



PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM (PRRIP or Program)
Adaptive Management Working Group (AMWG) Virtual Meeting
 October 20, 2020

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

EDO Power Point presentation slides attached as PDF

Welcome & Administrative

- Henry welcomed the group and discussed the general framework for the agenda today and meetings going forward.
- Henry conducted a short tutorial on accessing documents via the PRRIP website because of some reported troubles with AMWG members accessing the documents before the meeting.
- No agenda modifications.

Clarification of AMWG Conflict Resolution and Roles

- Henry introduced the draft Conflict Resolution process document and the discussion of roles during the process of developing the Extension AMP.
- Q: What is the role of the EDO? – facilitate, try to keep group out of policy, provide technical support and data on Program and external science, provide independent input on science when and where helpful and appropriate.
- Discussion of email exchange among AMWG members about a problem statement and the decision context.

Terns & Plovers – Management Objective/Performance Indicators

- Henry discussed the Mentimeter poll from last week regarding the tern/plover management objective. She posed the question:
Would performance indicators (allowing for annual variability) linked to future population outcomes help us to agree on whether we are meeting our management objectives?
- PVA would make the Program step outside of things that it can control.
- Management objective only talks about production.
- Production indicates we are increasing plovers in our neck of the woods in a good way.
- First metric – have we increased pairs? Yes. Do we have a level of production that is better? Yes; but can’t keep increasing fledge ratios. Keep whatever you are doing related to the actions that this Program can do.
- Need to describe actions and species response.
- Viability may be outside of control of actions of program; we have an open population. It is a management unit and there is interchange among the management units. Viability may be influenced by external factors.
- Big piece missing in terms of obtaining additional habitat and linking it to the management objective. Increases have been proportional to increases in habitat.



- Need to get back to science issue, not policy; when tern and plover productivity went down, several folks on this call said we weren't meeting our management objective because fledged ratios are low; but we can't keep expecting increases in fledged ratios; how would we go about looking at indicators that are useful and relevant over a longer term; when do we get worried and how do we know we should be worried; just having habitat is a potential answer.
- Achieved objective related to 1997 baseline; maybe we need to revisit this; when does Program management not achieve what we want to achieve? We will reach carrying capacity at some point, don't want to become a sink to the population; can we agree on a level to watch over time.
- Our role is not to define what is adequate or a warning point for a management objective; our role is to describe a performance indicator and leave it up to the GC as to whether we are meeting a standard; show trends and uncertainty around trends; we provide information to the GC and they make decisions.
- Need to know what information would be useful to give to the GC; will this group be willing to talk about performance indicators?
- Concerned about living too much in the realm of identifying sideboards; from a science standpoint, what is the question? What is it people hypothesize that causes there to be more birds, or less birds, or fledged ratios to go up or down?
- Are we reaching a carrying capacity with intraspecific competition? Maybe look at nests per acre, or breeding pairs per acre? Adult mortality, annual recruitment, etc.
- Think we are conflating questions and metrics.
- Would be interesting to have adult survival on our minds; why would we want to create a sink? If fledged ratio is zero, it will decline; adult survival at times might be more important than fledged ratio.
- This seems like the right direction for our discussions.
- Population modeling may be outside the bounds of this group and we need to get performance indicators figured out first. We should not be saying that we are meeting a management objective.
- PVA used in other places like the Missouri River and Upper Colorado Program.
- It is not the job of the AMWG to determine if we are meeting a management objective. That is the job of the GC and we just give them information to help them make that decision.
- Stochastic events can mess up populations. Larger populations are more resilient.

Terns & Plovers – Population Viability Analyses (PVA) & Modeling

- Henry gave a presentation showing aspects of various PVA modeling efforts.
- Henry and Farnsworth walked through the EDO PVA model.
- Looks like observed data was running above the simulation, what feature do you think might be a little off?
- Can get into the weeds with Monte Carlo simulation. How will this help us define questions for the AMP? This is analysis that will help with those questions, but hard time trying to figure out what the questions are.
- Predation affects principally fledged ratios. What if new normal is the lower fledged ratios of the past few years? How much damage is tolerable? We could use this tool to determine what small vs. large reductions in fledged ratio associated with predation could do to our numbers in the short and long-term.
- Great tool but seems like we need to address higher-order questions first.
- What hypothesis are we working on that relates to the Program management action to reduce predation rates?



- Just a tool, as you get into exploring whatever uncertainty you want to explore.
- Second concern – then we are using this as more of an exploratory tool, that can lead you off in goofy directions.
- Could help decide if a hypothesis is worth pursuing.
- Want to avoid p-checking; this is why we need to stay away from exploratory use of models like these. Need defined question, hypothesis, then apply the tool.
- What is the question before you do any simulation?
- Appears to be density-dependent and we seem to be close to capacity; but the model shows pairs are starting to increase into the future beyond present condition; is this considered density dependence?
- We are in the midst of increasing habitat right now; 35 acres at Lexington in 2021, 25 more acres in 2023, 5 more acres at Broadfoot in 2023, Lakeside slurry wall project area will add 30 acres around 2030. Additional habitat figured into the model allows room for more pairs.
- Does that factor in Year 1 habitat not having as much production, since it is not uniform across sites?
- Yes, model does add in a 1-year lag in new habitat occupancy and observed (across sites) variability in density through Min, Likely, and Max; All values presented in this model include the variability across all sites in the AHR. Site-specific models have been developed, but are not being presented at this time because numbers are so low and individual sites do not sustain themselves over time, but this is a tool that can be used to explore site-specific productivity.
- Might be interesting to have a trend in distribution over time; could also see decrease in fledge ratio and increase in emigration with more competition for food and space; could be interesting to incorporate these into the model .
- How does forage value change over time in new vs. old sandpits (macroinvertebrates for plovers)?
- *Nest density and nest location* – do either of these resonate as potential performance indicators?
- Not sure if nest location is a variable we can directly address. Nest density is one that could relate to predation.
- But how do you affect nest density? Maybe build more habitat, but if that ability is limited then you can't. Could put more birds per acre, is that possible? Management action of building more habitat lowers your density of birds.
- *Number of eggs produced per nest, and hatch rate of eggs.*
- If we are doing outside monitoring, how do we get this data? Can get some data from nest cameras set up; understand that, these may be important variables that necessitate changes to monitoring effort if important data to collect.
- *Adult and juvenile survival in Program area AND outside of Program area.* Can we measure this? Have indication there is mortality, not sure if we can quantify that as a variable.
- Are we not getting the information we need to evaluate the management objectives? What are we not getting out of our existing performance indicators?
- When we get into looking at specific uncertainties that we want to dig into, that is where we need to look beyond what we have now. If we drill down on predation and wondering if we have problems with nest predation or chick predation, there may be a need to look at different indicators. We measure the best we can without adding effort to our monitoring.
- Would be useful to look at *nests per acre and see if that varies by age of site, elevation, topography, etc.* to see if there is something we can manipulate.
- Could be, and has been in the past, some input of other NGOs building habitat, etc. could affect central Platte population dynamics.



- May need to consider banding in the future to get relevant data.

Suggestions for Performance Indicators

The following were suggested for further consideration by the group as performance indicators:

- Fledge ratio (fledges/breeding pair)
- Fledges
- Breeding pairs
- Population growth rate
- Nest density (nests/acre)
- BP/acre
- Fledges/acre
- Eggs produced
- Hatch rate
- Adult survival
- Juvenile survival
- Individuals arriving at AHR
- Nesting individuals

MS Teams Chat Comments

- I just think we are conflating questions and metrics.
- I would like to discuss what those hypotheses are that particular model could help us define.
- I think it is important to also recognize that any PVA is not meant to be accurate predictions of future abundances at any location at a specific time. Instead, PVAs are best interpreted as relative predictors of expected population performance as a retrospective analysis of demographic info in the past (including stochastic events) to inform management actions.

Q – likeliest = mode?

A – Approximately yes depending on the number of simulations.

A – should approximate median too

- Why in this spreadsheet is the min fledge ratio greater than 1.13?
- I am curious about what's in the "Future Habitat" tab?
- With age of islands/reaching carrying capacity - theoretically: Increased emigration, decreased fledge ratios (more competition for food and space). Also, do sand pits become less productive foraging environments with age? Would this further depress fledge ratio over the life and sandpits and thus the Program.
- If there is time, can EDO please speak some more to the sensitivity of the model and sensitivity analysis?
- I think that for any given area and management action you will reach a maximum capacity of reproduction. Which will then decline until you no longer have those limitations then things improve. This concept we are always going to improve was never the point of the management objectives in the original AMP that was all relative to a 1997 baseline. To change that baseline and



hence comparison is a policy issue. I do not believe anybody signed on to this Program to reach some given number of plovers just more than there was.

Preparation For Next Meeting

- Next meeting, we will look at what impacts potential performance indicators.
- Henry pointed out literature for AMWG to review prior to the next meeting (listed on agenda, available in AMWG room of PRRIP website).

Meeting Review & Wrap-Up

- **Next meeting** – November 3, 2020; 1:00-5:00 PM Central Time.

Meeting adjourned at 5:00 PM Central Time.