**PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM (PRRIP or Program)**

**Adaptive Management Working Group (AMWG) Virtual Meeting**

August 23, 2021

**Attendees** – **Jeff Runge,** USFWS; **Jim Jenniges**, NPPD; **Dave Zorn**, CNPPID; **Matt Rabbe**, USFWS; **Andy Caven**, Crane Trust; **Tom Econopouly**, USFWS; **Mike Drain**, CNPPID; **Brandi Flyr**, CPNRD; **Brock Merrill,** USBR; **Jojo La**, State of Colorado; **Jason Farnsworth, Patrick Farrell, Malinda Henry, Chad Smith** – Executive Director’s Office (EDO)

EDO Power Point presentation slides in PDF

* [08\_23\_21 Extension Science Plan Update](https://platteriverprogram.org/system/files/2021-08/08_23_21%20Extension%20Science%20Plan%20Update.pdf)

**WELCOME & ADMINISTRATIVE**

**Agenda**

* No modifications to the agenda were offered.

**Previous Meeting Recap – AMWG meeting, 03/23/2021**

Henry: Gave a brief recap of the uncertainties remaining for PP and WC as discussed in previous AMWG meetings.

**OVERVIEW OF SCIENCE PLAN**

Henry: Gave an overview of the Science Plan documents sent out for AMWG review and comment.

* [8\_6\_21 Science Plan PP WC OtherSpp](https://platteriverprogram.org/system/files/2021-08/8_6_21%20Science%20Plan%20PP%20WC%20OtherSpp.docx)
* [8\_5\_21 H Prioritization PP WC OtherSpp](https://platteriverprogram.org/system/files/2021-08/8_5_21%20H%20Prioritization%20PP%20WC%20OtherSpp.docx)

She thanked those members that provided detailed comments on the Science Plan and encouraged other AMWG members to provide those comments as well. Follow the provided links to see your colleagues comments on the plan.

* [8\_6\_21 Science Plan PP WC OtherSpp\_Caven](https://platteriverprogram.org/system/files/2021-08/8_6_21%20Science%20Plan%20PP%20WC%20OtherSpp_Caven.docx)
* [8\_6\_21 Science Plan PP WC OtherSpp\_Jenniges](https://platteriverprogram.org/system/files/2021-08/8_6_21%20Science%20Plan%20PP%20WC%20OtherSpp_Jenniges.docx)
  + - [Le Fer 2008 PP chick forage growth and survival study](https://platteriverprogram.org/system/files/2021-08/Le%20Fer%202008%20PP%20chick%20forage%20growth%20and%20survival%20study.pdf)
* [8\_6\_21 Science Plan PP WC OtherSpp\_Rabbe](https://platteriverprogram.org/system/files/2021-08/8_6_21%20Science%20Plan%20PP%20WC%20OtherSpp_Rabbe.docx)

The focus of today’s meeting will be on prioritizing hypotheses to arrive at a smaller list of top priorities for further development in the Science Plan. Hypotheses related to pallid sturgeon were not included in the prioritization list as the direction of this research has already been determined. Hypothesis related to maintenance of fish guilds for WC forage was also absent from this list and asked the AMWG wanted to further consider this uncertainty for the Science Plan.

Caven and Rabbe: There is a general interest in avoiding fish kills when flows are low and learning about what the thresholds of tolerance and impacts on the fish community are. No specific hypotheses were developed regarding the maintenance of fish guilds to support WC foraging, but a case could be made for maintaining a diverse array of food resources for WC which includes fish. Not a high priority item for Program learning but should keep this potential use for water on the calendar as an option.

Jenniges: Prairie rivers go dry, fish species are adapted to periodic dry conditions. Flow for fish guilds are low priority.

Farnsworth: Do we need directed science to obtain information about the benefits of higher flows for fish guilds in the summer for 2nd Increment negotiations, or can this be a lower priority potential use for water if other flow needs are met?

Rabbe: Preventing fish kill is important, but Service not planning on changing operational guidelines for the 2nd Increment.

Jenniges: Summer flow releases require a lot of water due to dry channel conditions.

Caven: Fish may not bounce back due to altered channel conditions that limit refugia during drought.

Rabbe and Caven: Though there is interest in learning more on this topic, the amount of research needed to answer this question is very broad and large-scale and may be beyond the scale of what the Program needs to learn.

**PRIORITIZATION OF UNCERTAINTIES AND HYPOTHESES**

Henry: Will move forward with ranking of priorities completed by all but two AMWG members. Members ranked 22 hypotheses from 1-22; most to least important.

* [08\_23\_21 Hypothesis Prioritization Results](https://platteriverprogram.org/system/files/2021-08/08_23_21%20Hypothesis%20Prioritization%20Results.xlsx)

Henry: Top 6 hypotheses all water management related for WCs. These are competing uses of water that cannot all be done, certainly not simultaneously and maybe not even in sequence if we want to answer any of them conclusively. We need to choose between them. Many of the general hypotheses that involve data analysis to gain more information on important factors that are paired with the on-the ground implementation management hypotheses were given much lower rankings than their management counterparts. Wouldn’t you want to do the data analysis to see if you have a signal that tells you whether flow is important before you send water down the river? So general hypotheses may be higher priority (do first) with paired management done if there is a signal (lower priority).

Farnsworth: Recognizing that we may have lower capability of doing flow experiments as we move into the Extension.

La in chat: I also see great uncertainty with doing a desktop analysis with only data and no on the ground verification which would lead me to rank a hypothesis lower if we can’t answer the Q very well

Caven in chat: Germination suppression is #1 in my mind.

Henry: Piping plover hypotheses ranked medium to low.

La: Surprised by WCs and water that resulted in highest priorities. Asked for Henry to explain rankings especially due to the recent effort to mitigate predation on piping plover.

Henry: For the few who explained their rankings, the reasons differed among AMWG.

Caven/Zorn: Already collecting data and implementing management techniques to address plover uncertainties, so ranked these as lower priority.

Flyr in chat: My reasoning for ranking predation is similar to Dave's--I think we are more in management than learning phase

La in chat: Guess then we would be saying as a group that the PP productivity declining between 2017-2019 was episodic in nature and we don't care as much to find out why...interesting

Jenniges agrees

Henry: Testing to see if what we have on the ground is working already.

Caven in chat : My statement was meant to agree with Jim, Brandi, Matt, and Dave. The issue is important, but the research question is not essentially the most important study to endorse. The question already being answered by the EDO pretty well, so I felt it was something we didn't need to focus on in terms of developing hypotheses. In short, high priority research questions are those with the highest uncertainty. It doesn’t mean the issue is not important from a mgmt perspective.

La in chat: okay this discussion is helpful to understand difference between uncertainty and importance of continued management for the PP

Flyr in chat: By ranking that low--by no means did I intend that to mean to stop funding what you are currently doing--did I understand the intend incorrectly?

Smith: Have fewer, targeted uncertainties for Extension. We used the term “science plan” because learning is mostly targeted towards specific decision making about usages for water resources and taking what we have learned to improve on what we are already doing. Need agreement by group on active experimental needs/highest priorities, to achieve active attention from which management would change. This plan, in the form described, is far different than the original AMP plan for the Program.

Henry: Original idea was to try to eliminate LOW group ranked hypotheses for which there was agreement on this low ranking. If everyone agrees they are low priority, put them in the science parking lot. Only germination suppression ranked in the HIGH category, but there was disagreement by a few members on this point that we need to discuss. Group rankings show lots of medium ranked priorities with lots of variability, so we need to agree on where those items go in order of importance as a group.

Zorn, Jenniges, Runge: Low priority hypotheses with management implications (like predation on PP productivity) can remain in the Science Plan, but low on the list of priorities. Frame them as a broader uncertainty with a suite of related management hypotheses to test alternative management actions (i.e. piping plover predator management with fences, lights, nest cages).

Henry: Keep in mind that management actions need to be seen through for several years to be able to evaluate effectiveness before other actions can be tested and compared.

Caven: To help make ranking decisions, suggested adding cost of implementation to priority table in excel. Ranking by CV could be telling. Some probable correlation between higher rankings and greater CV (less agreement) on position in rankings.

La: Struggled due to some hypotheses (water) with alternative means to the ends…….river channel disking for unobstructed width as opposed to germination suppression. Why not included as an alternative?

Jenniges: How long do you need to collect data for flyovers/stopovers to answer questions about flow?

Henry: ISAC suggested expanding telemetry dataset beyond Platte River to lessen number of years needed to answer questions.

Jenniges: All river systems are not equal. Compiling data over multiple systems may not add clarity to WC stopover decisions on the Platte.

Farnsworth: Hypotheses testing the importance of water for WC were ranked as high priority, but all cannot be accomplished in a limited number of years.

Jenniges: Experimental hypotheses ranked highest due to understandability.

Caven: Multiple questions can be answered by same investigation. Where a suite of factors are involved in target species response, it is important to understand how much of the variation can be explained by Program management even if it is a vary small part of the variation observed.

Henry: Not at point to finally rank hypotheses as group. Individual group members ranked items based upon very different criteria (already doing, already invested, related to using water to test hypotheses vs. data analysis, etc.) so average rankings do not necessarily represent agreed upon group priorities. Rankings may not have captured group members best thoughts on each item due to competing uses of resources (e.g. doing one effects the ability to do another). Ranking exercise may have missed mark to move forward as planned.

EDO will take a break to regroup, bringing a new exercise forward to help with prioritization of at least broad uncertainties.

**BREAK**

**PRIORITIZATION OF UNCERTAINTIES AND HYPOTHESES cont.**

Henry: Stepping back a level to focus our discussion on broader uncertainties (without the detail included in hypotheses that have shown to be problematic). We will rank broad areas of interest for science learning in this exercise. These broader uncertainties may contain multiple hypotheses that fall under them and may be answered together. Note: Hypotheses related to non-target listed and non-listed species of concern are not included in this exercise as the AMWG has said they want the GC to provide guidance on including this in the Science Plan. Henry presented a Mentimeter to orient conversation and make decisions.

* [Mentimeter Prioritization Results.pdf](https://platteriverprogram.org/system/files/2021-08/Mentimeter%20Prioritization%20Results%20%28Images%29.pdf)
* [Mentimeter Broad-Uncertainties-Prioritization.xls](https://platteriverprogram.org/system/files/2021-08/Mentimeter%20Broad-Uncertainties-Prioritization.xlsx)

Henry: (Mentimeter) Items likely to be included.

* Spring germination suppression release
* Predation impacts on PP Productivity
* Flow impact on WC stopover decision

These are the items that the EDO believes there is enough consensus that they will be included in the Science Plan. All three can likely be implemented together over the Extension, that is if the test of flow impact on WC stopover decisions consists of testing WC response to low flows (addressing a gap in the dataset we currently have to evaluate this question). The flow impact on stopover decisions begins with a desktop data analysis exercise. AMWG asked to answer whether the item should or should not be included as a priority uncertainty in the Science Plan.

Jenniges: Some priority items do not have a lot of understanding what the plan moving forward would be.

Farnsworth: Need to identify most important uncertainties to answer for 2nd Increment decision makers to use.

Caven: Grouped priorities into big question like uncertainties (Higher) and maintenance science (lower) but would expect the Program to include those science items in plan as well. Iterated by Flyr and Jenniges.

Runge: Consider the PP productivity question from a management action point of view. Pose hypotheses as alternatives for management. Should have options on table/actionable to drive resource prioritization for extension science.

Caven: EDO/TAC communication about PP experimental design/implementation progress should be ongoing but is part of maintenance science already in Progress for several years.

**Decision:** ***Group agreed to include germination suppression and flow impact on stopover decisions as priorities for learning in the Science Plan. Predation impact on PP productivity is not a parking lot item but should be treated as maintenance mode management actions separately.***

Henry: (Mentimeter) Items in the learning parking lot (take the opportunities when they arise, but do not actively pursue).

* Fish flow relationships
* Plover forage availability
* Site age (forage and predation)
* Wet meadow hydrology
* Late summer SDHF
* AHR contribution to WC fitness

Drain: All items would be nice to learn if possible.

Farnsworth: Items in the parking lot will be incorporated as a list of identified uncertainties in the Science Plan and will not be lost. He suggested we include in the Science Plan some text explaining how parking lot items may be pulled forward for learning as necessary.

Caven: Sees fish guild learning important for ecosystem resilience in times of drought, but right conditions would dictate if this question is important.

Smith: Idea of framing this question in terms of climate change uncertainty if it is really something the group wants to include to address a GC level of concern.

Runge: What are the measurable/functional definitions of what objective is?

Caven in chat: I would say it is included, but its not a "big question"

Runge in chat: No vote from me. Most of the topics are outside of my expertise.

Rabbe in chat: Parking lot is good for the time being

Caven in chat: What conditions are associated with wide-spread fish kills that could have a relatively long-term impact on the Platte River fishery? My best frame of this question

Action: Group members ranked items above as going into the parking lot or moving forward for further consideration of importance by the group.

Caven in chat: No problem for me

Runge in chat: Fish kill is a clear objective. i.e., avoiding a fish kill.

Action: Site age, wet meadows, SDHF moved forward as more important, for further consideration in next exercise.

Caven: In press Trust article observing WCs foraging on fish and anuras. May increase importance of this uncertainty. May be a conversation to have at the TAC level about foraging content.

**Decision: *Parking lot items include fish flow relationships, plover forage availability, and AHR contribution to WC fitness.***

Henry: (Mentimeter) Rank in order of importance. These are MED priority items for which we need group consensus about whether to move them up to high priority for hypotheses development in the Science Plan or move them down to the parking lot. All would start as a desktop data analysis exercise to see if there is a signal for importance before would move on to a management experiment.

* Phragmites
* Flow influence on stopover length
* Fall vs Spring contribution to WC fitness
* Impact of hydro-stepping on WC use of AHR
* Wet meadow hydrology
* Late Summer SDHF
* Site age (PP forage and predation)

Action: Group ranked these from 1 highest importance to 7 lowest importance.

Drain: Pull lower ranking items into parking lot? Site Age/Forage, SDHF, Wet Meadow Hydrology, Impact of Hydro-stepping would move down.

Site Age relationship to PP forage and predation could be incorporated under plover science plan as an alternative.

Runge: Late summer SDHF – alternative management action to germination suppression, fallback flow release option if germination suppression is ineffective.

Zorn: Chokepoint capacity is limiting factor to do a SDHF.

Caven in chat: Dave, my comments were the same as yours. I remembered it being a serious challenge from those data exercises.

Farnsworth: May be possible but only a small window of time. Operations capacity and maintenance limits this in the fall.

Farnsworth: Wet meadows analysis and summary in progress in EDO regardless of priority for Extension. Rabbe/Farnsworth: Can parking lot for now and if results connect to species, can discuss then.

La in chat: agree with Mike, put em in the Parking Lot for 4-7

Jenniges in chat: I would just like to what data we have on wet meadows summarized. I am good with putting 4-7 in parking lot. See a summary of what data

Caven: Hydrostepping - Flow variability can be incorporated into the flow impact on WC stopover length question.

**Decision: *Put 4-7 in parking lot (hydrostepping and WCs, Wet meadows, LS SDHF, Site Age)***

Henry: WC fitness, how do we have the means to answer this question? Suffers from the same limitation as contribution of AHR to WC fitness, which was put into the parking lot.

Zorn: What if birds that stop here are less fit? What will we do then? Will we ever be able to answer this question?

Rabbe: USGS collaboration and corridor-level migration analysis/investigation would be needed to answer the WC fitness question. Many other factors besides birds just stopping or not on Platte River that influence fitness during migration.

Flyr: Would the Platte be less important to WCs if fitness is lower of birds who stop or the reverse?

Rabbe: What is fitness of birds before Platte, are these birds that would otherwise not make it? Henry: Many factors to consider including a lot of CEM elements outside of Program control needed to answer this question. Data analysis/collaboration question. In addition, fitness is a lifelong cumulative effect.

Caven: Original interest in this question was not linked to fitness. Suggests split into more than one question.

Parking lot: Fall vs Spring Contribution to WC fitness.

Move up: Fall vs Spring flows and WC use of AHR.

Caven in chat: The phrag question has a lot of previous research to build upon, so the question should be narrowly framed.

**Decision: *1 Phragmites and 2 Flow influence on stopover length move up for further development of hypotheses to be included as priority learning during the Extension. 3 Fall vs. Spring WC use of AHR moves forward for further development as well.***

**TIMELINE FOR SCIENCE PLAN DEVELOPMENT**

EDO presentation of proposed timeline for progress highlighting check-in points with input from the TAC, ISAC, and GC. Note: 2022 AMP Work Plan and Budget are being developed concurrently with the Science Plan, so costs associated with what EDO expects will be implemented in 2022 need to be estimated and included without a finalized and approved Science Plan, but are subject to committee structured review, recommendation, and approval.

**Sidebar Teams Chat During the Meeting was incorporated into summary above.**

**MEETING REVIEW & WRAP-UP**

**Summary of decisions made:**

**Priority for learning during the Extension**

Spring germination suppression releases

Flow impact on WC stopover decision

Flow influence on WC Stopover Length

Flow variability on WC Stopover Length

Program management of *Phragmites* to maintain MUCW for WC

Fall vs. Spring flows and patterns of WC use of AHR

**Parking lot**

AHR contribution to WC fitness

Fall vs. Spring contribution to WC fitness

Impact of hydro-stepping on WC use of AHR

Program effect on wet meadow hydrology

Late summer SDHF (a potential alternative for testing if germination suppression is ineffective)

Flow for maintenance of fish guilds for WC forage (rework into fish-kill avoidance objective)

Plover forage availability

Site age influence on PP forage availability and predation

**Maintenance and Monitoring Science**

Predation impacts on PP productivity

**Need GC Guidance on How/If to Include in Extension Science Plan**

Non-target listed and non-listed species of concern

**Upcoming meetings:**

The EDO will continue to develop hypotheses according to the priorities determined today. As needed, the EDO will ask for participation of subgroups of the AMWG based upon areas of expertise to help refine hypotheses. The EDO will set up meetings of the full AMWG as needed.

* GC *In-Person* Quarterly Meeting – **September 14-15, 2021** @ Kearney, NE
* TAC *In-Person* Quarterly Meeting - **October 13, 2021**, @ Kearney, NE
* ISAC Virtual Quarterly Meeting – **November (TBD), 2021**
* GC Special Session – **November 10, 2021**
* GC Quarterly Meeting – **December 7-8, 2021** @ Denver, CO

Henry thanked everyone for the active participation and the progress made.

Meeting adjourned at 5:00 PM Central Time.