

March 2021 ISAC Check-in with PRRIP GC

PRRIP GC Virtual Quarterly Meeting March 10, 2021

David Galat, Ph.D., Cooperative Associate Professor Retired, University of Missouri – 2020 ISAC Co-Chair
Jennifer Hoeting, Ph.D., Colorado State University – 2021 ISAC Co-Chair

ISAC Members:

Ned Andrews, Ph.D., Tenaya Water Resources

Brian Bledsoe, Ph.D., University of Georgia

Adrian Farmer, Ph.D., Wild Ecological Solutions

Dave Marmorek, M.Sc., ESSA Technologies Ltd.



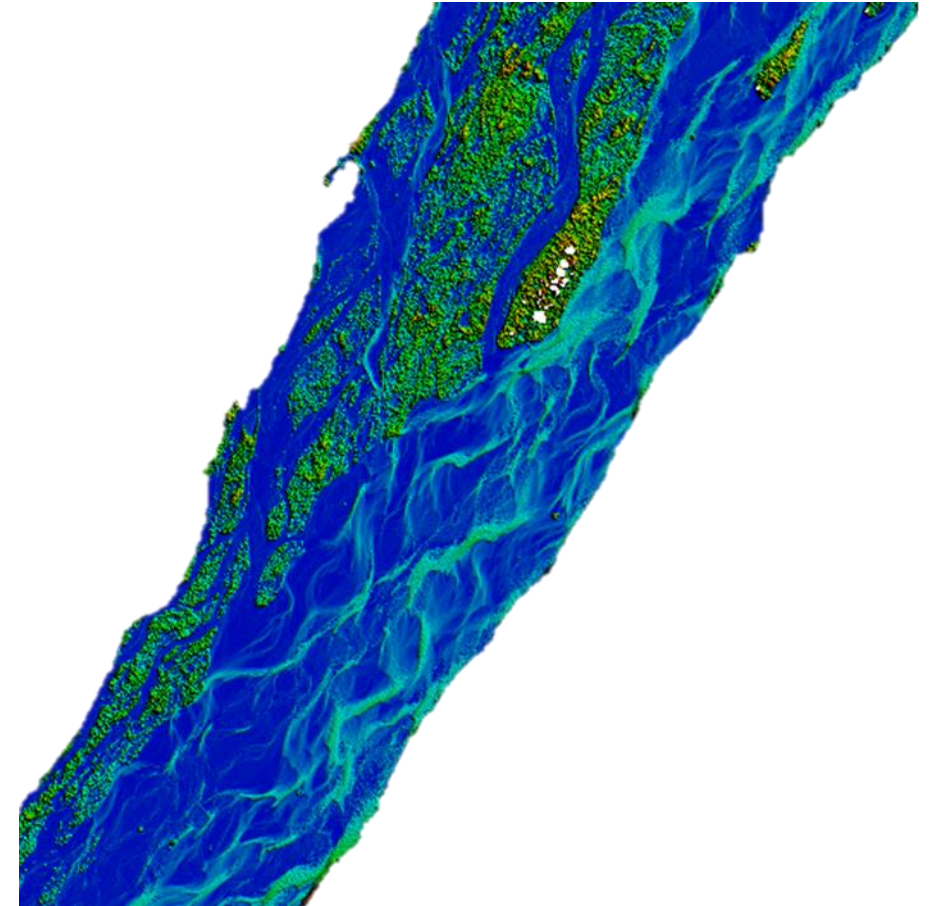
Program Accomplishments

- Most 1st Increment milestones have been achieved
- Most 1st Increment Big Questions have been answered clearly
- Effectiveness of disking, spraying, and suppression of germination represents significant progress
- Major issues and challenges remaining have been identified.
- Excellent progress on water prioritization model
- Specific studies and modeling efforts are focused on key issues.
- Excellent EDO staff – creative, curious, hard-working, dedicated.

2021 ISAC Check-in with PRRIP GC

Topics:

- Adaptive Management
- Program Milestones
- Target Species: How to monitor
- Target Species: How to manage
- Water
- PRRIP Accomplishments



Adaptive Management

Challenge: Formal AM experiment vs. standard management practice

Why it matters:

- Don't need AM if there's no uncertainty; save \$
- BUT, ignoring uncertainty and assuming "we know best" has proven wrong multiple times
- Focusing science on critical uncertainties with biggest impact on key management decisions is wise use of limited staff & resources

Possible ways forward:

- Start with key decisions on different timescales (within year, across multiple years)
- Rank uncertainties, assess risks & benefits of reducing uncertainties
- Determine highest priorities for formal AM



"Shouldn't you rake those up first and then set them on fire?"

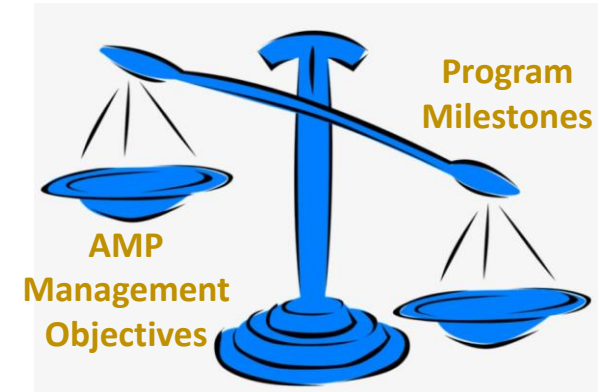
Program Milestones

Challenge: Connecting GC program milestones to AMP management objectives focused on the species

Why it matters: A clear connection between management objectives & milestones allows science to facilitate learning, focuses benefits on target species, and enables species-relevant decision making

Possible ways forward:

- Formalize decision process to distribute available water/land/\$\$ to achieve species objectives in space and time
- Communicate species management outcomes to GC in terms relevant to their stakeholder interests
- ID which Extension GC decisions can be most influenced by science
- ID risks-benefits of alternative management actions over next decade



Program Milestones

Challenge: The future is uncertain, will current milestones be sufficient?

Why it matters:

- Use learning during 1st Increment to re-assess milestones
- Institutional agreements become set in stone, while other Program aspects evolve

Possible ways forward:

- Capitalize on 1st Increment learning to prioritize resource allocation
- Develop future water scenarios relative to prioritized species management actions



Target Species

Challenge: Objectives for target species are subjective and vague

Why it matters:

Clear quantitative objectives facilitate efficient use of program resources

Possible ways forward:

- Think of objectives as management guidelines, not regulatory thresholds
- Objectives need not be a single value
- Explicitly define what constitutes success more than just “increasing production.” Test if trends are statistically significant. Formalize the baseline



Target Species - How to monitor

Challenge: How can qualitative performance indicators for target species management actions inform Program milestones?

Why it matters: Interpretation of qualitative indicators is subjective

Possible ways forward:

- Refine suite of proxy performance indicators backed by sound science
- ID which anticipated Extension GC decisions can be most influenced by science
- Communicate to GC how acres of land (a program milestone) yields targeted outcomes in proxy indicators and how these will improve LT and PP production and/or help WC



Target Species - How to manage

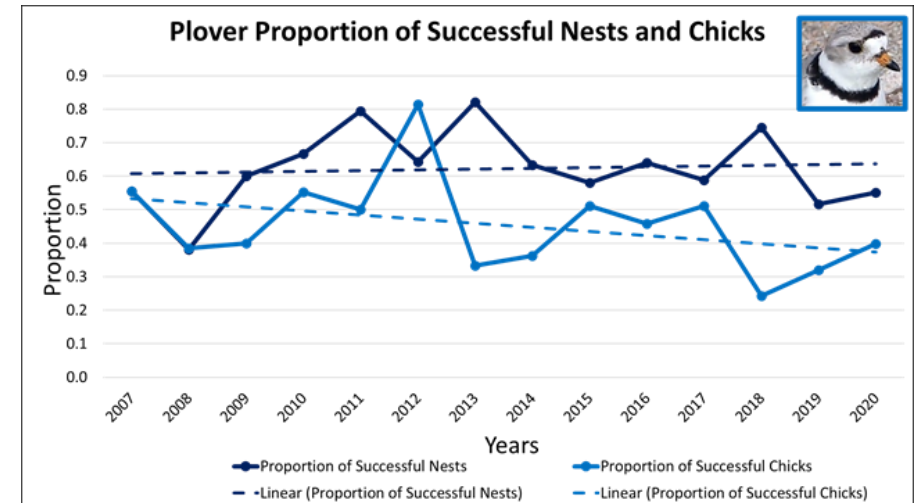
Challenge: High spatial & temporal variability make it unlikely to rigorously statistically test predator management actions.

Why it matters:

- TAC will likely fail to reach consensus recommendations to GC using expert opinion
- There is enough uncertainty about predation that merits investing in more formal science
- If we can't do something about a potential issue now, it's likely to cost more in the future

Possible ways forward:

- Formulate alternative hypotheses to predator control
- Explore Before-After-Control-Impact (BACI) designs at site scale
- Apply multivariate approaches to generate hypotheses about why some sand pits have more nests / fledglings than others
- Trade-off analysis on risk-benefit of competing management actions to improve T&P production



Target Species - How to manage piping plover

Challenge:

Management of off-channel sand and water (OCSW) nesting areas for plovers is a novel approach; its long-term success is uncertain.

Why it matters: OCSW sites are the only feasible option currently available; it is imperative to get their management right.

Possible ways forward:

- Research on predation outlined by EDO is important.
- Continue exploring ways to mitigate predation.
- Explore apparent effects of site age and possible actions to tackle age effects.



Target Species – Whooping Cranes

Challenge: How to prioritize among different water goals for whooping cranes (WC), particularly during drought conditions?

The Program wants low flows when WC arrive, moderate flows to flood vegetation during stopovers, and high flows to maintain suitable channel widths for WCs.

Why it matters: Water is the big uncertainty

Possible ways forward:

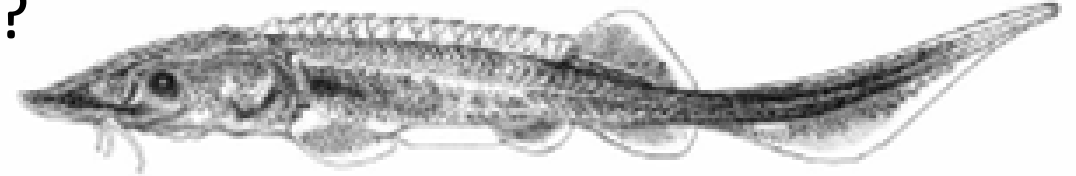
- Implement a process to allocate water across prioritized annual species needs under a range of water availability scenarios within a dynamic system.
- ID what breaks the system under future scenarios – what is the risk of underinvesting vs. over investing.



Target Species – Pallid Sturgeon

Challenge: Does a contribution to research ‘avoid adverse impacts to PS populations’ in the lower Platte River?

Why it matters:



- Pallid sturgeon (PS) use of the Lower Platte River and major tributaries is increasing.
- Program document goal language (benefit PS) and AMP Management Objective (avoid adverse impacts to PS) remain inconsistent.
- Consensus on the ‘pallid issue’ during the Extension needed to inform Second Increment.

Possible ways forward:

- Follow guidance: Compass’s Proposed Approach to Pallid Sturgeon Decision Support (9/2017) & EDO’s Pallid Sturgeon Discussion Summary White Paper (1/8/2018);.
- Embrace phased approach in ‘Priority Management Hypotheses’ (PS1-PS3), August 2019 draft AMP
- Justify how a genetics study achieves the “Thabault Doctrine”. Benefit is improved understanding of status of pallid sturgeon population and trends in its genetic diversity.

Water

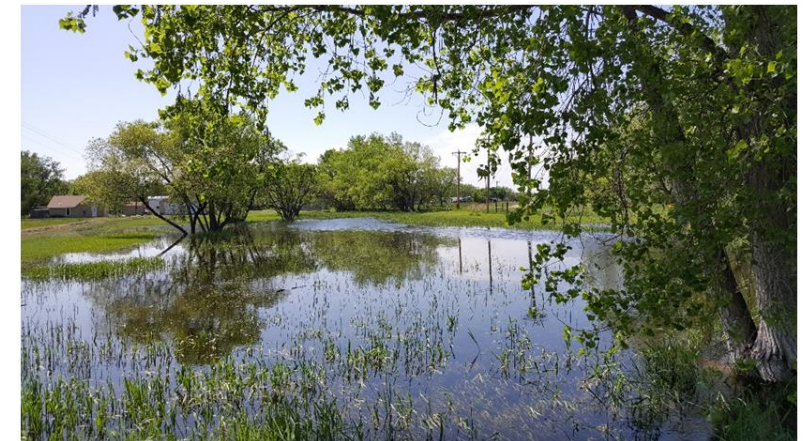
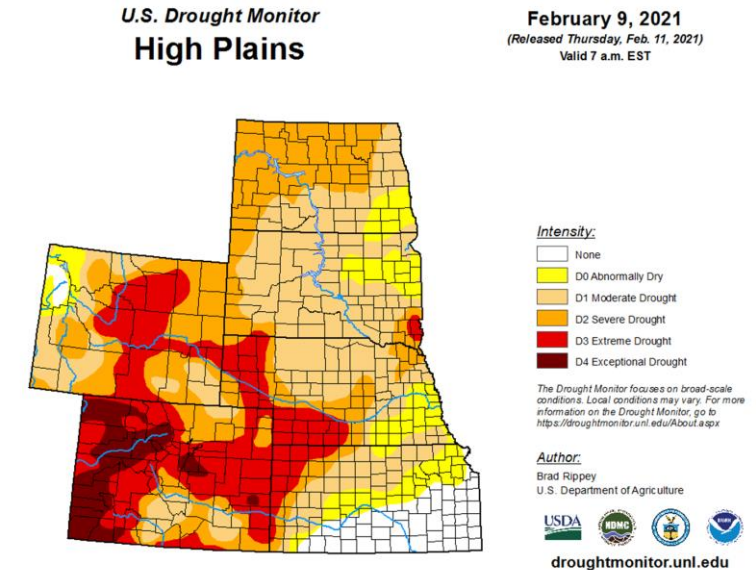
Challenge: Water management under uncertainty in climate & weather

Why it matters:

- Water supply is uncertain on both short & long time scales
- Decisions need to be made on Environmental Account water & other water buckets
- Current management approaches could fail under novel future conditions

Possible ways forward:

- Methods exist for identifying future vulnerabilities & proactively building resilience against them
- Continue to integrate/improve/test tools for in-season & multi-year water management
- Explore pros & cons, tradeoffs of different water management decisions



Water

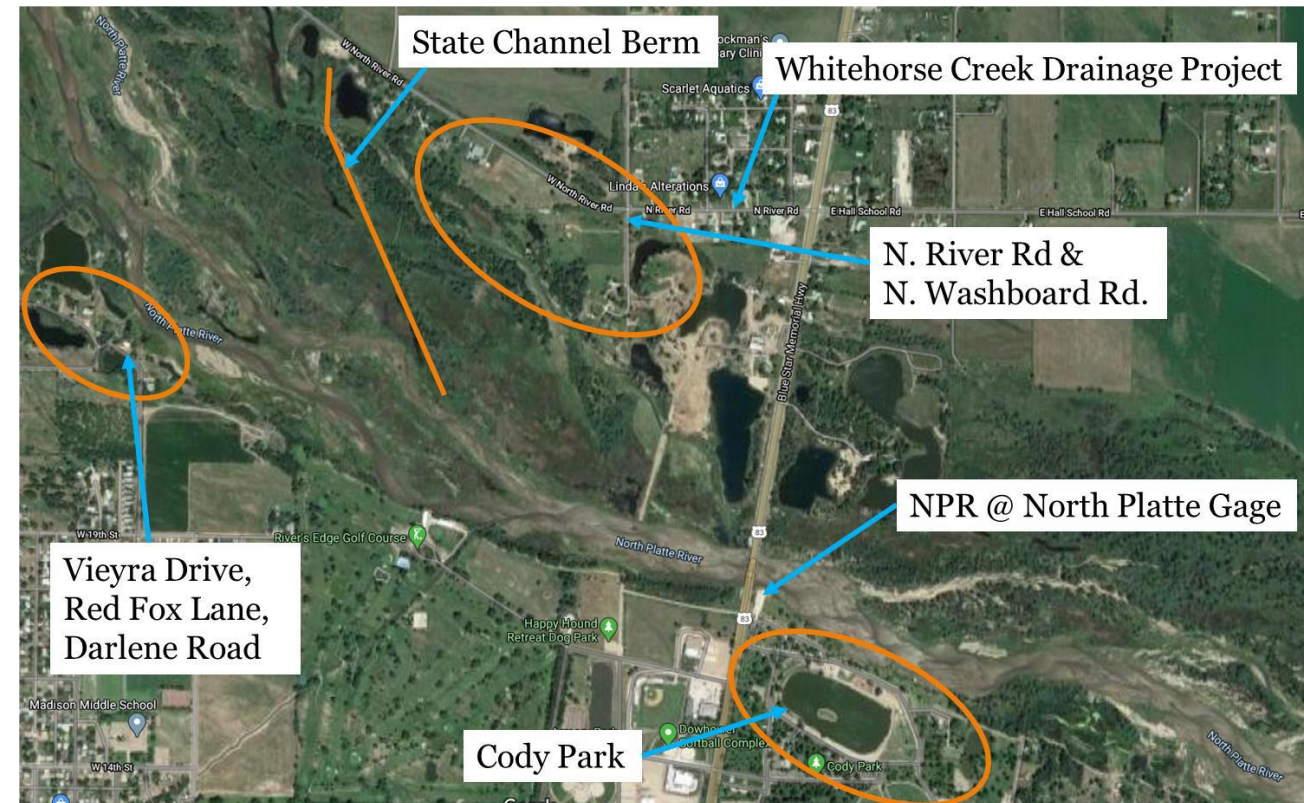
Challenge: North Platte choke point significantly limits flow management

Why it matters:

- Flexibility in water operations & flow management increases resilience & options for maintaining habitat

Possible ways forward:

- FEMA programs for addressing repeated loss properties
- FEMA Community Rating System incentives
- Buyouts



Water

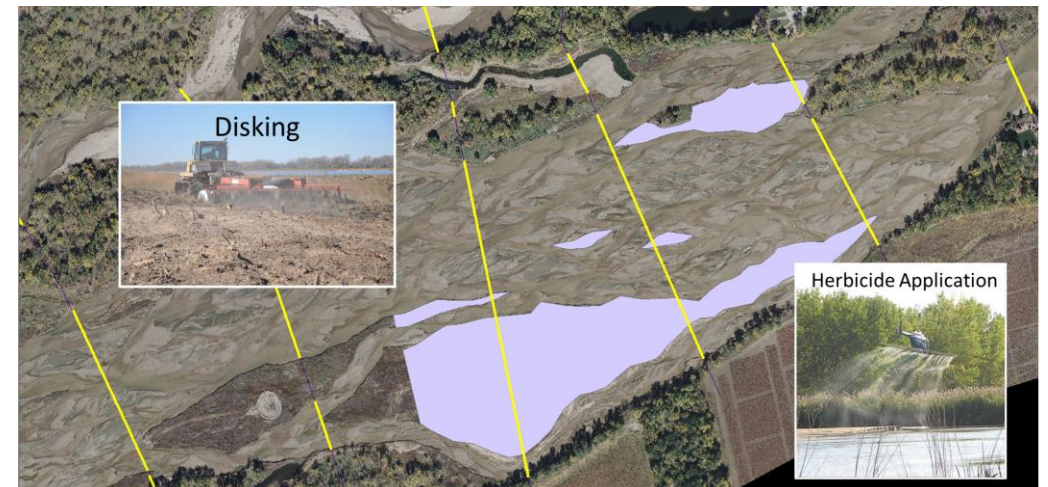
Challenge: Maintaining desired channel width

Why it matters:

- Maintain roosting habitat for whooping cranes
- Unobstructed channel width in Associated Habitat Area is highly variable year-to-year compared to most rivers
- Water supply is uncertain on both short- & long-time scales
- Decisions need to be made on Environmental Account water & other water buckets

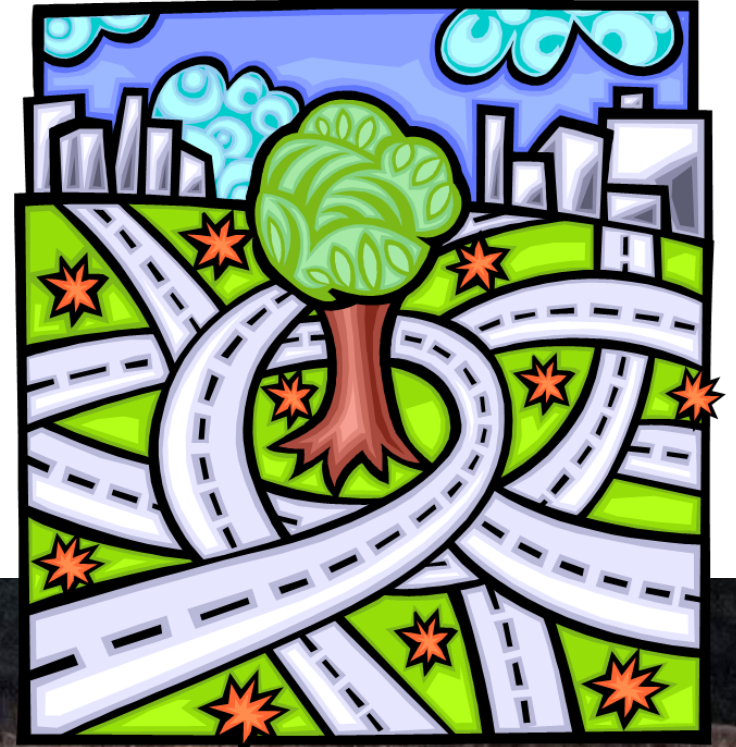
Possible ways forward:

- Acquire additional information on observed range of channel widths & an estimate of measurement uncertainty.
- Refine water model to improve predictions of channel width
- Continue control of vegetation & river flows to suppress germination - essential to maintaining channel width.



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Questions?



Colleen Childers