PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM
Technical Advisory Committee Meeting Minutes
Executive Director's Office Conference Room – Kearney, NE
January 24, 2013

Meeting Participants

Technical Advisory Committee (TAC) Table
State of Wyoming
  Mike Besson – Member (Chair)

State of Colorado
  Suzanne Sellers – Member (WebEx)

State of Nebraska
  Brandi Flyr – Alternate (WebEx)

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

Bureau of Reclamation (BOR)
  Brock Merrill – Member

Environmental Entities
  Mary Harner – Alternate

Upper Platte Water Users

Colorado Water Users
  Kevin Urie – Member (WebEx)

Downstream Water Users
  Mark Czaplewski – Member
  Jim Jenniges – Member
  Mark Peyton – Member

Executive Director's Office (EDO)
  Chad Smith
  Jason Farnsworth
  Dave Baasch

Other Participants
  Clayton Derby (WEST)
  Shay Howlin (WEST)
  Eliza Hines (FWS)
  Mike Fritz (NGPC)
  Gary Lingle (AIM)
  Pat Engelbert (HDR)
  Rick Krushenisky (Flatwater)
  Bob Mussetter (Tetra Tech)
  Jeff Runge (FWS; via WebEx)

Welcome and Administrative

Besson called the meeting to order and asked for agenda modifications; none offered.

PRRIP Data Requests

None available

Scientific Articles

None available

Whooping Crane Data Analysis Plan

Howlin lead the discussion and went through comments Baasch and Hefley provided West that were included in the document that was distributed to the TAC and the group first discussed habitat selection at the system scale. Howlin stated West proposed using discrete choice models to evaluate habitat selection because it allows habitat availability to change through time where poison point process models wouldn't; Baasch and Hefley agreed and supported the use of discrete choice models. Howlin pointed out that habitat metrics assigned to random or available points in the discrete choice model would be based on habitat conditions (flows, etc.) available throughout the system when the whooping crane selected the use area on the Platte River.

Howlin stated they planned to use the first location of each crane group in the system-scale habitat selection analysis. Baasch stated, based on FWS Crane Group ID's, he believed there were only about 60 individual crane groups documented within the study area between 2001 and 2012 which included crane groups reported by the public and asked Howlin and Derby if they felt that was enough data to conduct an analysis the Program could use to inform management at the system scale. Smith stated the ultimate purpose of the analysis is to answer Program questions such as 'what is the best channel width for whooping cranes' and the Program needs to know the analyses will provide answers to inform management. Howlin and Derby indicated they felt the Program had enough data to inform in-channel management actions, but perhaps not off-channel management. Hefley stated that if we aren't detecting a response to management actions over time, the Program could consider conducting a power analysis to give an indication of how much data we would need to detect a change. Runge added the power analysis might help inform not just the number of individual sightings needed but also the amount of habitat change (i.e., channel widening) that would be need to overcome the variability in the data to detect a change in the response. Howlin stated habitat selection analyses wouldn't be able to detect a change because the models are designed to highlight correlations between habitat and use. Hefley stated we could apply the model to habitat conditions over time to see if we could detect a change in the overall predicted suitability of the Platte River over time and if not we could do a power analysis to determine how much data we would need to detect a change; Howlin agreed. Jenniges stated a first step should be to compare results of this analysis to what was reported in the 2008 report to see if the results are the same or not and the next step would be to see if Program habitat management actions have resulted in conditions that should maximize probability of use. For example, if 300m channels maximize use, then look at the data to see if the Program has increased the availability of this habitat condition and make a determination of whether or not the Program can maintain those conditions with water. Farnsworth stated the type of locations used in each analysis and rationale for why various methods were used should be explicitly stated in the data analysis plan.

Baasch asked how many parameters and models we would be able to evaluate in the system-scale analysis given we only have 60 use locations; Howlin suggested if the final model had a 10:1 ratio between use locations and parameters we would be fine. Rabbe asked how many parameters were included in our minimum habitat criteria because he felt that 1 of the models we would test would include those metrics; Howlin stated she believed we had 8 criteria, but that we should test individual parameters to develop the best model. Hefley stated if the Program is more interested in prediction than understanding than we could potentially over-fit the models more and get more out of the data; Howlin agreed and stated evaluating data for understanding (probability curves for individual parameters) and predictions (probability distribution maps) are 2 different purposes.

Baasch asked if we should consider generating random locations according to the probability distribution within the migration corridor or including a quadratic effect of river mile to account for the fact whooping cranes are more likely to migrate through the Kearney to Grand Island area than Lexington to Overton area; Howlin stated including an effect of river mile would be preferred. Hefley stated we could fit a gamma distribution or spline to help center the effect on the migration corridor; Howlin agreed and suggested we could also consider a quadratic effect of distance from the center line of the migration corridor. Baasch asked if the Program should consider looking at proportion of habitat types within a 3 mile buffer of used and available points, which is supported by preliminary analyses of home range size around stopover sites for telemetry birds, rather than individual points themselves so that we could evaluate selection of habitat at the scale of a complex; Hefley added including various buffer sizes would help address local versus landscape scale selection; Howlin agreed. Farnsworth stated 1 of the buffers should have a diameter of 3 miles to conform to the size of a Program complex. Hefley suggested they consider buffers of different sizes and let the data determine the appropriate buffer size. The group suggested a small buffer (i.e., point), 1.5 mile radius buffer, and 3.5 mile radius buffer.

Howlin stated one issue with the data is pseudo-replication (multiple days of use by a single crane group) and the plan was to use bootstrap methods to derive parameter estimates at the local level of selection. Baasch asked if they planned to bootstrap within individual crane groups to derive parameter estimates for each group; Howlin stated they planned to refit the model each time with all data and would use bootstrapping techniques to derive confidence intervals around parameter estimates. Hefley asked if they would select 1 or multiple observations from each crane group when fitting the models; Howlin stated the plan was to use 1 observation every 24 hours. Hefley stated these methods don't appear to account for pseudo-replication and the lack of independence within the data; Howlin stated we could use longer time intervals for the system scale analysis to help ensure the data was independent. Hefley stated we could also consider using GEE models to account for the pseudo-replication and include all use locations, but Howlin and Hefley stated these models may be overly complex and uninformative to the Program. Smith asked what the Program would learn from analyzing the data using the first location only versus including all the data (i.e., repeated measures). Hefley said the model that best fits the data is likely somewhere between the top models of each of these separate analyses. Howlin added one could likely argue that the whooping crane makes a selection each time it returns to roost on the river. Rabbe added we need some way to weight the fact that some birds leave after 1 night while others stay in an area for multiple nights.

Smith asked what analysis would be used to inform the Program's Big Question; Baasch and Hefley said the system-scale analysis addresses the Big Question of 'Do whooping select suitable riverine roosting habitat in proportions equal to its availability.' Smith asked what management action the local scale selection would be used to inform. Baasch stated local level selection would be used to inform Program-complex level habitat selection and to assess if whooping cranes select specific habitat types in proportions than their available on the landscape. Smith asked what management action this information would inform; Baasch said it would inform whether crop field should be converted to grassland on Program complexes. Hines and Hefley added the local scale selection could also inform how the Program could manage habitat to encourage whooping cranes to stay on the Platte River longer.

Smith pointed out the Program's big question included 'suitable riverine roosting habitat' as defined by the Program and stated the analysis should only include habitat areas that meet Program minimum habitat criteria. Howlin recommended the Program use the system scale analysis to inform the Program's definition of suitable habitat. Smith asked if the results of the system scale analysis could be used to assess how whooping cranes select Program defined suitable habitat; Howlin stated the analysis could be used to answer the big question. Jenniges asked how the Program could relate the response curves to the Program's minimum habitat suitability criteria; Howlin stated we could compare Program minimum habitat criteria to the probability distribution in the individual response curves. Baasch asked if we can really learn anything looking at the individual response curves where metrics such as wetted width and unobstructed channel width are highly correlated; Hefley stated the response curves wouldn't tell us which of the correlated variables to change, but would tell us which direction to change the variables to increase probability of selection. Howlin added they wouldn't include correlated variables in the same model. Rabbe asked why we were only evaluating selection or avoidance of wet meadow areas rather than all off-channel habitat types; Baasch stated all off-channel habitat types would be evaluated in the analyses evaluating local area selection.

Runge stated he felt the cut-off point between habitat/non-habitat at the 40% suitable depth criteria was questionable given 40% suitable represents the optimal probability of use from the West 2008 analysis; Baasch clarified the 40% criteria was not based on results of the 2008 report and explained the criteria was established based on distributions Howlin provided the Program in 2012 and that 90% of the use locations observed between 2001 and 2011 occurred in areas where >40% of the channel was <8" deep or bare sand. Runge stated hydraulic variables such as wetted width and proportionate depth are based on discharge which changes daily. Current methods may contain bias because hydraulic variables are only documented when crane groups are present. It is not known if the hydraulic variables for the 60+ observations provide a good representation availability given the cumulative "available" days within all migration seasons could total hundreds and possibly over thousand days. Howlin stated available points would have measures that are similar to times when use occurred, but that we can't evaluate conditions when use didn't occur because we don't know what the conditions were when whooping cranes that didn't use the Platte River flew over and stated the telemetry data would be better for answering a question such as this.

Howlin asked what 1-D Hydraulic models the Program had available; Farnsworth stated the 1-D models are transect based and can be used to predict water surface elevation throughout the system at any given flow. Howlin asked if the anchor points are included in these transects; Farnsworth

stated they were. Farnsworth stated given the river is continuously changing the transect profiles are useful for describing general channel characteristics, but may not be useful for describing the exact channel conditions when whooping cranes select locations to use. Farnsworth stated he was concerned about incorporating measures such as roost site depth and proportion of channel of suitable depth into the analysis because these conditions are constantly changing. Howlin asked if average profile depths would be consistent enough to include in the model; Mussetter stated average channel depth of an area doesn't change as much over time as specific depths of given points. Farnsworth stated we collect 7 transects at 25 anchor points annually that could possibly be used as the set of available points in the analyses.

Runge stated in-stream flow targets aren't specifically addressed in the current hypotheses, but that the targets were established to balance width-depth relationships throughout the system and eliminating depth measures would drive flow to maximize wetted-width measures. Runge supports the current direction of focusing on the priority hypotheses under the big questions and to not go into complex issues of target flows. However because of the high level of Program scrutiny over target flows, Runge stated that the TAC has the discretion to request the testing whooping crane target flows under this process if the TAC was collectively willing to address this issue at this point in time. Farnsworth stated evaluating wetted-width may not be as useful for establishing in-stream flow targets as maximum unobstructed channel widths, but he didn't think the whooping crane habitat selection analyses were the best way to evaluate in-stream target flows.

Howlin asked the TAC what parameters they felt influenced detection; Jenniges suggested channel width be included in the detection model; Lingle suggested observers. Lingle stated he didn't feel detecting decoys was the same as detecting live whooping cranes because the light seems to reflect better off live birds. Baasch stated we may be introducing meaningless noise into the habitat selection model if the detection of a decoy isn't similar to detection of a single whooping crane. Hefley stated his analyses indicate that trying to account for detectability generally introduces a lot of variability without much improvement in correction for bias. Hefley stated including variables in the detection model that are not included in the habitat selection model would only introduce noise and would not correct the bias that we intend to correct for. Several TAC members and EDO staff suggested West test habitat variables being considered in the system-scale, in-channel habitat selection model to see if there are strong correlations between detection and any of the variables and determine how to proceed from there; no participants disagreed.

Rabbe and Runge asked if we planned to include data collected outside the current survey timeframes in the analyses; Howlin stated the plan was to conduct 2 analyses where one would only include data that was collected during systematic surveys and the other would include all the data including opportunistic sightings. Hefley stated he didn't feel anyone would believe results of the analysis that included opportunistic sightings because we can't account for differences in detectability; Howlin and several TAC members agreed; no participants disagreed. Runge agreed that opportunistic sightings that occurred outside the timeframes of the survey should not be included in the analysis, but any summary of metrics that include opportunistic locations should include these opportunistic sightings as well.

Baasch presented a document he recently received from Wade Harrell (FWS) that states the population estimate obtained during the winter 2011-2012 Aransas surveys as well as additional sightings of birds located outside the survey area. Baasch asked the TAC what population estimate

the Program should use in the future to determine the proportion of the population that used Program Associated Habitat area (i.e., Aransas report, Aransas report plus confirmed sightings outside the survey area, Aransas report plus and adjustment for the proportion of the telemetry birds observed outside the survey area, etc.). Smith and Jenniges suggested the Program use whatever population estimates Aransas reports annually unless the Service develops a consistent means of incorporating observations outside the survey area in the annual population estimates; Several TAC members agreed; no participants disagreed.

Smith stated each section of the data analysis plan should include a statement about what the results of each analysis will look like and how the results will contribute to answering the program's priority hypotheses and big question. Jenniges stated other whooping crane analyses (IGERT, telemetry, etc.) the Program is conducting should be include in the whooping crane data analysis plan; none of the TAC members present disagreed or commented. At two times during the meeting, several TAC members suggested next steps should be to fully develop the whooping crane data analysis plan and once fully developed, the Program would likely ask the ISAC to peer review the plan to ensure methods are appropriate to address objectives of the analysis; no participants disagreed.

Vegetation Monitoring RFP

Baasch discussed background information that lead up to the development of the vegetation monitoring RFP and asked the TAC if they had any edits they wished to see to the version that was distributed for the meeting; none offered. Rabbe mentioned the purpose of the vegetation monitoring was only to have an inventory of vegetative communities and plant species present on Program owned or managed grassland areas. Rabbe asked if the RFP directed the possible consultants toward and specific sampling strategy; Baasch stated the consultants were directed to design sampling regime(s) that would best meet the Program's objectives laid out in the plan. The TAC identified a list of possible candidates that would participate on the selection panel that the GC will be asked to approve and/or amend via email in the upcoming weeks.

Jenniges moved the FC support issuing the vegetation monitoring RFP as written; Rabbe seconded the motion; all supported.

The TAC recommended Rabbe, Jenniges, Czaplewski, Peyton, and Fritz participate on the selection panel.

Sediment Augmentation Pilot Management Action

Engelbert led the discussion and presented preliminary results from the pilot scale sediment augmentation work at Dyer and Cottonwood Ranch properties during 2012 and potential next steps for sediment augmentation during spring 2013. Peyton asked if they planned to pump longer to augment 50,000 tons during 2013 where they only were able augment 25,000 during 2012; Engelbert said they plan to augment 50,000 tons during 2013 with the hopes that flows will be higher, but the all the logistics hadn't been worked out yet. Peyton asked if flows were more normal during November 2012 if the 25,000 tons of augmented material would have been transported; Mussetter said it was hard to determine if it all would have been transported, but more certainly would have been. Sellers asked if there would be any advantages to augmenting sediment during 2013 if flows were low again; Besson and Engelbert suggested low flow years are to be

expected in the future so it would be good to learn if pumping is a feasible option for sediment augmentation during these worse-case scenarios. Sellers asked if the Program should consider sediment augmentation during a wet year; Farnsworth stated sediment augmentation has been conducted for several years at Cottonwood Ranch and during high-flow conditions the transport capacity is high enough to carry the sediment through the system. Farnsworth said the pilot study should teach us what we need to know about augmenting sediment and that the next step would be to determine if the Program should implement full-scale (150,000 tons) augmentation. Jenniges added that so long as we can get sediment under the water it will get moved through the system. Fritz suggested the sediment be pumped along an outside bend of the channel rather than an inside bend as was done in 2012 so that the channel would naturally eat into the spoil pile. Rabbe asked if there was an area where the channel would eat into the pile more or not; Mussetter stated it appears a couple hundred yards upstream may be a better location to augment sediment on Dyer. Rabbe asked if anything was learned about sediment gradation used in the augmentation; Engelbert stated it appears the channel is capable of transporting the material that has been augmented to date so we probably wouldn't want to implement much coarser material. Rabbe asked if finer material might be better; Mussetter and Farnsworth stated finer material would likely be transported through the system and using finer material would mean we would need to add a lot more sediment to offset the deficit.

Engelbert stated none of the impact triggers were reached at Dyer or Cottonwood Ranch during the first year of sediment augmentation and informed the TAC that a permit modification was required to mechanically augment the sediment that accumulated at the augmentation site at Dyer during 2012. Future plans are to mechanically augment the remaining sediment at Dyer and continue pilot scale sediment augmentation at Dyer and Cottonwood Ranch during spring 2013.

Closing Business
No TAC meeting was scheduled.

Meeting adjourned at 2:30pm Central time.

Summary of Decisions from January 2013 TAC Meeting
1. The EDO will continue to work with West on the whooping crane data analysis to get it fully developed and the next likely step would be to have the ISAC peer review the plan.
2. The TAC recommended the FC support issuing the vegetation monitoring RFP as written and recommended Rabbe, Jenniges, Czaplewski, Peyton, and Fritz participate on the selection panel.