PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM
Independent Science Advisory Committee (ISAC), Technical Advisory Committee (TAC), and Executive Director's Office (EDO) Staff Meeting Notes

Hilton Garden Inn – Omaha, NE
April 22-24, 2014

April 22nd ISAC-TAC-EDO

Attendees

David Marmorek – ISAC Chair
David Galat –ISAC
Jennifer Hoeting - ISAC
Ned Andrews - ISAC
Adrian Farmer – ISAC
Brian Bledsoe – ISAC
Jerry Kenny – ED
Bridget Barron – ED Office
Chad Smith − ED Office
Dave Baasch − ED Office
Jason Farnsworth − ED Office
Matt Rabbe – US Fish and Wildlife Service
Jeff Runge – US Fish and Wildlife Service
Tom Econopouly – US Fish and Wildlife Service
Jesse Bradley – Nebraska Game and Parks Commission
Rich Walter – The Nature Conservancy
Mike Drain – Central Nebraska Public Power and Irrigation District
Mark Peyton – Central Nebraska Public Power and Irrigation District
Jim Jenniges – Nebraska Public Power and Irrigation District
John Shadle – Nebraska Public Power District
Mark Sherfy – US Geological Survey Northern Prairie Wildlife Research Center
Mark Czaplewski – Central Platte Natural Resource District
Brandi Flyr – Nebraska Department of Natural Resources
Suzanne Sellers – State of Colorado
Tom St Clair - RESPEC
Mike Fritz – Nebraska Game and Parks Commission
Pat Engelbert – HDR

Welcome and Administrative

- Smith welcomed everyone to the meeting; the group proceeded with a roll call; and discussed the logistics of the meeting.
- Smith mentioned EDO staff developed a set of questions for the ISAC to respond to during and following the meeting.

2007-2013 Tern and Plover Monitoring Summaries

Dave Baasch presentation:

- Farmer – If you have marked birds, why do you use this approach for showing nest and brood exposure dates? Baasch – We do resight some birds, but others are not marked so banding data can only go so far. Sherfy – Based on band resight data, 3-5 days seems like a reasonable renesting interval.
- Marmorek – Is banding and monitoring done at the same time by the same people, or different times by different people? Baasch – One ground crew, all happens at the same time, but there is some monitoring that occurs separately at non-Program sites such as NPPD sandpits.
- Marmorek – If non-Program tern pairs are going down and Program breeding pairs are going up, are you robbing Peter to pay Paul? Baasch – Birds seem to be spreading out over a larger habitat area which is a benefit because a localized storm event won't destroy all nests.
- Galat – Could look at percentage of birds nesting on Program versus non-Program sites. Baasch – Starting at zero has too much leverage on the line so that wouldn't work.
- Jenniges – Birds are nesting on sandpit habitat, it is the habitat classification (Program vs. non-Program) that is changing.
- Hoeting – Aren't you interested in total amount of habitat; you should just do that plot; strong relationship between total number of nests and total acres of habitat. Baasch – There seems to be a strong relationship between bird numbers and off-channel habitat availability. Galat – That is really what you want to know for the hypothesis, right? Hoeting – Need both habitat types.
- Marmorek – Do you find many birds on areas that do not meet Program habitat criteria? Baasch – Not on all off channel sites; in channel yes, might need to do some refining; but need to get more birds on the river to get a clearer picture.
- Galat – Indicated you don't need to band for BQ #6, but do need it for BQ#7. Baasch – Correct. Galat – Is banding intended to address BQ#7? Baasch – Yes, we need to know what birds we are dealing with (new birds or existing birds that are pulled from sandpits).
- Marmorek – Does it matter whether birds leave one sandpit and move to another; Baasch – Not for the hypothesis. Galat – Programmatically you have less control over non-Program habitat; Baasch – We do lose habitat every year at non-managed sites. Galat – The comparison between those you may lose and those that are secure is the more important question. Baasch – We have targeted those places to acquire and/or manage to create new habitat. Czaplewski – It is important to note that gravel mining techniques have changed and old sandpits worked better for habitat than new sandpits (steep, less spoil piles, etc.). Galat – When sand and gravel miners are done with the site is the strategy to sell it for development? Czaplewski – Generally, they are in it to make

money. Galat – Would it pay for the Program to go into the sand and gravel mining industry or to develop relationships with miners to get what you want? Smith and Jenniges – Depends on what your goal is.

- Galat – Is marking birds a cost in terms of economics or bird mortality; Jenniges – Economic.
- Farmer – There are two kinds of habitat. If the birds prefer habitat A (river) over B (sandpit), but they still need and use B during high and low flow years, B is a good have as a back up plan, so the answer is you need both until you have enough A to see if it is truly preferred and adequate. Galat – does it imply you won't learn much from bands until there is a lot of in-channel habitat? Farmer – there are other reasons to band, but on this question yes you won't learn much now.
- Runge – Earlier discussion about lack of sustainability, that is one of the issues that was looked at as the Program was developed; there is no long-term mechanism to maintain and protect sandpit habitat especially if Program goes away.
- Farmer – Thought experiment: get at the power of the data; suppose there are 100 acres of sandpits and we double it; same number of birds comes back and population decreases on old and increases on new; fixed population; B was last year, A is new; A goes up, B goes down; doesn't show preference, birds just settled randomly and density goes down on old and up on new; Sherfy – Need to figure all four population factors (birth, death, immigration, emigration); Galat – Have to be very careful as to what you infer is preference; Baasch – Should be able to answer this with densities per acre of available habitat (habitat selection).
- Marmorek – Would be good to set up a simple model to simulate changing amounts of habitat (in channel, off channel, etc.) and a simulation algorithm you would use to test for habitat selection; could get indications of things that are random and things that are not; how strong is your test (statistical power); likely to find you need way more birds and/or habitat to get a strong test, but best to test this first; in these discussions, there are always multiple objectives – recovery, cost effectiveness, etc.; would be useful to put this in a decision analysis structure whereby you look at alternative ways of developing habitat, have various likelihoods of persisting, then work through trade-offs and critical uncertainties.
- Jenniges – The hypotheses were built on bare sand, not on habitat, and none of the hypotheses were built thinking you could band birds.
- Hoeting – Any measure of effort? Is there a constant effort over time? Baasch – Have been doing intensive monitoring since 2009; bird numbers were lower pre-grid searching. Jenniges – depends on what metric you are looking at. Hoeting – worry about basing conclusions based on increased effort, need to compare apples to apples and include effort; could do analysis where you account for detectability; should you be producing estimates instead of a census?
- Bledsoe – You collect habitat metrics at all these sites; has this information been used to refine what makes for optimal sandpit habitat; Baasch – Will do habitat selection analysis this summer. Bledsoe – What about slope to water and configuration of sand; how dialed in are we on optimal sandpit habitat if a decision is to be made in the future about

whether to manage more sandpit habitat? Jenniges – Have to be careful because birds will nest on different part of the sandpits each year.

- Marmorek – A lot of measured metrics (in monitoring protocol) are all within a one square yard area of the nest; why would the Program only be interested within that distance; could be a covariate unlikely to be of much use. Sherfy – USGS has collected a lot of that kind of fine scale data and compare it to wider scale data and use both to refine selection; found correlation at that scale, can't say it is more or less important than the larger scale though.

Mark Sherfy presentation:

- Marmorek – 2011 through 2013 there are narrower confidence intervals on plovers than on terns but there are more terns out there; Sherfy – Probably indicative of process variability in terns from nest to nest and time to time; Galat – Are the data analyses dominated by off channel sites? Sherfy – Yes.
- Marmorek – Do you know if birds are banded on the Platte but show up on other rivers? Sherfy – This analysis does not really show that. Marmorek – Would a bird that nests on non-Platte areas be interpreted as not having survived? Sherfy – Yes, but we could do a meta-population analysis to see how often birds move from one region to another. Galat – A fledgling in 2009 would be included in adults in 2010, plus whatever other age classes are out there? Sherfy – Yes.
- Hoeting – Given the huge distances between renest sites, is the renest frequency a low estimate? Sherfy – Yes, it is a minimum estimate because there may be renesting on sites USGS doesn't monitor or on other river systems.
- Galat – What proportion of birds don't breed in first season or do you assume they all are capable of breeding after they are fledged? Sherfy – We had 6 piping plovers return to the Platte to breed, and all of them were 2+ years post-hatch. This was surprising, as I expected to see first year birds return to nest. Galat – So where do non-breeding plovers hang out, is there any reproductive biology data on young plovers? Sherfy – not sure. Baasch – We do see single birds from time to time so there are definitely birds out there that are not breeding. Hoeting – How long do the birds live? Sherfy – have resighting data from Canadian birds that were 10-11 years old, but the common thinking is 5-6 years.
- Hoeting – Is somebody doing the metapopulation analysis? Sherfy – Data is being collected and the metapopulation model is being parameterized now.
- Galat – We read that only 16% of plovers nest on river habitat; the metapopulation model could incorporate how many nest on reservoir shorelines to help build the model.
- Mark Czaplewski – How was the 3.5 day renesting interval calculated? Sherfy – 3.5 days is the time from the day the first nest failed to the time another egg was found.
- Galat – Mortality doesn't seem to be a strong counter argument for intensive monitoring, cost is a factor, are there other counter arguments that we need to consider? Jenniges – you get a lot of valuable data early on and then it starts to tail off so how long do you keep intensive monitoring going? Galat – Less valuable in what sense? Need to look at trends over time and that requires a long-term approach. Jenniges – If the long term trend is what you want then yes, but maybe you get what you need after 5-6 years. Galat –

Trying to understand what environmental factors drive movements from year to year is probably really where the benefit is. Sherfy – Could use metapopulation models to plug in different habitat sites. Galat – Missouri River spends huge amounts of money building habitat but little money on monitoring and research which is not a good approach. Jenniges – Only if you can use the data to inform management. Galat – That is an issue of institutional inertia. Runge – Need to consider how much of change is due to management actions versus natural variability.

- Marmorek – Is it the intention of USGS working with EDO to produce a report for the October session which squarely addresses the Big Questions? Sherfy – USGS is drafting a report that follows this presentation.
- Hoeting – Sherfy talked about using mark/resight to estimate survival; do you propose these data be used to estimate population size; could we get a better population estimate from mark/resight? Sherfy – That could be done, I think; the approach I was talking about was using active nests to represent a pair of birds. Hoeting – so the mark is the location of the nest? Sherfy – right, but that is only one way of thinking about it. Baasch – one potential hang-up is that USGS doesn't go to a couple of the sites, so they get a bulk of the central Platte data but not all of it.

Process and Reporting Discussion

- Marmorek – about three years ago the ISAC was concerned that a lot of the presentations were not on the hypotheses so the ISAC strongly recommended that summaries and presentations focus more on that; strongly urge that everybody involved try to squeeze as much insight on Big Questions as possible and include other TAC thoughts as well.
- Marmorek and Galat – reports should focus on addressing big questions and hypotheses. The presentations were much more helpful than just the data reports the ISAC got before the meeting. Baasch – That kind of interpretation is generally included in the State of the Platte Reports.
- Sellers – I would recommend the opposite and have reports only focus on the data and leave EDO interpretation to the big questions separate. Marmorek – I disagree. Squeeze as much insight as possible out of the data by addressing BQs and priority hypotheses, reduce the science pile, present alternative interpretations.
- Smith – 2012 State of the Platte Report had unanimous support of the TAC, but then some TAC members have since back-tracked. We now realize that we'll never get full support of TAC on the State of the Platte Report. GC said "you need to tell us what's going on, regardless of what various agencies are saying". State of the Platte Report is now a document from the EDO to the GC (EDO's best judgment), with additional appendices that include TAC comments. Hard for contractors to pull all of this information together because they don't have the overview of all the information. I am concerned about mixed interpretations of information by USGS and EDO. Need to wrestle with the nice to know vs. need to know information.

- Summary of Program Committee roles:
  - EDO (synthesis of information for GC)
  - GC (decision making, together with finance committee)
  - TAC (technical advisory people representing their agencies). Lots of EDO-TAC discussions, best to have TAC consensus when presenting info to GC, deciding on ISAC members, RFPs, etc. Kenny – Have advisory committees on technical, land, water and AM. They advise both GC and EDO on the specifics of program implementation.
  - ISAC is an advisory committee that reports independently to the GC (Kenny – ISAC reports if the Program is doing things right)
- Runge – information needed to evaluate questions (where we are now) may not be enough information to make adjustments to close the AM loop. Smith agreed, but added he is very committed to getting to "Adjust". We are trying to push towards that final step.
- Runge – How does two thumbs down on Q8 affect the next set of management decisions? Smith – We have now moved to a position that we need a peer-reviewed or published report before we go to 2 thumbs up or 2 thumbs down on the big questions.

October 2013 Central Platte River High-flow Event

Matt Rabbe presentation:

- Rabbe – 1 in 500 year event last October, different timing from other pulses.
- Marmorek – appears the vegetation was removed or buried more at Rowe and Dippel and less near the Crane Trust headquarters where management (channel disking) occurred. Rabbe – it appears disking efforts prior to the flood missed a lot of vegetation.
- Walters – Is the vegetation shown in the before-flood photos annuals? Rabbe – a combination, some annuals some cottonwoods; not a significant amount of phragmites.
- Bledsoe – What are the first vegetative species to show up? Farnsworth and Jenniges – annual grass species that have poor root structures and are the first to go with water.
- Mark Peyton: How do you tease out effects of ice from effects of high flow? Rabbe – there are daily photos which show differences due to water prior to ice; have seen similar effects in 2010 and 2011 high flows.

Jason Farnsworth presentation:

- Farnsworth showed time lapse photography collected at Rowe Sanctuary (Plattebasintimelapse.org) before, during, and after the October 2013 high-flow event.

Central Platte River Habitat and Comparison to Other Systems

Jason Farnsworth presentation:

- Galat - Chapters 1-3 are incredibly useful for debunking key assumptions of the Program:
  - 5,000 to 8,000 cfs won't build sandbars of appropriate height and area to sustain terns and plovers
  - Won't build sandbars to the level of peak discharge
  - Sandbars that are there will not be there for enough time
  - Average sandbar area is smaller than any other area where birds are nesting
  - Sandbars of appropriate height (and possibly area) will not be built due to larger grain size of sediment
- Marmorek – In a dry year could the Program use all of the environmental Account water to implement an SDHF and for other flow releases? Farnsworth – Yes.
- Hoeting – Concern about regression, not buying results. Farnsworth – will talk offline and fix accordingly.
- Runge – Long absence of nests on central Platte, need many years to see what happens between off channel and on channel habitat. Jenniges – Kirsch monograph says no habitat selection, birds use sandpits or river, whatever is available. Farmer – Is there enough data on central Platte to determine if in channel habitat is a population sink? Baasch – Not enough data.
- Bledsoe – How sensitive are percentages to assumption of 1.5 feet above 1,200 cfs? Farnsworth – very sensitive. That criterion came out of Ziewitz et al. (1992) and the value of 1,200 cfs came out of an administrative decision. This is solely inundation, does not consider 1.5' above 1200 cfs. Runge – need to look more at nest initiation instead of inundation. Farnsworth - Even bars built at 10,000 to 13,000 cfs on the central Platte would be susceptible to frequent inundation; problem is that peak flow arrives about the same time the birds do on the central and lower Platte River.
- Andrews – Could the Program shift water so that you get higher peak flows in the spring and have lower flows in the summer (say 800 cfs)? Rabbe – Can't increase flow above 8,000 cfs without flooding people; 8,000 cfs is bankfull discharge. Farnsworth – Limited amount of ability to manipulate summer flows; J2 reregulating reservoir will provide more control. Bledsoe – When J2 comes along, can you manipulate the falling limb of the hydrograph to make it sharper? Farnsworth – With J2, the Program should have the ability to release 2,000 cfs on top of other flows in the channel and may be able to influence the falling limb. Drain – The drop off rate is usually very slow from natural floods. Get sharper drops when irrigation flows open up, but no bars form.
- Jenniges – SEDVEG assumed that bars build to the water surface elevation. Andrews – If you have suspended bed material like fine sand (0.2 - 0.4mm), then it can be carried from upstream and deposited on top of bar so the bars will build to the level of the peak stage; if you have bed load the dune migration never makes it up that high; other systems with higher bars have smaller sized particles that can build up in the water column; bed particle size on the central Platte is larger so it can't be built to the water surface as hypothesized. Drain – Sandbars move like dunes on the central Platte River, grain size is probably a big reason for the differences in the pictures between systems. Farnsworth – Many bars were created in 2010 high flow event of 120,000 cfs on the Lower Platte, but

were under water in 2011 at 36,000 cfs. Marmorek – would need to massively oversupply sediment to shift grain size.

- Mike Drain: Why would more flow during the summer help? Wouldn't it make it harder to keep bars dry? Farnsworth – Going from wetter to dryer years seems to increase the duration of the success window, but when the river is very low (240 cfs) birds don't tend to nest on islands on the central Platte because they are attached to the bank and there's no barrier to predators. Baasch – More flow would moat islands and provide a predator barrier.
- Runge – Limiting factor for initiation is bar size and birds on other river systems seem to select for larger bars in wider channels. Farnsworth – More indication for selection in LPR, but inundation risk is about the same. Sandbars in Loup and lower Platte River are 30-50 acres in size and often are attached to bank, but are large enough that predation is lower. Largest bars in CPR are about 1.5 acres. Marmorek and Bledsoe – Could you build very large, very high bars on the central Platte? Farnsworth – The problem is that these are not as stable as naturally built bars. Jenniges – When we build large bars they get vegetated, eroded, attached to banks, or become turtle nesting areas that predators key on. Rabbe – need to consider whooping cranes also.
- Drain – How often did birds naturally have islands created and then survive inundation. Runge – Based on work on the Missouri River, the birds tend to be resilient enough to survive if they do well in just a few years. On Loup River, high flows have generated high bars that don't get inundated. Baasch – If successful reproduction occurred in 3/10 years you'd need fledging rates of 2.1 for terns and 3.4 for plovers to meet the Lutey 2001 annual objectives. Farnsworth – Lots of transitions from very narrow to very wide on the Niobrara River which is often where sandbars form. In CPR, 30-40% flow is in side channels.
- Runge – A University of Nebraska study in the 1960's (Horn and Chilko) found that the mesoform scale structure in LPR was changing. Norman Smith looked at LPR and identified transverse bars which he found had finer sediment grain size. Important to understand what bars the birds are using (transverse vs. longitudinal). Sherfy – Variation in composition of sediment can affect bird selection of habitat. Runge – Horn and Norman Smith papers need to be addressed as well as the Skelly document on the Niobrara; need to integrate all of these papers or else this isn't an adequate synthesis. Farnsworth – We didn't want to touch the Horn and Chilko papers because there are serious problems with them.

APRIL 23 ISAC/TAC/EDO Lower Platte River Tour

- No minutes/notes recorded.

April 24 ISAC & ISAC/EDO Discussions

- See ISAC Summary Report