative review and internal scientific review, are summarized below (Table 2).

Table 2. Categories of Internal Peer Review Used by the Collaborative Program

	BEING REVIEWED	CONSIDERATIONS
Internal Administrative Review	<ul style="list-style-type: none"> • Governance documents (e.g., By-Laws, Science & Adaptive Management Plan) • MRGESCP-authored documents (e.g., Annual Report) 	<ul style="list-style-type: none"> • Reviewed by all signatories • Contributes to MRGESCP operations • One set of comments from each signatory
Internal Scientific Review	<ul style="list-style-type: none"> • S&T Ad Hoc Group work products (e.g., technical reports, scopes of work) • Science and AM tools (e.g., conceptual ecological models) • External requests for review by the MRGESCP (e.g., study designs, monitoring plans) 	<ul style="list-style-type: none"> • Reviewers with relevant expertise • Performed or delegated by the SAMC • May include external reviewers if supplementary expertise is needed • Individual comment forms

Internal Administrative Review

Internal administrative documents that are authored by the Collaborative Program and/or are essential to Collaborative Program governance and operations are reviewed by all the signatories. Examples include the By-Laws, annual reports, the Science & Adaptive Management Plan, and the Long-Term Plan. An internal administrative review is conducted by the Program Support Team (PST), which compiles individual signatory reviews, incorporates changes and, as appropriate, catalogs edits and responses to comments when finalizing a document for EC approval.

Internal Scientific Review

Internal technical reviews are delegated by the Science and Adaptive Management Committee (SAMC) to one or more reviewers with appropriate qualifications and relevant subject matter expertise. This type of review is applied to Science & Technical (S&T) Ad Hoc Group deliverables, technical reports, study designs, models, and other work products relating to the science program. A request for a review by the Collaborative Program by an organization (either a signatory or external to the MRGESCP) may also be considered for internal scientific review.

Typically, reviewers are selected from Collaborative Program participants, but if a need for supplementary expertise is identified, the SAMC can request external individuals to participate in the review. Internal scientific reviews are collected via individual comment forms, on which reviewers can provide scientific justifications for their comments, when needed. All comments received are compiled and delivered to the originating authors and the SAMC. Changes and responses to comments are cataloged for future reference. If a scientific uncertainty can be justified from an unreconciled comment about the strength or validity of findings, it will be incorporated into the Science and Adaptive Management Information System (SAMIS).

External Peer Review

External peer review is performed by individuals from outside the Collaborative Program. The review is administered by a third-party contractor to avoid bias. The two external categories of peer review

utilized by the Collaborative Program, external expert review and independent science panel, are summarized in Table 3.

Table 3. Categories of External Peer Review used by the Collaborative Program

	BEING REVIEWED	CONSIDERATIONS
External Expert Review	<ul style="list-style-type: none"> • A singular work product (e.g., Science & Adaptive Management Plan, population models) • The topic has a medium-to-high level of contention • The work product may be administrative or scientific 	<ul style="list-style-type: none"> • SAMC recommends & EC approves • Expert reviewers • Administered remotely • Does not require interaction between reviewers and MRGESCP experts • Individual comment forms or a report
Independent Science Panel	<ul style="list-style-type: none"> • Broad, complex and consequential topics • The topic has a high level of contention 	<ul style="list-style-type: none"> • Programmatic review • SAMC recommends & EC approves • Expert reviewers • In person, multi-day • Requires interactions between review panel and MRGESCP experts • Panel report

External Expert Review

In the event that a work product has a large amount of influence on research direction, quality of management recommendations, or Collaborative Program operations, and involves a high degree of scientific uncertainty, the SAMC may recommend it for an external expert review. Individuals from outside the Collaborative Program are nominated to perform the review, and support is provided remotely via conference calls or web conference. Reviewer comments may be documented with individual comment forms or a consensus report. The work product under review should be complete enough to provide all necessary information to the reviewers without further need to interface with the MRGESCP.

The administration of an external expert review would be contracted by a signatory organization to a third-party, adding time and cost burdens. Therefore, the SAMC must justify a recommendation to the EC to hold an External Expert Review. If approved, the EC directs the Fiscal Planning Committee (FPC) to coordinate with the signatories to decide which signatory will fund the external expert review. The SAMC may include in its recommendation the format of the deliverable required for the review, such as a consensus panel report or individual comment forms.

The third-party contractor administering the external expert review may be the PST.

Independent Science Panel

The Collaborative Program has sponsored several Independent Science Panels. These tend to be costly and time-intensive for both the reviewers and Collaborative Program participants. Independent Science Panels are multi-day, in-person meetings with technical presentations from Collaborative Program scientists to the panel members, who have spent time prior to the meeting reviewing relevant scientific literature and other background materials. Given the resource-intensive nature of Independent Science

Panels, these are reserved for broad, complex issues that are consequential to scientific understanding and trajectory of research, and have influence on management decisions.

In the event that the SAMC recommends the use of an Independent Science Panel, appropriate justifications regarding scope, impact and uncertainty of the review topic are provided to the EC. An Independent Science Panel requires EC approval and a signatory contracting a third-party to administer the panel. The third-party administering the Independent Science Panel may be the PST.

Following the formal meeting and panelist deliberations, the Independent Science Panel drafts a panel report, which is provided to the Collaborative Program for review. Comments received are compiled by the contractor and addressed, as appropriate, by the Panel. The findings and recommendations from the Independent Science Panel are presented to the Collaborative Program in a public seminar, and archived in the SAMIS.

Table 4. Comparison of the different categories of review used by the Collaborative Program.

	INTERNAL ADMINISTRATIVE REVIEW	INTERNAL SCIENTIFIC REVIEW	EXTERNAL EXPERT REVIEW	INDEPENDENT SCIENCE PANEL
Cost	\$	\$	\$\$-\$\$\$	\$\$\$\$
Time commitment	Low	Low	Medium	High
Clear charge to reviewers	X	X	X	X
Expert reviewers		X	X	X
External reviewers		If needed	X	X
SAMC recommends & EC approves			X	X
Paid reviewers			X	X
Contracting needs			X	X
Panel report			If needed	X
In-person				X
Interaction between reviewers and work product authors/ technical experts				X

The detailed process for carrying out an internal or external scientific peer review is found in Section II.

II. Scientific Peer Review

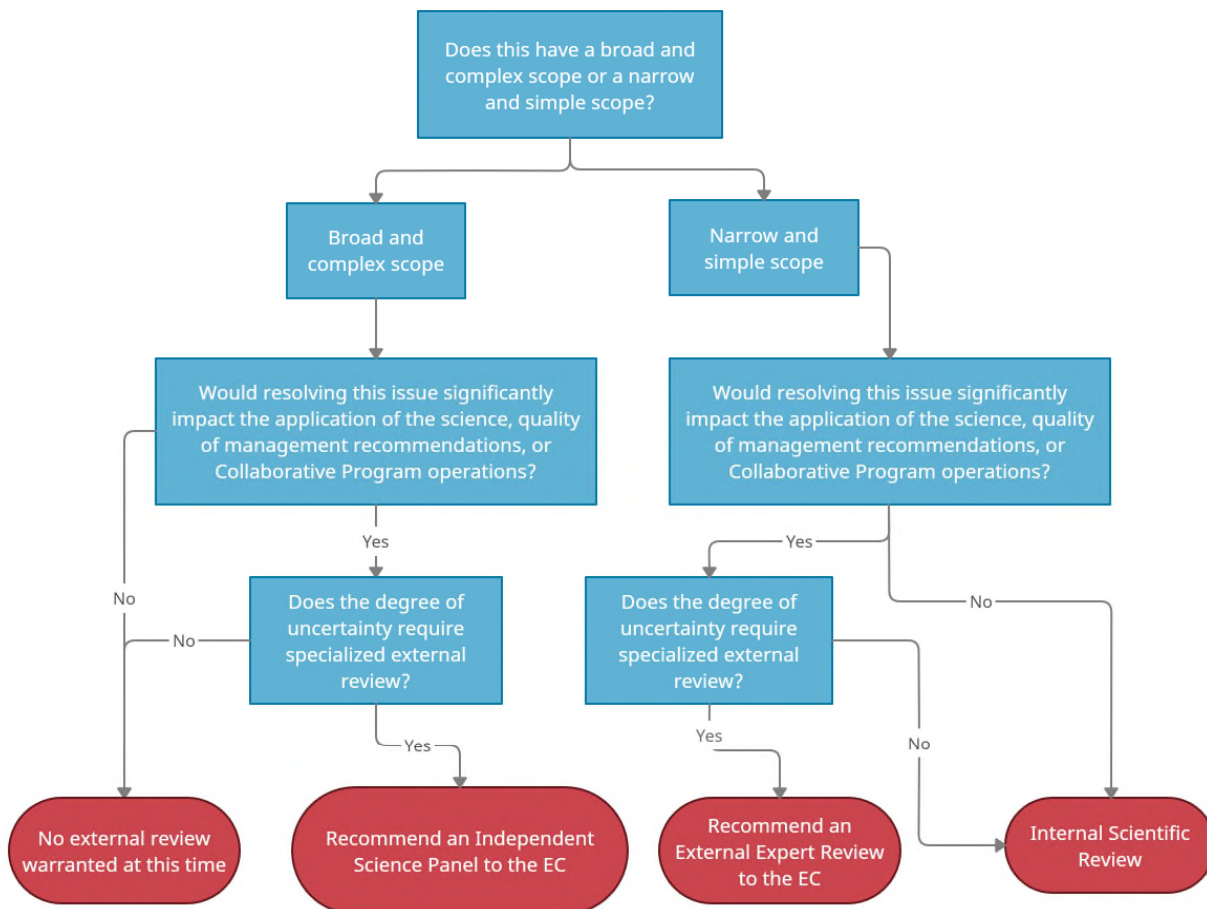
Decision-Support Process for Scientific Peer Review

The process of peer review involves different types and levels of assessment, based on the item under review. Considerations for selection of the appropriate type and level of peer review include the scope of the topic, the level of contention involved, the expertise that is available, and availability of time and funding.

Internal scientific review is built into the Science and Adaptive Management Plan and is routinely undertaken for all technical work products produced by the Collaborative Program. External peer review requires contracting a third-party to administer the review, a greater time commitment on the part of the reviewers, greater costs, and, in the case of an independent science panel, a significant time investment on the part of Collaborative Program subject matter experts.

The SAMC determines the appropriate level of peer review for a particular work product or topic, as well as the type(s) of review (Table 1) that are needed: content, statistical, editorial, contextual, or programmatic. The flow chart shown in Figure 1 provides guidance for selecting the appropriate level and type of review.

Figure 1. Decision flow chart for the appropriate category of peer review



Internal Scientific Review Process

Each of the Collaborative Program's technical work products receives some level of internal scientific review. Work products may include, but are not limited to: technical reports and papers; conceptual, statistical and mechanistic models; and literature reviews and syntheses. Most work products are produced internally by S&T Ad Hoc Groups, although the Collaborative Program may get an external request to provide a scientific review of a manuscript, report, study design, monitoring plan, or other item. All internal scientific reviews are under the purview of the SAMC and supported by the PST.

The following steps comprise the Collaborative Program's internal scientific review process:

1. When the SAMC forms an S&T Ad Hoc Group, it indicates if there is a need for a review of the deliverable(s) in the group's charge, including a list of proposed reviewers and the type of review. Not all S&T Ad Hoc Group deliverables will require a review, but if the topic is influential for scientific understanding due to level of uncertainty or incompatible findings, then the additional review is warranted.

The S&T Ad Hoc Group lead may also submit a request for review of the group's deliverable to the SAMC.

2. After the S&T Ad Hoc Group delivers a draft product, the PST validates all cited references prior to internal scientific review and/or SAMC review. This entails checking that all references have been cited correctly and are accessible. If a reference cannot be validated, the PST will communicate with the S&T Ad Hoc Group lead to either correct or remove the citation.
3. If the SAMC indicates the need for a deliverable review in the S&T Ad Hoc Group's charge, potential reviewers are contacted. Once the reviewers are confirmed, they are given a clearly-stated charge (e.g. type(s) of review to perform, due date), the work product to be reviewed, and individual comment forms to record their comments and provide additional references. If an editorial review is requested by the SAMC, editorial changes can be tracked directly in the document, for convenience.
4. The PST compiles the individual comments received and provides them to the S&T Ad Hoc Group lead, who then incorporates changes and addresses each of the reviewers' comments. If the work product under review is a request from an external organization, the compiled comments are conveyed to the originating authors, and no further steps are required.
5. The revised work product is delivered to the SAMC along with the archive of comments received with responses and changes made. The SAMC reviews the work product and determines whether the findings, conclusions, and recommendations are well-supported or require further investigation or analysis.
6. Supported findings, conclusions, and recommendations from the work product are entered into the SAMIS. Topics identified as needing further investigation or analysis during the internal scientific review or subsequent SAMC review are noted in the SAMIS as scientific uncertainties, where applicable.
7. As appropriate, the SAMC may include recommendations for future scientific work in the next update to Long-Term Plan, to be approved by the EC. Recommendations for best management

practices may also be generated during review of these work products and inform the larger context of the science program.

External Review Process

When a scientific topic or question is broad and complex, with a high degree of scientific uncertainty and influence on management recommendations, the SAMC may consider resolving it through an external review. Given that external reviews (i.e. External Expert Reviews and Independent Science Panels) require more resources than internal reviews, the SAMC must justify the need when recommending an external review to the EC. If the EC agrees and approves such a review, it then directs the FPC to coordinate resources. The signatory that contracts the external review coordinates with the SAMC regarding the charge for the reviewers to accommodate any contracting requirements.

The following steps compose the Collaborative Program's external scientific review process:

1. The SAMC considers a work product or topic for external review based on its scope, complexity, uncertainty and influence on policy, and/or in the event of a deficiency of required expertise within the Collaborative Program.
2. The SAMC completes the proposal to the EC to recommend holding an external review, including: the category of review (External Expert Review or Independent Science Panel), a draft charge for the review panel, the required expertise and desired qualifications for the reviewers, and the specified deliverable and timeline.
3. The EC reviews the SAMC proposal and decides on the external review at its next meeting. If approved, the EC then sends the proposal to the FPC to coordinate resources.
4. The contracting signatory tasks a third-party contractor with the administration of the external review, including the following:
 - a. Identifying and vetting of potential reviewers, in coordination with the SAMC
 - b. Subcontracting of reviewers, including collecting conflict of interest disclosures and agreements pursuant to the code of conduct (Section III)
 - c. Providing the appropriate literature and supplemental information to the review panel
 - d. Facilitating the review:
 - i. For an External Expert Review, the review is conducted remotely. The contractor compiles and organizes individual comments, and hosts conference calls or web conference meetings, as needed, with the External Expert Review panel.
 - ii. For an Independent Science Panel, the third-party contractor plans a multi-day meeting, including:
 1. Securing meeting space, and handling meeting logistics
 2. Identifying appropriate Collaborative Program technical experts to present to the review panel, and coordinating the content, scope and order of the presentations
 3. Developing a meeting agenda
 4. Running the multi-day Independent Science Panel meeting
 5. Note-taking at the meeting and summarizing discussions
 6. Any necessary follow up

5. The reviewers for either type of review documents their findings.
 - a. External Expert Review: The review panel may submit individual reviewer comment forms, which the third-party contractor compiles and presents with a cover memo to the SAMC for evaluation and recommendations to the EC (skip to step 9). An External Expert Review may, at the request of the contracting signatory, instead provide a consensus panel report (continue to step 6).
 - b. Independent Science Panel: The panelists must produce a panel report, which includes findings, recommendations, areas of disagreement amongst the panelists, and all appropriate references (continue to step 6).
6. The SAMC conducts an initial content review of the draft panel report, focusing on responsiveness to the original charge and noting areas where additional clarity may be needed.
7. Collaborative Program experts are given the opportunity to review and provide comments on the draft panel report. The third-party contractor is responsible for distributing the draft report and comment forms, collating and compiling received comments, and providing the compiled Collaborative Program comments to the panelists.
8. In coordination with the panelists, the third-party contractor documents the received comments and how they were addressed in revisions to the panel report.
9. The External Expert Reviewers or the Independent Science Panel panelists finalize their respective work product and the third-party contractor delivers the final version to the SAMC.
10. The third-party contractor and/or reviewers/panelists deliver a presentation of findings and recommendations to the Collaborative Program. The presentations are open to an audience of all interested Collaborative Program participants.
11. The SAMC synthesizes the External Expert Review or Independent Science Panel findings, submits a cover memo that recommends next steps in support of the science and adaptive management program with the finalized deliverable to the EC.
12. The PST records all findings and recommendations in the SAMIS. Important topics that demonstrate incompatible or inconsistent findings, with appropriate evidence, are classified as potential critical uncertainties in the SAMIS.

III. Scientific Peer Review Code of Conduct

Peer review is integral to the scientific process and improves the quality of the scientific work products being produced by the Collaborative Program. To ensure the integrity of the peer review process, reviewers and those administering reviews must adhere to the following code of conduct.

Reviewers

By consenting to participate in a peer review of a work product, reviewers agree to:

- Disclose any conflicts of interest prior to their agreement to participate in the review.
- Review the work product according to the charge assigned.

- Provide scientific justification for their comments.
- Provide reviews in a professional and constructive manner.
- Have their comments made available to the work product authors, the SAMC, the PST, and to have them documented in SAMIS.

Contracting Signatory

External Expert Reviews and Independent Science Panels are contracted to a third-party to administer. In order to ensure an unbiased and independent review, the signatory that manages the contract agrees to:

- Incorporate the charge developed by the SAMC and approved by the EC into the performance work statement, to the extent possible given contracting requirements.
- Allow the third-party contractor to perform its work of administering the external review without attempting to influence the process, the selection of reviewers, or the findings and recommendations from the reviewers.
- Direct the third-party contractor to follow the peer review process outlined above in Section II, including coordinating with the SAMC on the panel charge, identification and vetting of potential reviewers, and incorporating a SAMC content review of any panel report in the work plan.
- Provide any comments on the panel report as part of the Collaborative Program's opportunity to review (step 7 above).
- Deliver the reviewer comments or final panel report to the SAMC without further revisions.

Third-Party Contractor

A third-party is contracted by a signatory to administer an External Expert Review or an Independent Science Panel. This entity is vital to ensuring the independence of the review process. To that end, a third-party contractor must:

- Protect the integrity of the external peer review process.
- Administer the review in a transparent manner consistent with the steps outlined in Section II.
- Ensure the reviewers have equal access to all relevant information and data in order to carry out the review.
- Remain neutral in its treatment of all signatories and technical experts.
- Support the reviewers in their work without influencing the outcome of the review.
- For an Independent Science Panel, ensure the panelists hear from presenters representing the full range of scientific opinion.
- Ensure communication of the reviewers' comments, findings, and recommendations to the SAMC.
- For a panel report, ensure presentation of the report's findings to the Collaborative Program.

[Link to full Meeting Materials List](#)

Science and Adaptive Management Committee Meeting
November 3, 2021

See the following meeting material on the page below:

Proposed MRGESCP Biennial Schedule [presentation]

PROPOSED MRGESCP BIENNIAL SCHEDULE

DEBBIE LEE, PROGRAM MANAGER

EXECUTIVE COMMITTEE MEETING

OCTOBER 27, 2021

PURPOSE OF BIENNIAL SCHEDULE

- To be included in the Science & Adaptive Management Plan (March 2022 update)
- Ensure the closing of the adaptive management cycle through evaluation, learning, and adjustment
- Ensure the Collaborative Program is management relevant, timely, and responsive to signatory priorities

KEY POINTS

- Alternating hosting a science symposium or “Collaboratory” every year
- Science Symposium: Focuses on science
- Collaboratory: Puts science in a management context

COLLABORATORY

- Compiling scientific learning:
 - Synthesize the scientific findings of last two years
 - Put in context of Program objectives, scientific uncertainties
 - Communicate potential updates to conceptual ecological models
 - Opportunity to provide additional scientific information
 - Recommend next steps (future scientific learning and management recommendations)
- Planning for future management needs:
 - Priority questions/issues from signatories
 - Signatories' planned projects
 - Identify opportunities for Collaborative Program input
 - Identify opportunities for signatory coordination
- Directly inform:
 - Work plans, including Science & Technical Ad Hoc Groups
 - Updates to Science Objectives and Strategies
 - Updates to the Long-Term Plan

	MTGS	EVERY YEAR		YEAR A	YEAR B
JANUARY	SAMC	Annual Program Evaluation SAMC new member search SAMC Search Admin Ad Hoc			Science Evaluation Develop proposed projects from Collaboratory
FEBRUARY ^N	HR coord FPC				
MARCH	EC	Results of Program Evaluation • Updates to charters, S&AM Plan* • Form By-Laws Admin Ad Hoc*	Appoint new SAMC members Approve Annual Report Relate MAT/hydro forecast to Program		Approve updated Science Objectives Approve updated Long-Term Plan
APRIL ^N	SAMC	Updates to CEMs By-Laws Admin Ad Hoc* Ensure data on Portal is up-to-date		S&T Ad Hoc to work with contractor to update RioRestore	
MAY	HR coord FPC				
JUNE ^N	EC	Updates and recs from SAMC Work Plan update	Update By-Laws*		
JULY	SAMC				
AUGUST ^N	HR coord FPC				Funding check: RioRestore, Program Portal, PASS
SEPTEMBER	EC	Updates and recs from SAMC	Work Plan update		
OCTOBER ^N		Topical Workshop	Draft Annual Report		
NOVEMBER	SAMC HR coord FPC				
DECEMBER ^N	EC	Signatory Contributions report Hydrology and species summary SAMC summary Next year's work plan Determine SAMC SME needs			Collaboratory

* If needed; ^N Newsletter

ITEMS NOT IN BIENNIAL SCHEDULE

- MOA term length
 - Addendum to extend or draft new MOA one year prior to expiration
- Anytime, as appropriate
 - Science-based management recommendations from the EC
 - Propose activity ideas for the Project Bank
 - Public outreach and education
 - Internal or external peer review
 - Additional Administrative or Science & Technical Ad Hoc Groups
 - Emergency or special EC meetings
 - Holding seminars
 - Holding additional topical workshops
- Biennial schedule subject to change based on Program need, priorities, activities, direction, and any future changes to Program structure

[Link to full Meeting Materials List](#)

Science and Adaptive Management Committee Meeting
November 3, 2021

See the following meeting material on the page below:

SWFL and YBCU CEM Refinement Ad Hoc [presentation]

Southwestern Willow Flycatcher and Yellow-billed Cuckoo Conceptual Ecological Model Refinement Ad Hoc



Middle Rio Grande Endangered
Species Collaborative Program

Lead: Amy Erickson (Audubon),
Meaghan Conway (USFWS), Jennifer Davis (USFWS),
Ondrea Hummel (Tetra Tech), Dave Moore (Reclamation)

Charge and Process Summary

Purpose:

- Characterize relationships between stressor/driver variable and life-stage responses
- Use Conceptual Ecological Models (CEMs) to identify uncertainties
- Inform research and conservation priorities

CEM Relationship Designations:

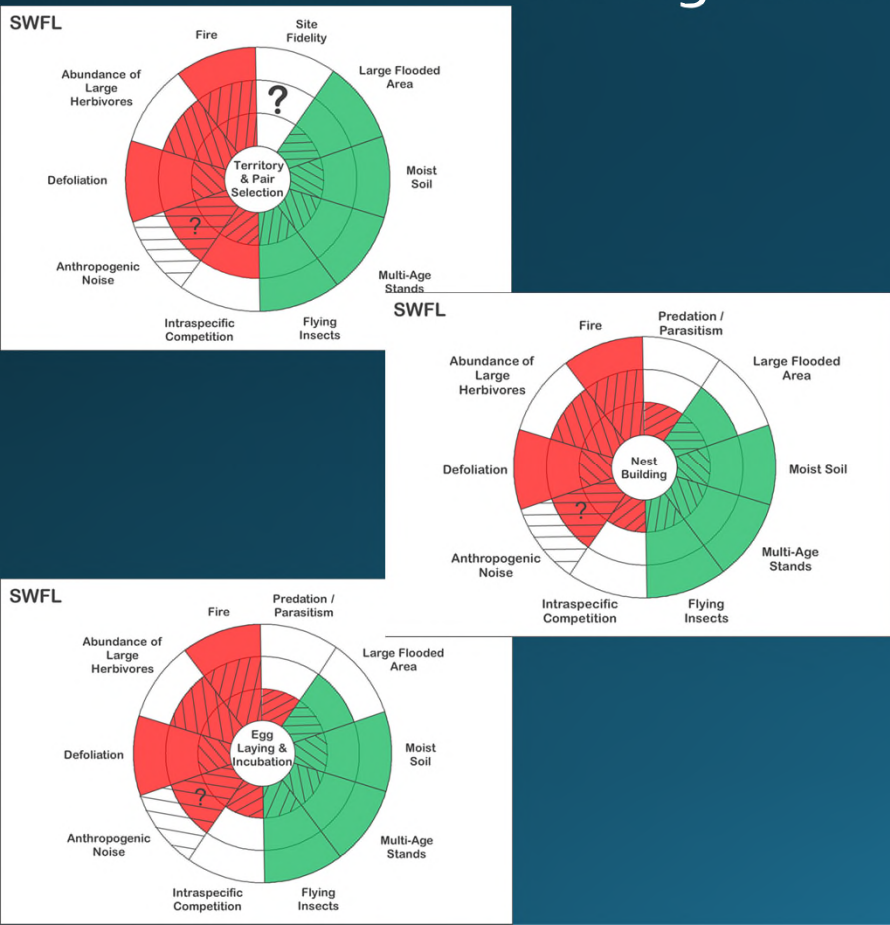
- ✓ Level of importance of the variable to the life-stage
- ✓ Ability to manage
- ✓ Level of scientific understanding regarding the relationship

Process

- Ad hoc group members individually assigned level (e.g., High, Medium, Low) of understanding to relationships for both species and compiled the results.
- Answers were compared and decision rules were used to determine the final values when different values were provided:
 - If there was disagreement between only two rankings, the lower value was chosen
 - If more than two members provided rankings with some agreement, the majority value was chosen or consensus was reached during group discussion

SWFL breeding stage relationships:

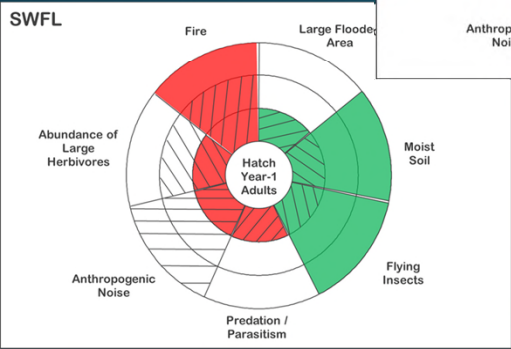
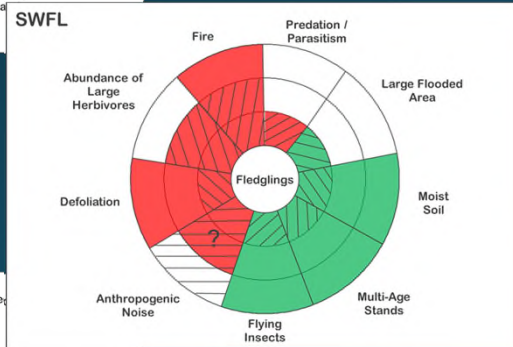
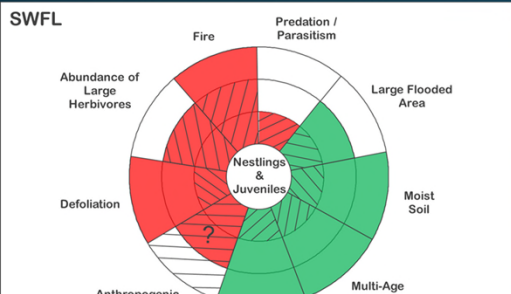
- High importance
- Mixed ability to manage
- More understanding



	Life Stage	Variable	Variable Type	Level of Importance of Variable to Life Stage	Ability to Manage Relationship between	Level of Understanding about Relationship between Variable and Life Stage:
1						
2	Territory and Pair Selection	Site Fidelity	UNKNOWN	Low	Low	Low
3	Territory and Pair Selection	Large Flooded Area	Driver	High	Low	High
4	Territory and Pair Selection	Moist Soil	Driver	High	Low	High
5	Territory and Pair Selection	Multi-Age Stands	Driver	High	Low	High
6	Territory and Pair Selection	Flying Insects	Driver	High	Low	Medium
7	Territory and Pair Selection	Intraspecific Competition	Stressor	Medium	Low	Low
8	Territory and Pair Selection	Anthropogenic Noise	Stressor	Medium	High	Medium
9	Territory and Pair Selection	Defoliation	Stressor	High	Low	Medium
10	Territory and Pair Selection	Abundance of Large Herbivores	Stressor	Medium	Medium	Medium
11	Territory and Pair Selection	Fire	Stressor	High	Medium	High
12	Nest Building	Predation/Parasitism	Stressor	Low	Low	Low
13	Nest Building	Large Flooded Area	Driver	Medium	Low	Medium
14	Nest Building	Moist Soil	Driver	High	Low	Medium
15	Nest Building	Multi-Age Stands	Driver	High	Low	High
16	Nest Building	Flying Insects	Driver	High	Low	Medium
17	Nest Building	Intraspecific Competition	Stressor	Low	Low	Low
18	Nest Building	Anthropogenic Noise	Stressor	Medium	High	Low
19	Nest Building	Defoliation	Stressor	High	Low	Low
20	Nest Building	Abundance of Large Herbivores	Stressor	Medium	Medium	Low
21	Nest Building	Fire	Stressor	High	Medium	Low
22	Egg Laying and Incubation	Predation/Parasitism	Stressor	Low	Low	Medium
23	Egg Laying and Incubation	Large Flooded Area	Driver	Medium	Low	Low
24	Egg Laying and Incubation	Moist Soil	Driver	High	Low	Low
25	Egg Laying and Incubation	Multi-Age Stands	Driver	High	Low	High
26	Egg Laying and Incubation	Flying Insects	Driver	High	Low	Medium
27	Egg Laying and Incubation	Intraspecific Competition	Stressor	Low	Low	Low
28	Egg Laying and Incubation	Anthropogenic Noise	Stressor	Medium	High	Low
29	Egg Laying and Incubation	Defoliation	Stressor	High	Low	Low
30	Egg Laying and Incubation	Abundance of Large Herbivores	Stressor	Medium	Medium	Low

SWFL rearing stage relationships:

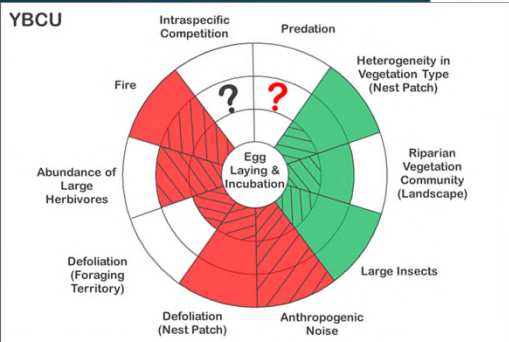
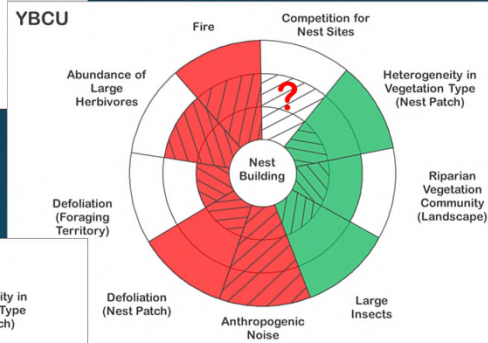
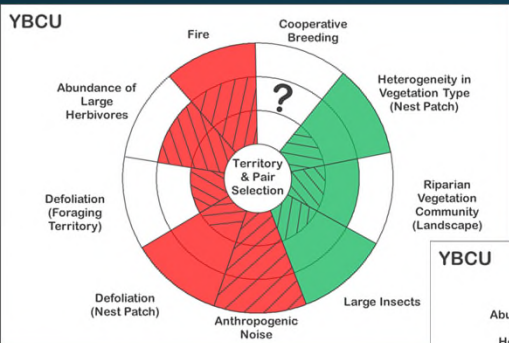
- High importance
- Mixed ability to manage
- Less understanding



	Life Stage	Variable	Variable Type	Level of Importance of Variable to Life Stage	Ability to Manage Relationship between	Level of Understanding about Relationship between Variable and Life Stage:
1						
32	Nestlings and Juveniles	Predation/Parasitism	Stressor	Low	Low	Medium
33	Nestlings and Juveniles	Large Flooded Area	Driver	Medium	Low	Low
34	Nestlings and Juveniles	Moist Soil	Driver	High	Low	Low
35	Nestlings and Juveniles	Multi-Age Stands	Driver	High	Low	High
36	Nestlings and Juveniles	Flying Insects	Driver	High	Low	Medium
37	Nestlings and Juveniles	Anthropogenic Noise	Stressor	Medium	High	Low
38	Nestlings and Juveniles	Defoliation	Stressor	High	Low	Low
39	Nestlings and Juveniles	Abundance of Large Herbivores	Stressor	Medium	Medium	Low
40	Nestlings and Juveniles	Fire	Stressor	High	Medium	Medium
41	Fledglings	Predation/Parasitism	Stressor	Low	Low	Low
42	Fledglings	Large Flooded Area	Driver	Low	Low	Low
43	Fledglings	Moist Soil	Driver	High	Low	Low
44	Fledglings	Multi-Age Stands	Driver	High	Low	Low
45	Fledglings	Flying Insects	Driver	High	Low	Low
46	Fledglings	Anthropogenic Noise	Stressor	Medium	High	Low
47	Fledglings	Defoliation	Stressor	High	Low	Low
48	Fledglings	Abundance of Large Herbivores	Stressor	Medium	Medium	Low
49	Fledglings	Fire	Stressor	High	Medium	Low
50	Hatch Year-1 Adults	Large Flooded Area	Driver	Low	Low	Low
51	Hatch Year-1 Adults	Moist Soil	Driver	High	Low	Low
52	Hatch Year-1 Adults	Flying Insects	Driver	High	Low	Low
53	Hatch Year-1 Adults	Predation/Parasitism	Stressor	Low	Low	Low
54	Hatch Year-1 Adults	Anthropogenic Noise	Stressor	Low	High	Low
55	Hatch Year-1 Adults	Abundance of Large Herbivores	Stressor	Low	Medium	Low
56	Hatch Year-1 Adults	Fire	Stressor	High	Medium	Low
57						

YBCU breeding stage relationships:

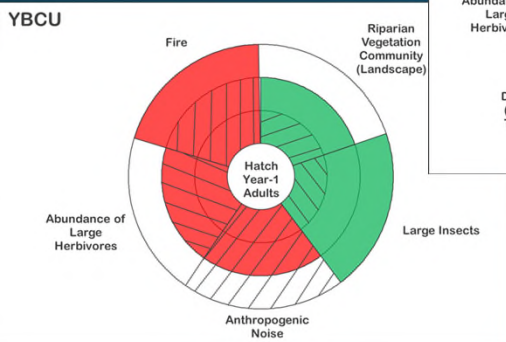
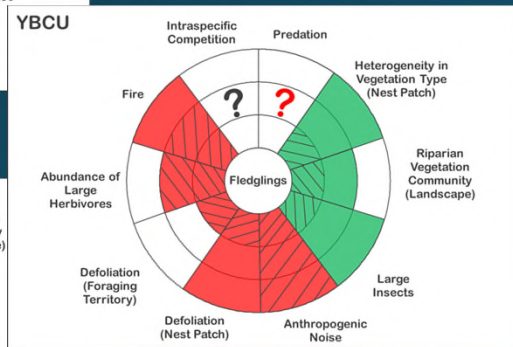
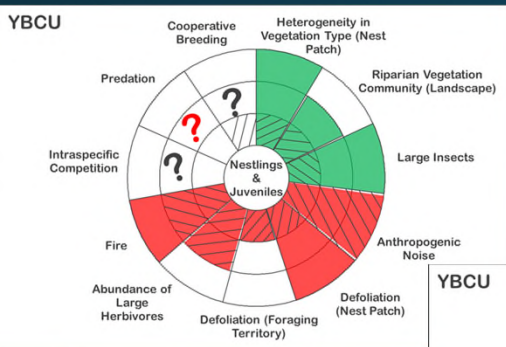
- High importance
- Mixed ability to manage
- Some understanding
- Some unknowns



	Life Stage	Variable	Variable Type	Level of Importance of Variable to Life Stage	Ability to Manage Relationship between	Level of Understanding about Relationship between Variable and Life Stage:
1						
2	Territory and Pair Selection	Cooperative Breeding	Driver	Low	Low	Low
3	Territory and Pair Selection	Heterogeneity in Vegetation	Driver	High	Low	Medium
4	Territory and Pair Selection	Riparian Vegetation	Driver	Medium	Low	High
5	Territory and Pair Selection	Large Insects	Driver	High	Low	Low
6	Territory and Pair Selection	Anthropogenic Noise	Stressor	High	High	Medium
7	Territory and Pair Selection	Defoliation (Nest Patch)	Stressor	High	Low	Medium
8	Territory and Pair Selection	Defoliation (Foraging	Stressor	Low	Low	Medium
9	Territory and Pair Selection	Abundance of Large	Stressor	Medium	Medium	Low
10	Territory and Pair Selection	Fire	Stressor	High	Medium	Low
11	Nest Building	Competition for Nest Sites	Stressor	UNKNOWN	Medium	Low
12	Nest Building	Heterogeneity in Vegetation	Driver	High	Low	Medium
13	Nest Building	Riparian Vegetation	Driver	Medium	Low	Medium
14	Nest Building	Large Insects	Driver	High	Low	Low
15	Nest Building	Anthropogenic Noise	Stressor	High	High	Medium
16	Nest Building	Defoliation (Nest Patch)	Stressor	High	Low	Medium
17	Nest Building	Defoliation (Foraging	Stressor	Low	Low	Low
18	Nest Building	Abundance of Large	Stressor	Medium	Medium	Medium
19	Nest Building	Fire	Stressor	High	Medium	Medium
20	Egg Laying and Incubation	Predation	Stressor	UNKNOWN	UNKNOWN	Medium
21	Egg Laying and Incubation	Heterogeneity in Vegetation	Driver	High	Low	Medium
22	Egg Laying and Incubation	Riparian Vegetation	Driver	Medium	Low	Medium
23	Egg Laying and Incubation	Large Insects	Driver	High	Low	Low
24	Egg Laying and Incubation	Anthropogenic Noise	Stressor	High	High	Medium
25	Egg Laying and Incubation	Defoliation (Nest Patch)	Stressor	High	Low	Low
26	Egg Laying and Incubation	Defoliation (Foraging	Stressor	Low	Low	Low
27	Egg Laying and Incubation	Abundance of Large	Stressor	Medium	Medium	Low
28	Egg Laying and Incubation	Fire	Stressor	High	Medium	Low
29	Egg Laying and Incubation	Intraspecific Competition	UNKNOWN	UNKNOWN	UNKNOWN	Low

YBCU rearing stage relationships:

- High importance
- Mixed ability to manage
- Less understanding
- Several unknowns



	Life Stage	Variable	Variable Type	Level of Importance of Variable to Life Stage	Ability to Manage Relationship between	Level of Understanding about Relationship between Variable and Life Stage:
1						
30	Nestlings and Juveniles	Heterogeneity in Vegetation	Driver	High	Low	Medium
31	Nestlings and Juveniles	Riparian Vegetation	Driver	Medium	Low	Medium
32	Nestlings and Juveniles	Large Insects	Driver	High	Low	Low
33	Nestlings and Juveniles	Anthropogenic Noise	Stressor	High	High	Low
34	Nestlings and Juveniles	Defoliation (Nest Patch)	Stressor	High	Low	Low
35	Nestlings and Juveniles	Defoliation (Foraging	Stressor	Low	Low	Low
36	Nestlings and Juveniles	Abundance of Large	Stressor	Medium	Medium	Low
37	Nestlings and Juveniles	Fire	Stressor	High	Medium	Low
38	Nestlings and Juveniles	Intraspecific Competition	UNKNOWN	UNKNOWN	UNKNOWN	Low
39	Nestlings and Juveniles	Predation	Stressor	UNKNOWN	UNKNOWN	Medium
40	Nestlings and Juveniles	Cooperative Breeding	UNKNOWN	UNKNOWN	Low	Low
41	Fledglings	Predation	Stressor	UNKNOWN	UNKNOWN	Low
42	Fledglings	Heterogeneity in Vegetation	Driver	High	Low	Low
43	Fledglings	Riparian Vegetation	Driver	Medium	Low	Low
44	Fledglings	Large Insects	Driver	High	Low	Low
45	Fledglings	Anthropogenic Noise	Stressor	High	High	Low
46	Fledglings	Defoliation (Nest Patch)	Stressor	High	Low	Low
47	Fledglings	Defoliation (Foraging	Stressor	Low	Low	Low
48	Fledglings	Abundance of Large	Stressor	Medium	Medium	Low
49	Fledglings	Fire	Stressor	High	Medium	Low
50	Fledglings	Intraspecific Competition	UNKNOWN	UNKNOWN	UNKNOWN	Low
51	Hatch Year-1 Adults	Riparian Vegetation	Driver	Medium	Low	Low
52	Hatch Year-1 Adults	Large Insects	Driver	High	Low	Low
53	Hatch Year-1 Adults	Anthropogenic Noise	Stressor	Medium	High	Low
54	Hatch Year-1 Adults	Abundance of Large	Stressor	Medium	Medium	Low
55	Hatch Year-1 Adults	Fire	Stressor	High	Medium	Low
56						

Critical uncertainties identified by Caplan et al. (2018)

SWFL

1. The strategy for prioritizing sites for SWFL **breeding habitat** restoration in the MRG.
2. The impact of the tamarisk beetle (*Diorhabda*) on SWFL **breeding habitats** in the MRG.
3. SWFL **breeding population** sizes, distributions, and trends along the Angostura Reach.
4. SWFL **metapopulation** structure and dynamics in the MRG.
5. The abiotic and biotic variables that predict SWFL **habitat suitability** across multiple spatial and temporal scales in the MRG.

YBCU

1. The abiotic and biotic variables that predict suitable YBCU **breeding habitats** in the MRG across multiple spatial and temporal scales.
2. YBCU **breeding population** sizes, distributions, and trends in the MRG.
3. Similarity in YBCU and SWFL **breeding habitat** requirements in the MRG.
4. Spatial **behavior patterns** of YBCUs that breed in the MRG within and among years, and drivers.
5. The timing and availability of YBCU **prey** in the MRG and which factors influence both.

Recommended Priorities

- Priorities for biology/life history studies:
 - ❖ SWFL Territory & Pair Selection – Site fidelity
 - ❖ SWFL Nest Building – Defoliation

 - ❖ YBCU Territory & Pair Selection – Large insects, Herbivores
 - ❖ YBCU Nest Building – Large insects, Herbivores, Veg. heterogeneity
 - ❖ YBCU Egg Laying & Incubation – Large insects, Defoliation, Veg. heterogeneity
 - ❖ YBCU Nestlings & Juveniles – Large insects, Defoliation, Veg. heterogeneity
 - ❖ YBCU Fledglings – Veg. heterogeneity, Large insects, Defoliation, Fire

Recommended Priorities

- Priorities for habitat studies/restoration:
 - ❖ SWFL Territory & Pair Selection – Site fidelity, Defoliation
 - ❖ SWFL Nest Building – Flooded area, Soil moisture, Herbivores, Fire, Defoliation

 - ❖ YBCU Territory & Pair Selection – Large insects, Defoliation, Fire
 - ❖ YBCU Nest Building – Large insects, Defoliation, Fire, Veg. heterogeneity, Herbivores
 - ❖ YBCU Egg Laying & Incubation – Large insects, Defoliation, Fire, Veg. heterogeneity, Herbivores
 - ❖ YBCU Nestlings & Juveniles – Large insects, Defoliation, Herbivores, Fire, Veg. heterogeneity, Riparian veg.

Next Steps

- Peer review this product?
- Explore hypotheses for relationships with high importance, low understanding and some ability to manage?
- Formalize recommended priorities?
- Compare to CEM for Rio Grande silvery minnow
 - CEM schematic modifications?
 - Focus on hydrological variables
 - Update the literature review for the SWFL and YBCU CEMs

[Link to full Meeting Materials List](#)

Science and Adaptive Management Committee Meeting
November 3, 2021

See the following meeting material on the page below:

Revised 2022 SAMC MRGESCP Work Plan [follow-up, draft, spreadsheet]

2022
Middle Rio Grande Endangered Species Collaborative Program
(MRGESCP) Work Plan

Tasks

1	Administrative tasks
2	Task Science & Technical (S&T) Ad Hoc Groups
3	Identify scientific uncertainties
4	Decision tools to facilitate adaptive learning
5	Information sharing and coordination

TASK	SUBTASK	EC	AAH	SAMC	S&T	FPC	PST	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
	Executive Committee (EC) meeting	X								X			X		X				X
	Science & Adaptive Management Committee (SAMC) meeting			X				X			X			X				X	
	Fiscal Planning Committee (FPC) meeting					X			X			X			X			X	
1a	Maintain and update documents and content on the Program Portal						X	X	X	X	X	X	X	X	X	X	X	X	X
1b	Maintain and update activities in the Science and Adaptive Management Information System (SAMIS)	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
1c	Continue training for SAMIS	X		X			X	X											
1d	Continue updating and approve the revised Science & Adaptive Management Plan	X		X			X	X	X										
1e	Complete and present results from the annual MRGESCP evaluation	X		X			X	X	X										
1f	New SAMC member search and approval of new members	X					X	X	X										
1g	Finalize and adopt a new Memorandum of Agreement (MOA)	X	X				X	X	X										
1h	Continue drafting and approve the 2021 Annual Report	X					X	X	X										
1i	Implement agreed upon changes from the annual evaluation	X		X						X	X								
1j	Begin drafting 2022 Annual Report															X	X	X	X
1k	Finalize 2022 signatory contributions reports																	X	X
1l	Develop the SAMC annual summary report			X														X	X
1m	Develop and approve 2023 Annual Work Plan	X		X			X										X	X	X
2a	Continue the RGSM Integrated Population Model S&T Ad Hoc Group				X			X	X										
2b	Initiate an Internal Science Review of the draft revised Rio Grande Silvery Minnow (RGSM) Conceptual Ecological Model (CEM)			X	X		X		X	X									
2c	Continue the Rio Grande Silvery Minnow Hypothesis Development S&T Ad Hoc Group				X			X	X	X	X								
2d	Convene Habitat Restoration (HR) Guidance S&T Ad Hoc Groups to develop species-specific restoration goals, monitoring considerations, and metrics to document success				X			X	X	X	X	X	X						
2e	Organize and convene a Scenario Planning S&T Ad Hoc Group to identify ways to incorporate resiliency into the MRGESCP long-term planning and decision support				X			X	X	X	X	X	X						
2f	Organize and convene a New Mexico Meadow Jumping Mouse CEM Development S&T Ad Hoc Group				X									X	X	X	X	X	X
2g	Organize and convene a Pecos Sunflower CEM Development S&T Ad Hoc Group				X									X	X	X	X	X	X
3a	Strategically identify uncertainties in the CEMs and link them to the appropriate elements in SAMIS				X		X	X	X	X	X	X	X						
3b	Assess status of identified critical uncertainties			X	X					X	X	X	X	X	X				
3c	Populate the Project Bank with past and current projects. Specify research hypotheses, where appropriate.			X			X	X	X	X	X	X	X	X	X	X	X	X	X
4a	Convene a Peer Review Administrative Ad Hoc Group to revise the draft MRGESCP peer review process to complement and add value to individual signatory peer review policies and procedures		X					X	X	X									
4b	Review and approve the revised MRGESCP peer review process	X		X						X									
4c	Conduct a survey of management needs regarding Rio Grande silvery minnow population monitoring			X			X		X	X	X	X							

4d	Evaluate and refine Project Bank scoring rubric to align with management needs		X		X				X	X	X	X	X	X	X		
4e	Plan for and host the Collaboratory	X	X		X								X	X	X	X	
5a	Send out regular MRGESCP newsletters				X		X	X	X	X	X	X	X	X	X	X	
5b	Host quarterly HR coordination meetings			X	X		X		X		X			X			
5c	Coordinate on fulfilling project needs that were identified at the HR coordination meetings			X			X		X		X			X			
5d	Host a topical workshop (topic: TBD)		X										X				

[Link to full Meeting Materials List](#)

Science and Adaptive Management Committee Meeting
November 3, 2021

See the following meeting material on the page below:

SWFL and YBCU CEM Refinement Ad Hoc Report to SAMC [follow-up]

MRGESCP Ad Hoc Group Reporting Template

Use this template to guide and document ad hoc group activities, as well as to report to the parent committee on the group's progress or completion of tasks in the charge. Please update this document immediately after every ad hoc meeting and group accomplishment.

Parent committee: Science & Adaptive Management Committee (SAMC)

Group type: Science & Technical Ad Hoc

Group name: Southwestern Willow Flycatcher and Yellow-billed Cuckoo Conceptual Ecological Model Refinement Ad Hoc

Group lead: Amy Erickson Audubon Southwest

Group members:

Meaghan Conway, U.S. Fish and Wildlife Service; Jennifer Davis, U.S. Fish & Wildlife Service;
Ondrea Hummel Tetra Tech, Inc.; Dave Moore, U.S. Bureau of Reclamation; Catherine Murphy, Program Support Team (WEST, Inc.);
Debbie Lee, Program Support Team (WEST, Inc.); Melissa Welsch, Program Support Team (WEST, Inc.)

Charge accepted on: 4/22/2021

Charge statement: Describe the level of scientific understanding for each relationship characterized in the Middle Rio Grande (MRG) conceptual ecological models (CEMs) for the southwestern willow flycatcher (*Empidonax trailii extimus*; SWFL) and yellow-billed cuckoo (*Coccyzus americanus*; YBCU). The CEMs and descriptions can be found in Appendix C (page 62 of 98) of the MRGESCP 2020 Science and Adaptive Management Plan (WEST 2020), tabular versions of which will be provided for assigning level of understanding to each relationship between a driver or stressor and a life stage response.

Group meetings

Date	Start/Stop Time	Attendees (Initials)	Discussion topics/Accomplishments
6/15/2021	1-3pm	AE, MC, JD, OH, DM, CM, MW	The group discussed the levels of scientific understanding for several of the SWFL relationships
7/7/2021	2-4pm	AE, MC, JD, DM, CM	<p>Prior to the July 7 meeting, members individually assigned levels of understanding to remaining relationships for both species and sent their version of the table to the PST, who compiled the answers into one file using color coding to differentiate member responses. This combined file was the focus of discussion at the July 7 meeting. As answers were compared across members during the group discussion, the following decision-making rules were used to determine the final values when different values were provided:</p> <ul style="list-style-type: none">• If there was disagreement between only two rankings, the lower value was chosen• If more than two members provided rankings with some agreement, the majority value was chosen or consensus was reached during group discussion <p>Additional discussion at the July 7 meeting centered on adding information regarding "Priority for Biology and Life History" and "Priority for Habitat and Restoration" for both species, which was supplemental to the original ad hoc charge. For this additional task, a similar approach was used for choosing final rankings. Also, relationships for which a high level of</p>

MRGESCP Ad Hoc Group Reporting Template

			understanding was designated were given a low priority for biology/life history research. Likewise, if a relationship was determined to have a low manageability, it was also given a low priority for both biology/life history research and habitat/restoration. Stressors were the primary focus of the supplemental exercise.
8/11/2021	10-12pm	AE, MC, JD, OH, CM, DL, MW	At the August 11 meeting, the group concluded that the original ad hoc charge had been fulfilled and that the new CEM table could be related to critical uncertainties for study development. As a next step, the PST encouraged the Group to consider the current avian CEM schematics and ways to make them more similar to the CEM for the Rio Grande Silvery Minnow (RGSM), with a focus on hydrological variables. Also suggested was an updated literature review, to ensure level of understanding is based on the best available (and current) information.

Task #: 1 Characterize level of scientific understanding in SWFL and YBCU CEMs

Deliverable description: Table format of each CEM with levels of scientific understanding (i.e., High, Medium, or Low) designated for each relationship (i.e., row in the table) between a driver or stressor variable and a life stage response.

Deliverable completed on: 8/11/2021

Notes/Issues regarding this task: Added recommended priorities for biology/life history studies and habitat studies/restoration.

Presentation to parent committee on: 11/3/2021

Brief summary of findings/outcomes and, if applicable, recommendations: [For detailed summary of outcomes, please see presentation slides from 3Nov2021 SAMC meeting.] In addition to completing the original task, the group provided recommended priorities for life history and habitat studies. Generally, they concluded that the completed CEM table can be related to critical uncertainties for study development. As a next step, the PST encouraged the group to consider the current avian CEM schematics and ways to make them more similar to the CEM for the Rio Grande silvery minnow, with a focus on hydrological variables. Also suggested was an updated literature review, to ensure designated levels of understanding are based on the best available (and current) information.

Literature cited in deliverable (please include full citation and, if possible, link or attach a pdf):

Available from MRGESCP library:

Caplan, T., D. Lee, G. Wilde, H. Walker, and J. Frey 2018. Middle Rio Grande Adaptive Management Framework: Identifying Critical Scientific Uncertainties. Prepared for U.S. Army Corps of Engineers Albuquerque District on behalf of the Middle Rio Grande Endangered Species Collaborative Program. Prepared by GeoSystems Analysis, Inc. Albuquerque, New Mexico.

Western EcoSystems Technology, Inc. 2020. Middle Rio Grande Endangered Species Collaborative Program Science and Adaptive Management Plan. Prepared for the Executive Committee of the Middle Rio Grande Endangered Species Collaborative Program, Albuquerque, NM. 98 pp.

FOR PST USE:

Ad Hoc Activity marked finalized and entered into SAMIS: by (Enter initials) on (Choose date)

Link to report, if applicable, added to Portal