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

Technical Advisory Committee (TAC) Virtual Meeting

Wednesday, October 13, 2021; 1:00-4:00 PM CST

Meeting held online via MS Teams

Technical Advisory Committee (TAC)

State of Wyoming
Barry Lawrence – Member
Jeremy Manley – Alternate

State of Colorado
Jojo La - Member

State of Nebraska
Elizabeth Esseks - Member

Upper Platte Water Users
n/a

Downstream Water Users
Jim Jenniges – Member
Brandi Flyr - Member

Bureau of Reclamation (Reclamation)
Brock Merrill - Member

U.S. Fish and Wildlife Service (Service)
Matt Rabbe - Member
Tom Econopouly - Alternate

Environmental Entities
Rich Walters – Member
Andy Caven - Member
Melissa Mosier - Alternate

Colorado Water Users
n/a

Executive Director's Office (EDO)

Jason Farnsworth, ED
Chad Smith
Patrick Farrell
Malinda Henry
Mallory Jaymes
Kaley Keldsen
Kari Mohlman
Tim Tunnell
Kevin Werbylo
Julia Grabowski
Tom Smrdel
Justin Brei
Kristen Cognac
Ed Weschler

Other Participants

Jeff Runge - USFWS
Joel Jorgensen – NGPC
Melissa Marinovich – NGPC
Dan Sternkopf – NE DNR
Bethany Ostrom – Crane Trust

WELCOME & ADMINISTRATIVE

Merrill called the meeting to order at 1:00 PM Central Time.

AGENDA MODIFICATIONS

No agenda modifications were made.

MINUTES

TAC MOTION: *Rabbe moved and Caven seconded to approve the July 14, 2021 TAC Virtual Meeting minutes.* Minutes approved.

07_14_21 PRRIP TAC Virtual Meeting Minutes APPROVED

LAND MANAGEMENT

Palustrine wetlands

Farnsworth gave a short overview of Program objectives for obtaining and managing palustrine wetlands for off-channel use by whooping cranes (WCs). Tunnell reviewed habitat restoration efforts and maintenance costs for each of three palustrine wetland properties owned by the Program: Fox, DeBoer, and Liehs. Jaymes summarized WC response to this off-channel habitat by presenting data from PRRIP aerial monitoring for WCs and locational data for telemetry marked WCs. Options were presented for two levels of decision-making: 1) keep or dispose of these properties, and 2) manage as WC habitat or for some other purpose. The EDO presented this memo to the TAC to obtain their feedback on how to best inform the GC for decision-making on the disposition and management of these palustrine wetlands through the remainder of the Extension.

Rabbe asked about water rights for the Fox and Liehs tracts. Tunnell said we have full rights on Fox, 30 certified irrigated acres on Liehs. Rabbe said his opinion would be to keep the Fox tract because it is Complex habitat and as a minimum serves as a buffer. Also, highest investment has been made in restoring this to a wetland from crop land. It is used by sandhill cranes, occurs in the middle of the migratory corridor so highest opportunity for use. What happens to the water rights if we do not pump the wetlands?

Rabbe said that flooding the corn field on Liehs is not a strategy he thinks needs to be continued. It is difficult to implement. He asked about the investment on Liehs. Tunnell reviewed construction and maintenance efforts on Liehs. Rabbe asked about the timing proposed for sale, whether to do so now or later is a GC decision. He suggested sale be contingent upon a conservation easement to preserve the investment made and the habitat created.

Tunnell responded re: pumping to fill wetland acres on Liehs. Farnsworth says the risk of losing certified water acres if don't use them is low, and it is relatively easy to switch from agricultural to wildlife habitat acres if we keep the properties.

Caven emphasized the importance of a conservation easement. He also noted that the Program breaks even on annual maintenance costs with income from ag leases, so not a financial sink to hold on to the properties. With regard to WC use, Caven thinks it is worth managing these wetlands to keep the opportunity for WC use open. He also suggested the EDO check for other non-target listed and non-

listed species of concern benefits that these properties may provide. He agreed with Rabbe to keep Fox; better WC and sandhill habitat.

La asked how selling these properties might affect land acquisition milestones. Farnsworth said the GC decided to shift these acres to OCSW. Farnsworth said the Program has some flexibility to sell some acreage since has hit the First Increment milestones and we have almost hit the Extension plus up. Rabbe suggested we keep Fox and Liehs with their infrastructure and water rights in place. If some other Complex land comes open on-channel that could be purchased upon selling this, maybe consider trading up. Rabbe said the Program document gives no requirement to meet, but the general agreement was "up to 800 acres".

Jenniges recommended that if the Program owns the properties, they should be managed for WC. Any shuffle of acreage from off-channel to on-channel should be run through the GC.

Merrill suggested the EDO add an estimate for sale price for each property to the Palustrine Wetland Memo that goes to the GC. This information would be helpful for decision-making.

La asked if there were any options for reducing management costs on these properties in the future as property taxes are expected to increase? Tunnell said that as vegetation establishes itself, noxious weed control should decrease. On Fox and Liehs, the electricity required for pumping is also included in maintenance costs. Farnsworth said that the decision to stop flooding the crop land on Liehs should bring an increase in the ag lease income on that property. Short answer is yes, there are other management options to either decrease cost or increase income.

EDO Memo: 03-Palustrine Wetland Memo

TAC RECOMMENDATION: *The TAC's recommendation to the GC is to continue to manage the Fox, Liehs, and DeBoer palustrine wetlands as WC habitat for as long as they are owned by the Program. The TAC recommends the Program keep the Fox tract as Complex habitat, situated in the middle of the migratory corridor, with use by sandhill cranes, and having existing infrastructure for pumping during WC migration. Liehs and DeBoer can be managed for WC for now but considered as banked for future land acquisition as opportunities for on-channel habitat arise. The TAC recommends sale of these tracts contingent upon a conservation easement to maintain restored habitat.*

WATER MANAGEMENT

Cottonwood Ranch Recharge Project

Werbylo quickly reviewed project objectives including the ancillary benefit of providing WC habitat during migration. He reviewed previous use of EA water to test project infrastructure and operations and provided an estimate of the acre-feet required to fill the project. The EDO presented this memo to the TAC to discuss the potential for using EA water to fill the project when excesses are not available for filling during WC migration.

Jenniges started the discussion by pointing out the inconsistency of this request to use EA water to fill this project with the Program document. This proposal is also inconsistent when considered together with the money invested in making on-channel habitat at Cottonwood Ranch more beneficial to WC. He stated that this use of EA water is not what the Program document intended for use with EA water.

Merrill reminded the group that EA water has been previously for testing flow operations, rather than specifically for in-channel uses. Rabbe agreed with Jenniges, stating this was not the intended purpose for EA water. The Service agreed to use EA water fill the project one time to test infrastructure. The Service also agreed to use EA water to perform the choke point test. However, during drought when there are no excesses available for filling the project, it is also likely that EA water will be limited and perhaps insufficient for carrying out prioritized science learning such as germination suppression. Esseks agrees with the inconsistency of this request in light of the Palustrine Wetland Memo just discussed. She asked if the project is intended to be a study, and if so, can we better define hypotheses and how they will be evaluated. Farnsworth said that the project's primary purpose is recharge. What is being presented as an option here is a secondary benefit for WCs. Farnsworth said he is hearing a "No" from the TAC in response to the question, "Do you want to use EA water to fill the project in the absence of excesses?" La asked whether this item will go forward to the WAC for consideration? Farnsworth said no formal decision is needed, based on this discussion the EDO will move forward with the original design for the project and normal operations. The WAC and GC will be informed of the discussion had today.

EDO Memo: 04-Cottonwood Ranch Recharge Project

TAC RECOMMENDATION: *The TAC's recommendation was not to use EA water to fill the Cottonwood Ranch Broadscale Recharge Project during WC migration when excess river flows are not available.*

2021 LEAST TERN & PIPING PLOVER PREDATOR MANAGEMENT ACTIONS AND MONITORING UPDATE

LT/PP Monitoring Protocol Update

Henry summarized updates to the Tern and Plover Monitoring and Research Protocol (2017) that were needed to reflect current science being done as the EDO develops the Extension Science Plan. These updates are being done by the EDO during the winter season to be ready for TAC review early in 2022. They will be included as attachments to support the Extension Science Plan.

2021 LT/PP Monitoring and Predator Management Update

Mohlman and Keldsen gave presentations to update the TAC on 2021 LT/PP additional predator management actions and monitoring efforts implemented in 2021. Mohlman provided a summary of LT/PP nesting and brooding. Keldsen summarized nest losses due to predation as documented on camera and provided examples of predation events captured on video cameras placed at nests as well as predators present on nesting peninsulas captured on site and shoreline trail cameras.

Jenniges asked about a plan for owl mitigation? Keldsen said to understand impact we need to continue experimental design. Jenniges said nest cages protect eggs, but not chicks. Question posed to the TAC: If you are willing to kill other predators, why not owls given data that support owls as a problem on a specific site? Henry asked how much data would be necessary to help make decisions on owl mitigation? Jim suggested data presented site by site to see site-specific problems. Henry said annual report will include this information.

Henry said the EDO is still working on the 2021 report. Before it goes out to the entire TAC, they would like to have species experts review it and provide feedback on a report that is changing gears from what

has been presented in the past. Will be providing long-term data to compare LTPP productivity metrics across years but really focusing on the science currently being done.

Caven reminded the group of Audubon and Crane Trust reservations about killing predatory birds. It is not the amount of evidence in question here. Would like to see a landscape analysis asking whether owl presence and predation by owls is related to perch availability (not just trees) over a landscape scale (not just within PRRIP property) to see what is mitigatable. Controlling aerial predators vs. meso-carnivores is challenging with potential non-target impacts. What methods would EDO propose and how reduce non-target impacts. Jenniges said Wildlife Services implements targeted shooting of owls with night-vision. For the Crane Trust to get on board, Caven said he would need a thorough landscape analysis to narrow down options for landscape level mitigation. Is tree density the best predictor of owl predation? Need to demonstrate that lethal removal of owls is really necessary. Farnsworth pointed out PRRIP does not own 2 km around every site, so asked what is meant by "landscape scale". How do we implement landscape scale mitigation efforts if we don't own the land? Caven suggested working over time with landowner agreements for tree removal. Lethal removal may create a gap filled by other owls. Caven reiterated need for analysis of what landscape factors are predicting owl predation, even if they are out of PRRIP control. Rabbe said avian predator control was implemented on Missouri River and could be looked into as a reference. Farnsworth summed up saying the EDO needs think about how many years of similar data would support taking action, next year may have different results. In the meantime, need to do a landscape influence on predation analysis and return this information to the TAC for decision-making. Henry said that Keldsen's thesis included a similar analysis, testing vegetation height effects on predation, but the buffer used was relevant to PRRIP management and would need to be expanded to the wider scale suggested by the TAC today.

MS Teams Chat
Caven: http://kristinenemec.com/wp-content/uploads/2020/09/Final-Predation-Management-Plan-July-2-2-1.pdf
It looks like pole traps were effectively used in the Missouri River Valley.
These can be applied without killing target species, occassional they catch other raptors, but trapped species can be relocated or euthanized depending on program objectives. If we start controlling for GWOs, modified pole traps may be a useful first step that does not fully commit the program to lethal control, which may make Audubon NE and the Crane Trust, which have relatively broad bird conservation missions, more amenable to this effort.

EDO Presentation: 06-LTPP Monitoring and Predator Management Update

REACH-WIDE GEOMORPHOLOGY AND VEGETATION MONITORING UPDATE

Annual Reach-Wide Geomorphology and Vegetation Monitoring

Grabowski reviewed objectives, methods, and early take-aways from the EDO efforts to evaluate geomorphology and monitor vegetation and channel-widths at a reach-wide scale using remote sensing.

Farnsworth credited Grabowski and Smrdel for their work with this pioneering process and huge dataset which required refining data products and fine-tuning analyses over a large spatial scale. The benefit is that we can now use the data to answer questions over multiple spatial scales to provide information for decision-making. Report will be up for TAC review by February 2022 Science Plan Reporting Session.

EDO Presentation: 07-Reach-wide Geomorphology and Vegetation Monitoring Update

EXTENSION SCIENCE PLAN UPDATE

Development of Extension Science Plan

Henry gave a review of the prioritized hypotheses addressed in the Extension Science Plan. She presented the mechanistic hypotheses that led to the management hypotheses posed for each big question. The 3-step plan for pallid sturgeon will be included in the Science Plan. Hypotheses will be formalized with UNL and SIU researchers, but the focus will be on how flow affects pallid sturgeon use of and spawning within the lower Platte River. Predation's impact on plover productivity and the Program's ability to mitigate these impacts will be incorporated as Monitoring and Maintenance Science. Henry reminded the TAC of the remaining uncertainties in the parking lot that were reviewed by the GC at their September meeting.

Rabbe asked about the figure showing WC use during Spring and Fall in correspondence with flow. Data for WC do not seem to correspond to previous graph suggesting that at around 750 cfs percent of suitable habitat was maximized. WC use seems to peak (all instances over 10% of population) between 1500 and 2000 cfs. How certain are we about the <1ft depth for suitable WC roosting habitat? Is there science that supports a better estimate? Caven points out that habitat models highlight maximized habitat availability in terms of channel roosting depth, but WC may be selecting for maximized habitat quality or ponding through the landscape. Faanes work in 1990s suggested the average flow for WC stops was around 2600 cfs. Caven sees possible quadratic relationship centered from 1,500-2,500 cfs for proportional use and discharge. More data points might flush that out. Tension between model frameworks that look at roosting habitat availability and selection by WC. Trust publications support 30-32 cm depths as upper threshold. Rabbe pointed out geomorphology assessments may not coincide with biological assessments (based upon selection for multiple factors). Henry pointed out that geomorphological data are used to help inform predictions about prioritized flow hypotheses, noting multiple options for WC response (different forms of response curve). WC probably select for multiple factors at the same time. Farnsworth said the data show just as many low use points within the 1,500 - 2,500 flow range as high use points, probably due to multiple factors being involved. Should not focus on optimization of WC habitat as there is likely some range that is suitable or good enough. As we move forward, we will evaluate multiple alternatives, not just hydrologic metrics.

Jenniges said the telemetry data suggested time of day as an alternative to consider. Maybe the proportion of cranes crossing towards end of daylight is higher in the Spring than in the Fall. Henry said that the telemetry dataset had not been used to answer the question on why Spring use is higher, but it could be. Jason said time of day should be an alternative hypothesis to consider.

MS Teams Chat

Caven: Faanes, C.A., and D.B. Bowman. Relationship of channel maintenance flows to Whooping Crane use of the Platte River. Proceedings of the North American Crane Workshop 6:111-116.
2,680 cfs was the average from 1912 to 1987 per Faanes and Bowman.
Agreed with your statement Malinda/Jason (visual assessments of data plots are a bit dubious), but I bet a quadratic fits that data better than a linear equation, especially controlling for other variables. I have plotted some of the public sightings data, and I think as a functional form "quadratic" is the best regression equation fit.

EDO Presentation: 08-Extension Science Plan Update

PALLID STURGEON RESEARCH UPDATE

Pallid Sturgeon Habitat, Spawning and Genetic Research

Henry gave a brief update on SIU and UNL progress toward equipment purchases, student recruitment and training, and project start-up coordination meetings.

SIU

- Equip purchase orders approved – scheduling delivery/installation/training on GT-seq equipment
- Ricky, Ed's current PhD student working on SNP linkage map, staying until May of 2022
- Ed is screening grad students and has good prospects – likely onboarding in May of 2022.

UNL

- UNL student introduction – Jenna Ruoss (PhD student) and Christopher Pullano (MS student) will begin working at UNL in late October.
- Telemetry transmitter/receiver testing – deployment points for receivers, develop detection probabilities, viable range, students getting on the river late Oct to see dynamic changes, testing telemetry (what it can do, what are the limits), optimizing the telemetry system.
- UNL interested in publicizing the project thru media outlets, will go through EDO (me, Jason, Bridget as Outreach Coordinator first).

Startup meetings scheduled for late November to early December.

No questions or comments were offered by the TAC.

WET MEADOW HYDROLOGY

Wet meadow hydrology study

Farnsworth began with historical context for this study. What is the relationship between groundwater, precipitation, surface water inputs on wet meadow hydrology? Program invested in collecting a large complex dataset, now into the Extension want to invest in analyses to address these questions and finish what we started. Cognac, groundwater modeler, has been working 6 months. EDO wants to hear TAC feedback on this study to make sure we do the analyses in a way that we are answering questions the TAC wants answered.

Cogniac presented her work in moving forward with EDO objectives for gaining a better understanding of factors that influence wet meadow hydrology. Proposed study objectives in terms of understanding wet meadows themselves. Cogniac has finished data QC and has begun testing analytical models. She will compare analytical and numerical models to provide a recommendation for which method to utilize as she proceeds through the outlined workflow presented. Analyses would compare native wet meadow (Shoemaker) vs. restored wet meadow (Fox). Restored sites may miss the mark due to altered hydrologic regime. Shoemaker can be used as the reference site for developing targets and hydrologic vs. meteorologic ways these targets can be met. Then compare to Fox to see where it may miss the mark and which management strategies might be most effective and efficient for helping improve wet meadow hydrology.

Farnsworth asked where the TAC wants the EDO to go with analysis of wet meadow hydrology to put a bow tie on the wet meadow issue? Do you want us to do analytical or numerical models to develop

good groundwater and surface water models to compare physical and hydrological characteristics? Do you want to put water on these meadows for management or not? Would you want to understand the uniqueness of Mormon Island and Binfield, characterize them in terms of hydrology, to better understand whether we can export some of that information to better manage other sites? Does the TAC see the time and effort devoted to this as useful to the Program or to other land managers?

Caven said he thinks it is important to understand what flows and duration are necessary to support wet meadow function/vegetation? Past work (Henszey, Currier) supports importance of 1-2 weeks in spring for supporting vegetation. Potential for relatively short periods of inundation having larger impacts for sustaining wet meadow vegetation, taking into consideration time for water to percolate into the meadows. Ecosphere Mormon Island publication coming soon that could parallel results obtained here. Vegetation hydraulic lift could be a confounding issue (especially in spring). Agriculture, cottonwood evapotranspiration, etc. contribute to the complexity of the model. Caven interested in knowing what flows you need to maintain characteristic wet meadow vegetation at Fox. Cognac asked about methods for modeling hydraulic lift. Caven mentioned random forest regression model.
La: Hesitant about development of models without on the ground verification. Also uncomfortable with the development of hydrological targets. Harkens back to the development of target flows with theoretical models. What do they mean? Farnsworth does not anticipate proposal for flow targets for wet meadows. Effort is to understand/assess what you can do at specific locations during certain conditions. What you can do is probably very dependent upon where you are at in the valley, the physical context of the site. Farnsworth was hoping for a tool as a product of this work that helps you realistically assess what you can and cannot do at a given site instead of a prescription for what you need to do to create habitat through the reach.

MS Teams Chat
Mosier: Hey - just one more question on the proposed study approach. I was wondering how often or what the plan would be for working with the TAC or other subcommittees and experts as you move through the study. Getting feedback on wet meadow targets, etc. I bet people will have more input to offer as you go through the process.
Caven: In case anyone has not gotten to stare at a wet meadow, here is a graphic from Mormon Island: https://www.youtube.com/watch?v=hNjqFWDlXdc

Farnsworth said modeling will not be an exercise to prescribe management and interested folks will be involved throughout the process with other updates to groups like the TAC.
Rabbe said the Program has collected the data, due diligence says use the data to see what it says and not be concerned about the political ramifications as that is a different decision framework. TAC objective is to do the science and let decision makers use it. Farnsworth said Framework for Second Increment is set up for a given quantity of water. GC decides how to use that. This tool along with all the others will be used to help GC decide when and where to use that quantity of water not how much water they need for a Second Increment. Rabbe said the tool can be used by others in the valley doing restorations.

TAC RECOMMENDATION: *TAC recommended to move forward with the wet meadow hydrology study as a tool (among the many tools developed for science learning during the Extension) for informing Second Increment water use planning by the GC.*

EDO Memo: 09-Wet Meadow Hydrology Update
EDO Presentation: 10-Wet Meadow Hydrology Update_presentation

NON-TARGET LISTED AND NON-LISTED SPECIES OF CONCERN

NT/NL Species of Concern

Henry reminded the TAC of guidance from the GC at their September quarterly meeting. GC told us that we were going to deal with NT/NL species in the Extension similar to the way they have been considered in the past, adapting management where/when necessary to avoid harm and provide benefits when doing so is compatible with target species goals. No formal hypotheses for testing in the science plan but taking advantage of low-cost options for prioritized species. The species of concern need to be updated. Use the committee structure from the bottom up, with any actions going to the GC for their approval. As a first step the GC wants to see a prioritized list of species and their distribution/occurrence within the AHR. Henry proposed two options for accomplishing this:

1. EDO works with Service to whittle down a list, then goes to TAC for review;
2. OR, TAC appoints a workgroup including Service and EDO to develop prioritized list.

Henry asked for any other suggested options or a TAC recommendation for one of the above options.

Rabbe is willing to help moving forward but asked for contributions from a wider group of species experts. Service has priorities for listing actions and numbers he can put forward to contribute.

MS Teams Chat

Caven: I can help on non-target species plans as needed. Keep me in the loop.
La: could you please remind me what the GC commentary on violets planting was?
Rabbe: They basically said we need more information as part of a larger strategy for addressing other species... that is what i gathered anyway.
Farnsworth: Yep. The GC wants an updated list of potential species of concern for their consideration. They then wish to handle situations where expenditures may provide Program benefits on a case-by-case basis.
Marinovich: Michelle Koch and I would be willing to help on the non-target species list too.
La: thanks Jason, given that request for more information. I just want to confirm that violets were included in the budget?
Farnsworth: Yes as a placeholder pending GC direction. That is how we generally handle situations where GC decisions lag behind budget development.
La: okay. thanks for the clarification

TAC RECOMMENDATION: *TAC recommended pulling together a working group consisting of the Service (Rabbe) and additional species experts to work with the EDO to develop a priority list of NT/NL species of concern.*

2022 ADAPTIVE MANAGEMENT DRAFT BUDGET

2022 AM Draft Budget

Henry briefly summarized the 2022 Budget and associated Work Plan. One modification that has come to light since sending out the document is the addition of a minimum of $70,000 for continuation of Grassland Vegetation Monitoring surveys. This amount would be added to the budget as an item contingent on discussion with the TAC, LAC, and GC on the value of continuing with these surveys.

Rabbe asked how whether the qualifications/criteria being set forth by the ISAC Selection Working Group were still being developed. Smith said the process of selecting ISAC members is not a budgeted item. Handled by Smith, Rabbe, the rest of the GC appointed selection panel, and ultimately decided by the GC. Draft documents are being edited and will go out to the selection panel for review.

Lawrence asked whether $5,000 (4%) increase in fuel costs for WC flights costs is enough? Henry said flight costs are based upon bids received (which include flight fuel costs). The EDO used the highest bid received for the Fall 2021 season and added extra fuel costs to estimate budget amount. She does not expect cost to much different from the estimate provided.

EDO Document: 11-FY 2022 PRRIP AM Draft Budget and Work Plan

MS Teams Meeting Recording Link

TAC MEETING REVIEW & WRAP-UP

No action items resulted from the meeting.

November 10th GC *Virtual* Special Session – Budget and work plan review.
November 16th ISAC *Virtual* Quarterly Meeting – Review of DRAFT Extension Science Plan. TAC invited.
December 7-8th GC In-Person Quarterly Meeting in Denver, CO.
January 12th, 2022 TAC Quarterly Meeting, In-person, Kearney, NE
April 13th, 2022 TAC Quarterly Meeting
July 13th, 2022 TAC Quarterly Meeting
October 12th, 2022 TAC Quarterly Meeting

Henry will send out calendar invites for above-listed Quarterly TAC meetings. Asked for TAC preference regarding In-Person or Virtual meetings for 2022? Proposed January and July meetings as in-person meetings at a minimum. Rabbe said the Service may allow in-person meetings starting in January 2022 but still uncertain. Rabbe said his preference was for in-person meetings but appreciated flexibility to allow virtual participation. Merrill supported in-person meetings with a virtual option for those impacted by restrictions on travel and attendance at in-person meetings.

MS Teams Chat
Manley: I agree with the option to attend virtually. Currently, our Agency is teleworking due to Covid.
Mosier: Great presentations – thank you!
La: thanks all, bye!

TAC RECOMMENDATION: *TAC recommended to schedule 4 quarterly meetings as **in-person** meetings retaining the virtual option for those members with mandates restricting attendance at in-person meetings.*

TAC MEETING END

The TAC meeting concluded at 4:00 PM Central Time.