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

Technical Advisory Committee (TAC) Virtual Meeting
Wednesday, April 12, 2023; 10:00 AM - 5:00 PM CST
Meeting held in-person at ED Office in Kearney, NE

Technical Advisory Committee (TAC)

State of Wyoming
Barry Lawrence – Member
Jeremy Manley – Alternate

State of Colorado
Kara Scheel – Member

State of Nebraska
Caitlin Kingsley - Member

Upper Platte Water Users
n/a

Downstream Water Users
Dave Zorn – Member
Brandi Flyr – Member

Bureau of Reclamation (Reclamation)
Brock Merrill - Member

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

Environmental Entities
Rich Walters – Member
Amanda Hegg - Member
Carrie Roberts – Member
Melissa Mosier – Alternate

Colorado Water Users
Jason Marks - Member

Executive Director's Office (EDO)

Jason Farnsworth, ED
Malinda Henry
Justin Brei
Tim Tunnell
Patrick Farrell
Mallory Jaymes
Kaley Keldsen
Jason Bruggeman
Jonathan Wentz
Seth Turner
Jason Bruggeman
Sarah Fancher
Ed Weschler
Helen Davis
Kristen Cognac
Libby Casavant

Other Participants

David Baasch – Crane Trust
Andy Caven – Intl. Crane Foundation
Jean Eichhorst – NE DNR
Melissa Marinovich – NGPC

WELCOME & ADMINISTRATIVE

Scheel called the meeting to order at 10:05 AM Central Time.

AGENDA MODIFICATIONS

No modifications offered.

01_04-12-2023 PRRIP TAC Meeting Agenda

MINUTES

Lawrence suggested lines 486 and 487 on pg. 11 be deleted as they were redundant with lines 458 and 459. Kingsley pointed out an error in the affiliation of Mike Archer. He is with NGPC, not NE DNR. She also pointed out a couple more typographical errors in the document. All modifications were accepted to finalize the minutes.

TAC MOTION: *Walters moved, and Zorn seconded to approve the January 18, 2023, TAC Meeting minutes with the above-mentioned changes.* Minutes approved.

01-18-23 PRRIP TAC Meeting Minutes FINAL

TAC MEETING FORMAT

New Format for TAC Meetings

On 3/27/2023 Scheel, Zmak, Rabbe, Merrill, Farnsworth, and Henry met to discuss the following points:

- Meeting frequency and duration
  Scheel asked the TAC about scheduling and format for TAC meetings. She suggested the option to schedule the January TAC as virtual given the poor driving conditions that may occur in January. Henry said the January meeting usually has quite a few technical reports and products for TAC review and discussion. She thinks in-person discussion is important to improve on these products prior to GC approval. The TAC decided to continue to schedule 4 quarterly in-person meetings a year. The TAC may work offline in smaller groups or hold virtual meetings to fill gaps and address items as necessary. Zmak suggested at a previous meeting the option to hold in-person quarterly meetings as two ½ day meetings. The TAC agreed to setting these meetings on Tuesday afternoon and Wednesday morning. This will begin with the July 18-19th TAC meeting. The October TAC meeting is scheduled to coincide with the Fall ISAC meeting to which TAC are also invited to attend from October 10-12th, in Kearney, NE. The EDO will communicate with the TAC on an agenda for the October meeting in advance. Jenniges (via email) asked about rotation of this meeting to different states. Scheel suggested Lake McConaughy as a possible venue. Henry said April might be best for EDO Biologists to travel if needed because they are not in the field yet. July travel would take them away from monitoring. Marks asked about combining TAC meetings with GC meetings. Henry explained that the timing of TAC meetings is designed to allow the TAC to review information and the EDO to revise as necessary prior to passing that information on to the GC, so might be best to keep those meetings separate. Kara asked how many TAC members were also on other committees like the LAC or WAC. Perhaps pair the TAC with the WAC? The TAC decided to keep all 2023 TAC meetings in Kearney, NE. For 2024, the option to rotate to other locations will be considered, potentially pairing these meetings with those of the WAC. Jenniges (via email) also suggested some

time be set aside at TAC meetings for the TAC to meet without the EDO present. In a 2-day meeting format, the first hour could be reserved for TAC only. Farnsworth asked what the value would be in meeting without the EDO to discuss technical content generated by the EDO, wouldn't it be more productive to have those folks that worked on the science in the room to receive feedback. Flyr said it may be useful for the TAC to further digest research and products prior to EDO presentations and discussions. Zorn said it may be helpful way to encourage more TAC member involvement. The TAC decided not to set a standing 1-hour agenda item, but rather ask for this time on a case-by-case basis as needed. Henry said she would be relying on the TAC to let her know when she needs to include this in the agenda when they respond to her request for agenda items in advance.

- Action items, motions, recording TAC viewpoints
  Scheel said agenda items requiring TAC action (e.g. providing TAC guidance, naming working group members, etc.) or motions (i.e. TAC recommendations going to the GC) will be pointed out on the agenda under each topic. In addition, those items will be summarized in the minutes. As pointed out by Jenniges (via email), the TAC charter says that the TAC will operate on a consensus basis. When consensus is not reached, all viewpoints will be documented in the minutes without an indication of majority or minority opinion. Those viewpoints will then be presented to the GC for guidance on how to proceed.
- Stakeholder engagement and communication with GC representatives
  Scheel talked about ways to improve stakeholder participation and engagement. Rabbe mentioned implementing more of a rotation of TAC participation on workgroups to broaden the experience across TAC membership. Scheel will take the lead on eliciting feedback from a wider range of TAC members and asking for volunteers for work groups as needed. Henry mentioned this could be done by asking for feedback by stakeholder groups rather than singling out individuals, to try to get a balanced view of TAC opinion and advice. Henry reminded that the role of the TAC is to keep their GC representatives informed on Program science and technical issues (tasks, methods, and timelines) so they have more information for decision-making. Scheel suggested we wrap-up each TAC meeting with a recap of science/policy items from each TAC meeting to be brought to the next GC meeting for their consideration. The TAC minutes should include a bulleted list of items for briefing the GC prior to their next meeting.
- Timeline for TAC discussion topics
  Henry will continue to reach out to the TAC about a month prior to TAC meetings with a list of tentative agenda items from the EDO (items needing to move forward through the committee structure). She will ask the TAC to contribute additional agenda items they would like to discuss, any supporting documents, and suggestions for the timing of these discussions (e.g. next meeting, to correspond with LAC/WAC/FC/GC calendar, prior to budget meeting in October, next year, etc.).

TARGET SPECIES

Pallid Sturgeon Lower Platte River Hydraulic Model RFP

Casavant reviewed the context and summarized the content of the RFP. She asked for TAC feedback on the scope of the RFP. Scheel asked why we need the model now as UNL is collecting data? Farnsworth said yes, should be several modeled flows through the system to be ready for UNL needs for pallid research. We are doing it now to help inform UNL science. Rabbe asked for clarification on pages 3 and 4 of the RFP in terms of the roles of UNL, EDO, and consultant. Farnsworth said the EDO is bridging a gap

between UNL operating on the day to day scale of fish tracking and the broader scale across which a consultant will be developing the model so they fit together. Rabbe suggested the EDO modify the text to make this collaboration more evident, clearly stating that UNL, EDO, and the consultant will work together to make sure the scope of the model fits the ecology of the fish. Zorn asked if the model will be based on 2022 Fall LPR LIDAR. Farnsworth said yes. The idea is not to use the LIDAR-informed model to characterize the point locations where the fish were detected, but rather to use the model to inform general patterns of habitat availability over larger segments of the river. Challenges are the gaps in LIDAR information. Contractor selection will take into consideration the ability to model that gap as well. Farnsworth said the selection panel evaluating the modeling contractors should include a specialist for evaluating modelling RFPs. He asked the TAC to let their GC members know they will need to name this person at the June GC. Walters reminded that this modeling effort was in the PS framework to tie UNL's data back to a water management study. The budget for this was included in Step 2 in that framework. We are doing it earlier rather than later to help UNL with habitat analysis, where the fish are relative to everything else out there. Zorn reminded the group that LIDAR conditions were conducive in the fall of 2022. Walters said now that we have the data we should use them to guide research on the front end. Zorn asked what causes good vs. bad LIDAR? Farnsworth said bathy-LIDAR is dependent on turbidity and depth. Lower Platte is more turbid than central Platte and you lose data at certain depths. Casavant demonstrated the "blanks" in the LIDAR data. Marks asked about the $250,000 budget, what was it based upon? Casavant said we are asking them to create the model, attempt to fill gaps, calibrate the model with boundary conditions, and run a bunch of scenarios that give habitat metrics at point locations. Farnsworth said high resolution over a large scale will take longer, require more effort, and cost more. Needing to massage the data to fill gaps will also take time. Brei added that to fill voids there may be field work or data processing involved that will add to the budget. Lawrence gave an estimate at $300,000-350,000. Scheel asked if there were concerns about river channel change over time – temporal mismatch. Farnsworth said it will be a "reach scale" analysis not point locations for pallids. UNL is collecting metrics like depth and velocity at use locations to provide a distribution of depth and velocity at use locations at a given flow. This is to be compared to reach scale distributions of those characteristics from the model. If we have a large flood that can really change the geomorphology of the channel, LIDAR flown only once prior to that change may not be useful.

Document: 03_ PRRIP LPR Modeling RFP
Document with TAC revisions: 03_PRRIP RFP for LPR Modeling_TAC reviewed

LTPP Predator Monitoring Manuscript
Keldsen introduced a draft manuscript written as a chapter of her MS thesis that is directly relevant to EBQ 9 which asks about the effectiveness of Program management to mitigate predation on terns and plovers. Henry asked the TAC to suggest a process for internal Program review of this manuscript prior to submission for publication. Rabbe asked regarding authorship. Keldsen says authors will be UNK committee members and EDO staff. Rabbe asked if EDO office will use PRRIP affiliation or Headwaters? He mentioned that if an EDO manuscript does not align with PRRIP committee viewpoints as it moves through the committee structure, there has been an option in the past publish as a HW publication. Farnsworth said this is directly relevant to Program questions and management, so the EDO will work together with Program committees to likely publish as a Program publication. Henry asked if the TAC wanted tern and plover specialists among them to review the document first prior to full TAC review. Baasch said the process would be more efficient if reviewed by the full TAC at onset. Farnsworth suggested the EDO send out the document for TAC review in May, the EDO revises in June, and the

revised document goes back to the TAC for a second review and approval for submission at their July TAC meeting.

WC Telemetry Workgroup Update

Henry updated the TAC on PRRIP's request to collaborate with the WC Tracking Partnership (WCTP) to evaluate factors associated with stopovers, stay length, and seasonality (EBQs 4-6). The TAC telemetry workgroup outlined a tiered study plan designed to incorporate corridor-wide non-manageable factors important for WC stopover decisions into regional and Platte-specific analyses to get a better idea of the effect size land and water management may have in terms of WC use of the AHR. The draft served as a starting point from which to collaboratively develop study design and analysis with the Partnership. This draft study plan was reviewed by three members of the WCTP (Bidwell, Pearse, Butler). The EDO met with this group the morning of the TAC meeting to receive feedback. Henry said the WCTP did not have any reservations about working collaboratively with telemetry data collected by the WCTP on the regional (Niobrara, Loup, Platte) or Platte-specific study design. The WCTP voiced concerns regarding the request for data and collaborative analysis on a corridor-wide scale. They requested we narrow the Tier 1 scale of analysis to include NE, KS, OK, TX rather than the entire US migratory corridor. Reasoning included: amount of effort required, explanatory variables unavailable or not applicable at a corridor-wide scale, and overall doubt about the applicability of corridor-wide patterns to Platte management. Henry also heard interest by WCTP members in investigating what they previously considered "nuisance" variables, specifically weather. They suggested narrowing the scope of Tier 1 as an initiation of our collaboration, to serve as proof of concept with the potential to expand later to include other rivers of interest. Baasch asked about the inclusion of North and South Dakota? Henry said those states were not included in the limited scope suggested by the WCTP. Rabbe asked for clarification on what data we will get within the narrower scope suggested as a starting point. Henry said we would work with all locations (in flight and stopovers) within that scope. The WCTP suggested providing us with pre-calculated values for distance or time since last stopover associated with each point within the narrower scope. Henry said she would prefer to calculate these values from raw data. Baasch expressed concern about the amount of effort involved in getting landscape metrics for the habitat analysis. Baasch asked about flow data available throughout these river systems. Farnsworth said there are USGS gaging stations throughout that should be sufficient for some basic river flow metrics. Farnsworth said this NE south to TX analysis would use coarser scale landcover products like the National Landcover Database. Data are not available at a fine scale of detail over this broader region like they are for the Platte. The EDO will revise Tier 1 of the Study Plan, narrowing the corridor-wide scope to initially include only NE, KS, OK, and TX.

Document: 04_WC Telemetry Study Plan
Document with revised Tier 1 scope: WC Telemetry Study Plan_04272023

WC Monitoring Period Workgroup Update

Bruggeman summarized data reviewed and recommendations made by the TAC workgroup appointed to evaluate the need for adjustments to the WC monitoring period. The working group's recommendation is to modify PRRIP's systematic aerial surveys for whooping cranes in 2024 to occur between March 5 and April 19 (shift to earlier) for spring and October 15 and November 18 (shift to later) for fall. These changes would shorten the spring survey from 55 to 46 days and the fall survey from 38 to 35 days. The EDO asked the full TAC for formal consideration of the working group's

recommendations to modify the dates of whooping crane surveys in spring and fall of 2024. If the full TAC would like to make this recommendation, it will be presented to the Governance Committee (GC) for their consideration in June 2023. Lawrence asked about budget implications. Henry said the survey period would be a little shorter so may reduce cost of flights. Baasch asked why include two graphs (old and new version of Figure 3 demonstrating proportion of Aransas Wood Buffalo population using the AHR and crane use days over time), and for how long? Henry said for documentation of change in protocol and for comparison purposes. Zorn likes the idea of seeing any years when monitoring period did not capture 5-95 percentile of WC observations. Henry asked if these changes effectively addressed the concerns voiced at the January TAC with regard to reporting our performance metrics over a consistent survey period that covers the 5-95 percentile of WC of observations. Zorn said yes. Scheel asked if the Program continues to survey if WC are still present in the AHR on April 20th? Bruggeman said yes, we would extend the survey period based on the protocol (until we have two consecutive monitoring days without any WC observations made by the Program). Rabbe said USFWS public sighting database will pick up birds outside the PRRIP monitoring protocol. Henry reminded that the first table in the report documents PRRIP observations on one side and USFWS observations on the other, so the reports will contain information from both sources. Rabbe would like to clearly state in reports that the number of birds, proportion, use days are not the total on the Platte. They are the number of observations made while implementing the PRRIP monitoring protocol within the specified survey dates. Rabbe also noted that USFWS regulatory periods will not change – work along the river during WC season for example will be limited over the USFWS regulatory period. Scheel asked if weather affects the timing of migration? Jaymes, Baasch, and Rabbe said yes. Bruggeman said the proposed study with the telemetry data should address that question formally. Using a 10-year average of when WC were observed within the AHR to adjust the monitoring period should take this into account.

TAC MOTION: *Walters moved, and Rabbe seconded to recommend the WC Monitoring Period and reporting of performance metrics be changed in accordance with the workgroup recommendations below.* Motion approved.

WC Monitoring Period

- 2024 Spring Monitoring Period - March 5 - April 19 (shift to earlier)
- 2024 Fall Monitoring Period - October 15 - November 18 (shift to later)
- Use 10-year rolling periods to evaluate changes in observation dates from USFWS public sighting database.
    - Survey dates established to encompass 2.5th and 97.5th percentiles of observations to provide a buffer.
    - Annually examine whether current established survey dates continue to encompass the 5th and 95th percentile of observations from most recent 10-year period.

Reporting performance metrics (proportion of AWB population and crane use days) over time:

1. Identify dates encompassing WC observations falling within the 5th and 95th percentile of observations made during the previous 10 years.
2. Determine number of WCs and crane use days observed between these dates.
3. Repeat steps 1 and 2 for each year back to 2007.
4. Report each season's performance metrics as those observed within dates encompassing 5th and 95th percentiles of observations.

5. Identify years in the past when survey periods may have been shorter and did not encompass 5th and 95th percentiles. Clearly denote these in report figures.

Document: 05_WC Monitoring Period Memo
Presentation: WC_monitoring_period_041223

NORTHERN LONG-EARED BAT

Northern Long-eared Bat Listing

Rabbe provided an update from the USFWS on the recent listing of the northern long-eared bat. The USFWS has put together interim guidance to follow as detailed in the documents provided. Three scenarios were outlined by Mark Porath in his cover letter in pdf below. Additionally, this document provides links to the NLEB Determination Key available in the Service's Information for Planning and Consultation Tool, and Interim Consultation Framework, Interim Habitat Modification Guidance, and gives dates for virtual training sessions provided by the USFWS on how to use the NLEB Determination Key with opportunities for drop in Q/A. Rabbe said If the Program has properties where trees are to be cleared between April 1, 2023 and April 1, 2024, we will need to go through determination key to help determine what to do next. Rabbe said the central Platte River is not a likely area of bat occurrence and has no NLEB documented records to date. Rabbe anticipates Program work is likely to be determined as "not likely to adversely affect". Marks asked for clarification on statement "Service doesn't think there is any occupied habitat at this time, but there is potential habitat." Rabbe said the interim consultation period will use the information users provide while using the determination key to help inform potential impacts (spatial distribution of tree removal). Determination key is a questionnaire style key that puts you into different categories of species impact. In determination key, PRRIP will enter its information as Federal Agency on behalf of Bureau of Reclamation. Farnsworth asked how this compares to older consultation process. Rabbe said the 2016 NLEB specific programmatic consultation is now null and void. Tree clearing is likely the only Program action where NLEB needs to be considered. After interim period, a new consultation will be initiated. Farnsworth asked about USFWS thoughts on baseline monitoring by the Program. Rabbe says to think about this after 1-year interim period. We are not at a consultation step in the interim. If will be doing any tree clearing, check in with Matt and use the Determination Key. Scheel asked if we have any tree clearing planned. Tunnell said yes, small project on Dippel. Farnsworth asked re: abandoned buildings. Program will need to check in with Matt on this later. Marinovich said NE state statute does not allow for take. Marinovich said if need to clear known suitable habitat as long as it is outside of the June 1 – July 31 pup rearing period, will avoid impacts to the bats. Rabbe said USFWS period to avoid is Apr 1 – Oct 31 to avoid impacts. NGPC acoustic surveys will feed the iPAC database to help inform occurrence rather than just potential habitat. Davis put together a plan for baseline surveys and periodic monitoring. Rabbe said having a management scenario in place is good in case guidelines change even if not necessary to use during the interim period.

Rabbe added after the meeting for clarification: *If PRRIP were to be involved with bridges, large culverts, or occupied abandoned dwellings, we would need to consider that separately. If I didn't state that, let these comments accurately reflect the potential suite of actions we consider.*

Documents: 06_NLEB Interim guidance Outreach_4-03-2023

LAND

Grassland Vegetation Monitoring

Rabbe introduced the 2022 Grassland Vegetation Monitoring Report and provided USFWS feedback on the report. Program is following recommendation to monitor for structure, but we may be at a point to manage for grassland health and attempt to shift away from cool season grasses. Rabbe suggested forming a technical group to review the report results on a tract-by-tract basis, as a group discuss what changes in management could be made. USFWS is in favor of diverse, native species dominated grasslands on Program properties. Walters said following drought and without the possibility to use fire for management recently can be limiting. Walters suggested the smaller group do some site visits and look at the corresponding data to make some recommendations before September 1st, 2023, so EDO has time to inform leasees if changes are to be made. Tunnell said we are not using the correct burn window to get rid of cool season grasses because we are limited by the Migratory Bird Treaty Act (MBTA). Rabbe said USFWS has some flexibility on burn window to benefit grasslands ecosystems and long-term health of migratory birds and nesting in Nebraska. Tunnell said we can burn when we want if we do bird surveys, but limited staff to do those while prepping LTPP season. Walters said the group could first determine what burn window would be most effective (what would be the ideal for Program grassland management), then communicate with USFWS to see what needs to be done to get that accomplished. Farnsworth talked about MBTA and grassland diversity tradeoffs. Walters said the Program needs documentation by USFWS for timing recommendations. Rabbe will look into any more up-to-date guidance on MBTA. Zorn said April 15 was the date specified, but May 15 was given as a more NE appropriate date (Porath via pers. comm.). This should be documented and communicated formally. May 15 would give us a longer window for a spring burn that would be more effective for reducing cool season grass cover. Fall burning is risky with dry corn acres, but it is an option that might be considered if conditions are appropriate. Walters said the workgroup can put together a "wish list" and work to see how to get that done. Rabbe suggested a single workgroup with TAC/LAC member overlap to work on this. Zorn asked if the workgroup will evaluate the report and/or make recommendations for potential management changes. Tunnell said the group needs to work over the summer. He anticipated a couple meetings between end of May and mid-July to have recommendations by August. Zorn said we are not going to change the report so is okay with approving the report as written and using it to make recommendations. Farnsworth pointed out that the 2022 report reflects vegetation coming off two wet years and then a dry one. He asked how much did dry conditions in 2022 impact degradation in grassland composition since 2019? Tunnel pointed out we have not been able to burn since last report in 2019. The EDO wants to make sure the workgroup points out real changes in vegetation community over time that are not just reflecting these short-term annual conditions and base their recommendations on that.

Rabbe added after the meeting as a follow up on this: *Given the long-term benefits to migratory birds and nesting habitat associated with grasslands, surveys are not required, and we are not recommending them prior to burning for other private or federal partners in Nebraska.*

TAC MOTION: *Rabbe moved, and Merrill seconded to recommend the 2022 Grassland Vegetation Monitoring Report be accepted by the GC.* Motion approved.

TAC ACTION ITEM: Appointment of TAC members to work together with the LAC on grassland management recommendations:
Point person will be Rabbe.
Walters/TNC
Hegg/Audubon
Jaymes/EDO
Merrill/Reclamation
Scheel/CO
Maybe Jay Smith/WY

Documents:
07_PRRIP GRASSLAND VEGETATION ASSESSMENT FINAL REPORT 2022
07a_USUSFWS Comments on PRRIP Grassland Vegetation Monitoring Assessment

WATER

Germination Suppression Implementation Plan

Turner briefly summarized the context and content of the Germination Suppression Implementation Plan. Baasch asked, do you see every being able to reach 30 days at 1500 cfs? Turner said, under wet conditions, yes. Turner said this is also why we are exploring Choke Point alternatives to help with delivery limitations during irrigation. Porath and Runge will fill the EA Manager role in 2023. Roberts asked what the justification was for the timing and duration (30-days) of the release? Henry, Rabbe, Farnsworth, Zorn said that 30 days is the management hypothesis we are testing based upon seed germination period for cottonwoods and willows, EA water budget, and Carter Johnson's publications targeting June inundation for reducing vegetation germination. If similar conditions to last year, release approximately 80,000 acre feet, leaving 50,000 to 60,000 cfs remaining in EA account following the release. Scheel asked why the USFWS imposed a 200 cfs buffer to stay below flood stage in 2022. Turner said without the buffer in 2022 would probably have given us another 150-200 cfs at Grand island later in the season, but would not have been enough to get us up to the 1500 cfs. Scheel asked if you need the buffer, or are you pretty confident in your ability to avoid flood stage? Farnsworth would hope we can abandon the buffer this year. FERC license says releases shall not intentionally go over flood stage, but no large flooding consequences if bump up against that. Water is already limited, so why not use the water we have to the best of our ability?

Farnsworth presented EDO plans for monitoring channel width and vegetation cover. He presented initial ideas for assessing the effectiveness of the germination suppression flow releases for maintaining unobstructed channel widths for WC roosting. Rabbe asked if Crane Trust had plans to build an upstream island to divert water back to the south channel? Baasch reported that Krohn said the Trust did not have plans to rectify this, as they would like to avoid downstream landowner conflicts. Baasch asked how much of the in-channel vegetation is cottonwoods vs. willows? Farnsworth said ECog does identify species, it classifies vegetation height, so we are examining vegetation community structure, not species composition. Farnsworth said that germination suppression flows are working well for areas where the channel is consolidated and under 1000 feet wide, but not so well in non-consolidated channels or those above 1000 feet wide (too wide for full water coverage at 1500 cfs).

Farrell reviewed the channel-width model as a tool for assessing effectiveness of germination suppression flow for maintaining channel width. With the implementation of 2020 through 2023

germination suppression flows, we can compare channel width we have observed over those implementation years to what our model predicted under drought conditions + June flow at 1500 cfs. We can then answer the question of whether or not those flows are maintaining width the way the model predicted they would. Farnsworth reviewed the evaluation of this using LIDAR and the resulting 2D hydraulic model to get us water depth. The percentage of points that transition from sand to vegetation decreases as the water becomes deeper.

Zorn asked what was the primary driver of these channel splits? Farnsworth said it is a suite of factors….deep faster water will feed itself and continue to make the problem worse.

TAC MOTION: *Rabbe moved, and Walters seconded to approve the Germination Suppression Implementation Plan for inclusion as a supporting document in Attachment #4 of the Extension Science Plan.* Motion approved.

Document: 08_PRRIP Germination Suppression Release Implementation Plan DRAFT
Document: 08_PRRIP Germination Suppression Release Implementation Plan FINAL_04-12-2023
Presentation: Germination Suppression Implementation Plan 23-04-12

Meteorological & Hydrological Drought Preparedness
Tunnell summarized the Program's land management response to meteorological drought. He mentioned stocking rates and modes of vegetation management, like fire, that are limited during drought periods.

Turner summarized the Program's water planning, management, and response to hydrological drought. He summarized surface water leasing and talked about how contributions from surface water leases are affected by drought. He reviewed how drought conditions reduce storable natural inflows into Lake McConaughy and accruals into the Pathfinder EA and Municipal Account. He explained that in dry years with lower base flows it takes more EA water to hit desired flow targets. Drought also impacts our ability to deliver water. Transit losses are higher for dry channels, so more water is required to achieve the same target flow. Drought conditions also accelerate irrigation demands, which in turn requires cutting back EA releases because of chokepoint capacity constraints. Recharge and recapture projects were also summarized. Wet to normal years are generally good for diverting excess flows into recharge projects. There are limited opportunities to divert excess flows in dry years, but increased opportunities for recapture well pumping. Greater amounts of baseflow accretions count towards deficit reductions. Baasch asked where Program water is that is to be used to reduce deficits in target flows. Turner said that EA is not specifically designed to reduce deficits (rather Adaptive Management water use testing). Surface water leasing and recharge are geared toward deficit reductions to target flows – scale is somewhere between 100 – 200 cfs of baseflow return for scoring purposes; more like 50 cfs in reality in terms of water running down the river.

Water Project Tour May 2-3rd
Turner reviewed the tour itinerary for TAC awareness and participation. If interested and have not yet RSVP'd, please do so immediately.

Document: 09_Water Tour Itinerary May 2-3 2023

RELEVANT SCIENCE ONBOARDING

Relevant Science Articles

Henry introduced two recently published articles directly relevant to Program science and habitat management for WC.

- Baasch et al. 2022. Whooping Crane (*Grus americana*) use patterns in relation to an ecotope classification in the Central Platte River Valley, Nebraska, USA. https://doi.org/10.5751/ACE-02311-170235
- Caven et al. 2022. Whooping crane stay length in relation to stopover site characteristics. https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1387&context=nacwgproc

Both primary authors participated in the TAC discussion. Henry set up the objectives for the discussion:

- TAC awareness
- TAC increased understanding of methods and results
- Opportunity to ask questions, receive clarification of methods/results
- Identify products or learning to incorporate into Program science

The EDO is asking the TAC to:

- Develop a plan for communication with GC
- Develop TAC recommendations to the GC based on discussion

Baasch gave a brief synopsis of **Baasch et al. 2022 Ecotope paper**.
Research objective was to look at landscape on a finer scale for defining wet meadows, ag fields, etc. What are the finer scale characteristics WC are looking for when in fields, grasslands, etc.? Looking at gradients in wetness across the landscape. At most three locations were used per bird, 1 location per bird per field. Rabbe suggested explaining how we looked at hydrology piece of this. 2005 Brei and Bishop landcover classes were the base with some merging of similar classes. This research added National Wetlands Inventory layers and flooding frequency data to identify wetter areas within these classifications. Henry guided the TAC through a list of questions provided by the EDO and TAC members (see 11_TAC Feedback Science Onboarding).

1) Why was the choice made to compare use locations to random locations available throughout the entire Associated Habitat Reach (AHR) rather than using a similar scale for available locations to that used in the Baasch et al. 2019 publications (Baasch et al. 2019a, Baasch et al. 2019b)? Baasch said the ecotope analysis was over a different scale, it was a population level type of analysis not individual level analysis. He also mentioned they had a data quality, spatial autocorrelation issue when considering choice sets, comparing “similar to similar”. The 95% migration corridor covers the AHR, so population level analysis is valid. Henry asked if they could provide summaries of use/available sets and distributions. Baasch says they have not yet summarized at this scale. Baasch was asked about accuracy of use locations. He said locations were estimated within ¼ mile.

2) How much overlap is there between the data used in the PRRIP diurnal use publication and the dataset used in this study? PRRIP used any first diurnal observation, not the diurnal daily follows. Baasch said the overlap in the datasets used is minimal.

3) No riverine diurnal use included in the Baasch paper. Why is that? Caven said the objectives were just off-channel, the research was focused on terrestrial land use. Caven cited Moore paper about hierarchical selection at different scales by avian species.

4) Why are ag wetlands and meadow marsh separated from other wetlands? Baasch said they are different landscapes. Utilized very differently by the birds. History is much different too. National Wetlands Inventory gives agricultural fields a different classification because they have been drained. Farnsworth, any ground truthing to see if ag wetlands are actually wet? Baasch said they looked at flooding frequency but did not land truth. Farnsworth, are you suggesting WC are pinpointing that small rivulet of ag wetland to use? Baasch said WC in croplands are in swales, not on ridges.

5) How were wetland types identified and delineated? NWI does not catch typical ag wetland features (% ag wetland is probably low in NWI, but the features are "low functioning"). For this paper Brei and Bishop Rainwater Basin Joint Venture was the base and added on NWI and flooding frequency. If NWI was wetland in mesic prairie, they made it a marsh meadow. Added info on flood frequency as a covariate in the model not as a habitat definition. Caven said river proximity had the most explanatory power.

6) The categories in Figure 4 are not evenly separated, how were they selected and what percentage of points falls in each category? Model only explains only 39% of variation in use. Probability of use is predicted by the model, but a fair number of observed use locations off the river were in the area predicted as low probability of use according to the model. Zorn asked if it would be more informative to break it up into bridge segments rather than across the entire AHR? Farnsworth asked if they looked at explanatory value of each variable in your top model? No, didn't go beyond scaled Z-score odds ratio. Caven said river proximity had the most explanatory power.

7) Management implications for Program? Baasch thinks a reevaluation of what the Program considers as "wet meadow" is in order. Low swales only of meadows = wet meadows. Fox is not a wet meadow; it is a slough not a wet meadow; doesn't have same soil or characteristics. Caven said there is additional value in ag wetlands rather than upland ag. Consider degrees of "wetness" in conjunction with landscape level classifications. Wetland areas have increased value for cranes; manage land with wetland soils, high flood frequency, depressions for WC; reduce investment in management of upland grasslands to maintain them in better health rather than low structure that WC are less likely to use. Baasch happy to see Program utilize the information and landcover product from their publication. Farnsworth asked the TAC to consider whether they want to make recommendations to the GC for further analyses. Should we take diurnal use dataset (WEST report diurnal use locations) and update it with new land use product and update the analysis? Baasch thinks this would be useful.

Caven gave a brief synopsis of the **Caven et al. 2021 Stay length paper**. Henry guided the TAC through a list of questions provided by the EDO and TAC members (see 11_TAC Feedback Science Onboarding).

1) How did you decide the number of points of each type used to characterize each unique stopover? One to two use locations were used to gather diurnal use site characteristics. Multiple roosts (all roosts) were used to gather roost site characteristics. Use locations were labeled as D1 or D2 or R1, 2, 3 or 4, and these denominations were included as a random factor in the model to help control for pseudoreplication.

2) Which explanatory variables were subject to Winsorization and/or multiple imputation and to what extent? How was missing data distributed among explanatory variables? Caven said distance variables were the only ones winsorized. 72of 79 variables has less than 30% missing data. Five of the seven variables with over 30% missing data were the substrate variables. Imputation filled in most values.

3) In Figures 2-3 many of your top explanatory variables vary less than 5% MSE from one another, and in Figure 5 your increase in stay length in response to some of those variables is less than a day. Do you have confidence intervals associated with these partial dependence plots? How did you choose which to focus on as important for whooping crane selection and habitat management? Caven said Figs 2 and 3 reflect variables that are additively explanatory for stopover length. If you have multiple of those top variables, they collectively are better predictors of longer stopovers. These figures show what variables add to or subtract from the mean stopover length of 2.5 days. They do have confidence intervals but were not included in the publication. Discussion includes these caveats, but could explain better how this model reflects the cumulative value of these variables, not picking specific variables that are most important for management or WC selection.

4) How is encouraging longer stayovers beneficial to cranes?
5) Program management implications?
Caven said the more the Program can provision longer stopovers the better from an available stopover habitat perspective. Moore thinks of this in terms of hierarchical decision to stop (energetic, environmental conditions) vs decision to stay (habitat quality). Consider broader literature to help interpret WC decisions. Stay length is a second type of indicator that should be considered. Longer stopovers means out of a fixed migratory process, longer stops at the Platte makes more of a relative contribution. Henry said longer stops are the minority of WC. Will knowing what characteristics surround long stopovers help inform management in some way? Caven said longer stops are probably associated with good foraging habitat. What is good for long stopover will also be good for shorter ones. Caven asked which birds are stopping longer. Are they a certain set of birds, or just every 10th bird at random that needs a longer stopover. If it is repeated long stopovers from the same few birds, then you will be managing for only a few birds, but if not then it is something that helps out every 10th bird at random complete its journey. Farnsworth said it is a question of parsing out how much money you spend on long stay vs. short stay birds if their requirements are very different. Are their differences in habitat used by longer vs. shorter stopover birds? The Program has never looked at this question.

TAC plan for communication to GC; any TAC recommendations
Rabbe asked if TAC sees any changes in management implications for the Program following from these publications? Walters suggested communicating to the GC that the EDO revised land classification to a finer scale based upon Ecotope article and will use it to evaluate roost site selection. Farnsworth asked if TAC wants EDO to reevaluate diurnal selection using this new landcover layer? Howlin/WEST report was done very differently and comes to a very different conclusion than the current Ecotope paper. Does the Program want to check in on diurnal use site selection again with landcover refinement to address current literature which suggests wet meadows are important? Do you want to get to 2nd Increment Negotiations without addressing this dichotomous literature? Rabbe again asked if anyone see changes in what we own, or how we manage it coming from these publications? Farnsworth said previous analysis said there was selection against wet meadow, current publication says wet meadows are important. How do you decide which lands to keep or get rid of with dichotomous information (buy on-channel or buy wet meadow)? Rabbe said USFWS wants to protect these areas as an off-channel buffer

at a minimum (no difference between wet meadow, corn, grassland as buffer). Farnsworth asked for clarification, as will impact what counts or not as we assess conservation lands counting toward Program milestones. Rabbe says two different studies with two different methodologies, so no clear cut decision will be made by them. Farnsworth asked if we need a ranking of importance of these landcovers to help guide priorities for ownership and management. As a GC member with two different conclusions, I would want an analysis to tell me that it is just the scale of the landcover vs. something else… why are they different? Caven said the original PRRIP diurnal use publication in 2019 said over the corridor wetlands are important, but not on the Platte. So why is the Platte weird, or is it? Farnsworth said an analysis like this may help us define WC used wet meadows. Caven suggested using telemetry data (old and new) instead of using WEST Report data. Scheel asked about timing and effort? EDO will get back to the TAC with a summary of where we got to today. The EDO will also provide the TAC with information on timing and effort for a reevaluation of WC diurnal use site selection. TAC will review that before it goes out to the GC for their consideration in June.

Jenniges comments via email prior to the TAC meeting:

TAC plan for providing information on these publications to the GC:

I personally don't see the need to specifically address these papers unless someone is pushing to modify Program actions or requirements because of them. They like all other papers out there provide information. If someone uses any publication to propose the Program modify current management or implement some AM experiment because of the information found in a publication, then I think the TAC needs to look at the overall picture for why those management actions are being suggested or an AM experiment is being designed. Is there a proposal to modify management or design an AM experiment?

For example, both of these papers predict a response by whooping cranes to a management action that can be implemented in an AM kind of way. In my opinion if the results of these papers are taken together and getting more cranes to stay longer is a desired outcome of the Program than making wetlands in alfalfa fields would be an alternative action to restoring wetlands in grasslands (wet meadow restoration). Is that something the TAC or Program wishes to explore? If we have a cornfield we plan to do something with I would support such an experiment. Personally, I would not suggest taking restored grasslands and making them alfalfa fields, but we can discuss it.

TAC opinion based on current understanding of these two recent publications on whether the Program needs to go back and do a finer scale analysis on diurnal use site selection characteristics. Does the TAC recommend the Program conduct a check-in analysis to reevaluate diurnal use wet meadows by whooping cranes on the central Platte River? My biggest issue with both papers, many other papers on habitat selection and much of the current habitat selection analysis being done by the Program that looks at what is in some area around a use site but never has documented use is that we are assuming some decision-making criteria to a critter that may or may not have ever been a factor. If the crane did not use it or avoid it, how do you know it made any difference in their decision making. Based on lots of literature whooping cranes in migration avoid disturbance and things that restrict sight distance to some degree, and they select for places to forage, drink, rest, flirt (scientific term for pair bonding) so if they did not use it or avoid it how did it play into decision making?

With that said I support going back and doing a check in. Given the current staffing levels of the EDO it should even be feasible to start following cranes around all day again or at least some randomly selected subset of them, if that is desired.

Documents:
10_Science Onboarding Articles
11_TAC Feedback Science Onboarding

TAC MOTION: No motion made at this time.

TAC ACTION ITEM: The EDO was asked to put together a summary of what the TAC discussed with regard to the Baasch et al. 2022 publication on WC use patterns in relation to ecotope classification in the CPR. The TAC will review and revise the summary as a means to communicate information to the GC on the Baasch et al. 2022 publication including:
1) identification of any products or learning that may be useful to incorporate into Program science,
2) identification of potential implications for the Program, and
3) recommendation of alternatives for moving forward in light of this information.

FUTURE AGENDA ITEMS

Future TAC Agendas

Scheel asked the TAC for suggestions for future agenda items. Henry will send out an email prior to the July TAC meeting asking for agenda items and whether 1-hr of TAC only time is needed.

TAC MEETING REVIEW & WRAP-UP

Meeting Feedback

Scheel circled back with the TAC for feedback on the new TAC meeting format implemented at this meeting.

ACTION ITEMS

EDO:

- Change language on page 3 of LPR modeling RFP to clarify collaborative effort prior to sending to GC for their review.
- Send out the draft LTPP Predator Management manuscript for TAC review in May, the EDO revises in June, and the revised document goes back to the TAC for a second review and approval for submission at their July TAC meeting.
- Revise Tier 1 of the WC Telemetry Study Plan, narrowing the corridor-wide scope to initially include only NE, KS, OK, and TX.
- Recalculate WC performance metrics based upon 5-95% rolling 10-year window from 2007 forward for inclusion in Spring 2023 WC Report.
- Use NLEB Determination Key and check in with FWS prior to tree removal planned for Dippel tract.
- Attach the Germination Suppression Release Implementation Plan to Attachment #4 of the Extension Science Plan.
- Put together a summary of what the TAC discussed with regard to the Baasch et al. 2022 publication on WC use patterns in relation to ecotope classification in the CPR.

TAC:

- Inform their GC members that they will need to name a specialist to the selection panel evaluating modeling contractors for the Lower Platte River at the June GC.
- Review a DRAFT manuscript on LTPP Predator Management in May and again in July prior to submission for publication.
- Appointed TAC members will work together with the LAC on grassland management recommendations.
- Review and revise the summary put together by the EDO on the Ecotope article as a means to communicate information to the GC.

TAC MOTIONS

- January 18, 2023, TAC Meeting minutes approved.
- TAC recommendation to change WC Monitoring period beginning in 2024 to March 5 - April 19 for spring and October 15 - November 18 for fall. Recalculation of proportion of AWB population using the AHR and crane use days each year back to 2007 based on observations falling within the dates encompassed by the 5-95th percentile of observations for that season.
- TAC recommendation to approve the 2022 Grassland Vegetation Monitoring Report.
- TAC approval to attach the Germination Suppression Release Implementation Plan to Attachment #4 of the Extension Science Plan.

Future calendar events:

- **July 18-19, 2023** 3rd Quarter TAC meeting, Kearney, NE
- **October 10, 2023** 4th Quarter TAC meeting, Kearney, NE

TAC MEETING END

The TAC meeting adjourned at 4:50 PM Central Time.