Extension Science Plan Status Update

September 2025 Governance Committee Meeting

PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

General Context & Status

- Focus – Evaluate effectiveness of using water to provide target species benefits
  - How much, how, when?
  - Potential benefits and tradeoffs

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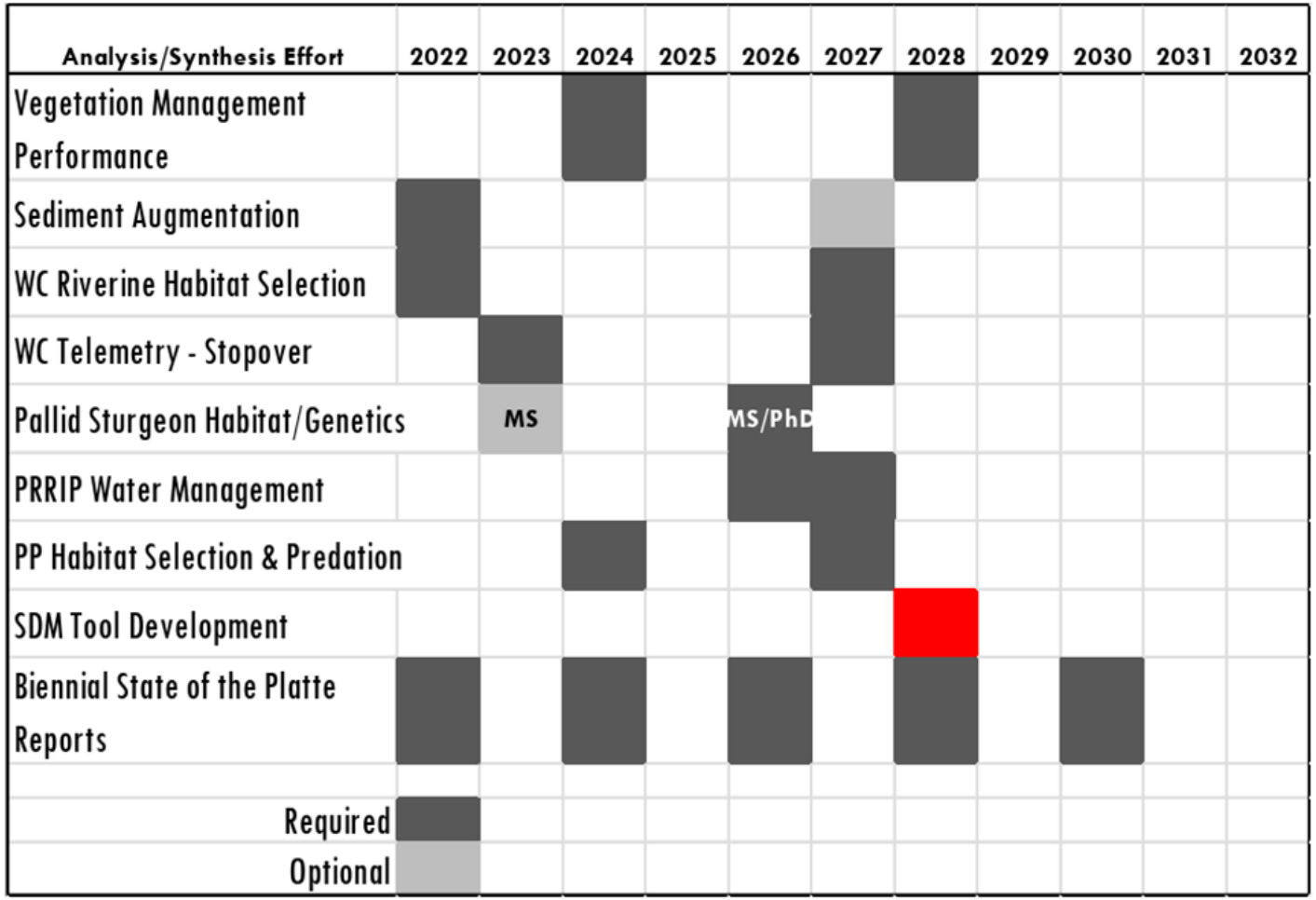
General Context & Status

- 10 Extension Big Questions
- Each question (2022-2028)
  - 2 multi-year evaluations
  - Continue, adjust, or stop
- Results into SDM (2028)
  - Compare and weigh outcomes
  - Consider costs and benefits
- Second Increment negotiations (2029-2030)



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Extension Big Question #1: How effective is it to use Program water to maintain suitable whooping crane roosting habitat?

Management Hypothesis: 30-days of min. 1,500 cfs between June 1 – July 15 (germination suppression release) will:

- suppress germination
- slow vegetation expansion into the channel
- increase the % of AHR that remains highly suitable for WC roosting

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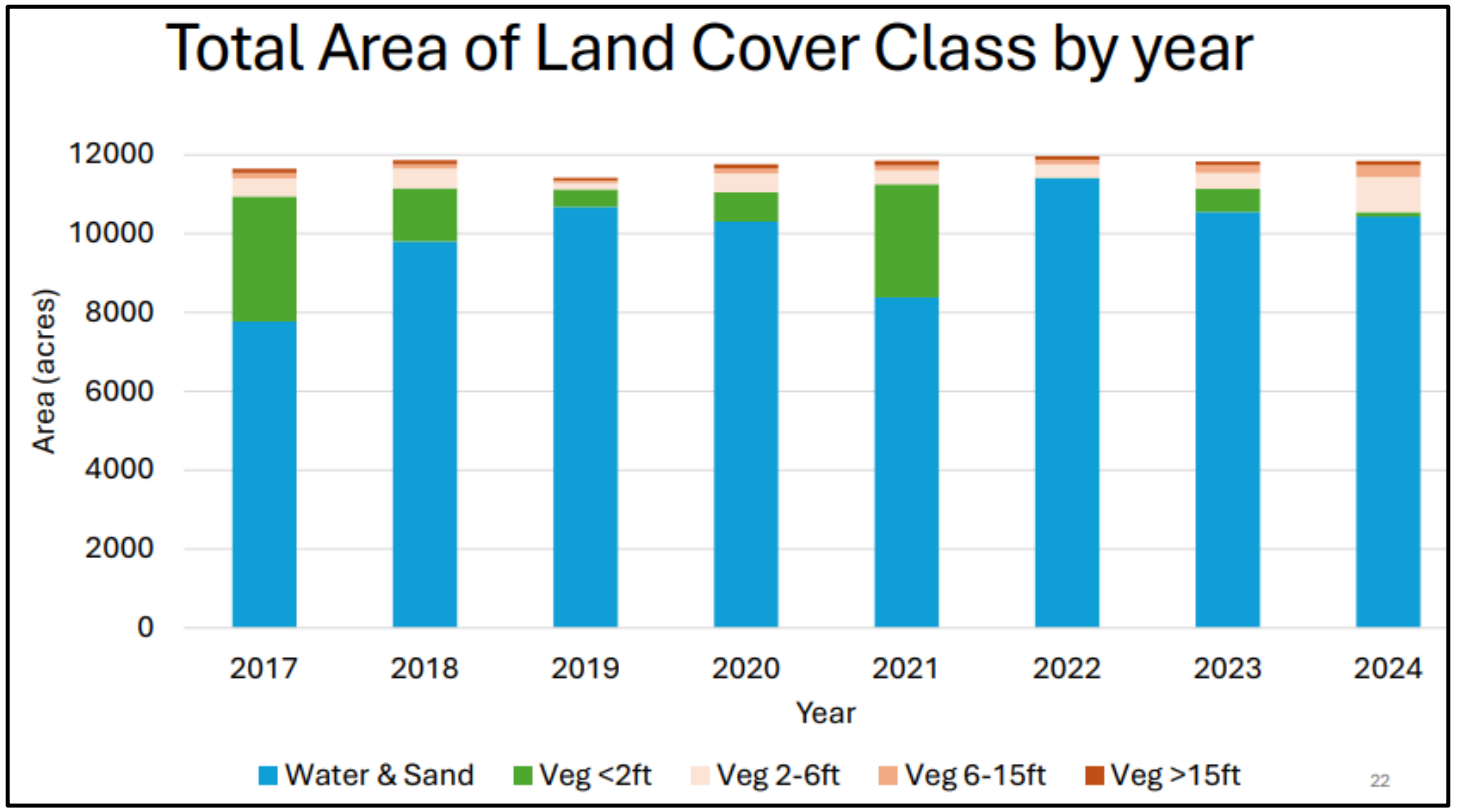
BQ1 Status – decision-making context

- Research shows flows to scour veg far exceed Program capacity
- Focus instead on *maintenance* through veg growth *prevention*
- Early assessments are cautiously positive – why?



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BQ1 Status – questions to address

- Tradeoff of germination suppression *vs* WC roosting?
  - Rate of veg expansion *vs* June discharge?
  - Changes in width, cost/benefit of direct vegetation treatment with and without?

- Channel capacity limitations at the NP Chokepoint?
  - Invest in more water *vs* increase conveyance?

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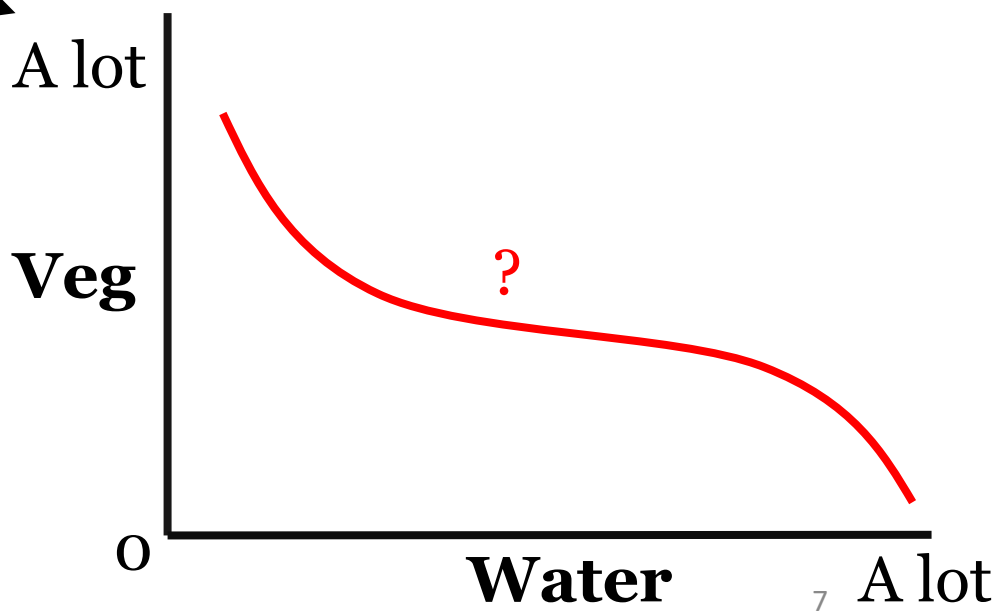
BQ1 Status – ongoing research (Observations)

- state change: remote sensing
- direct observation: vegetation cameras



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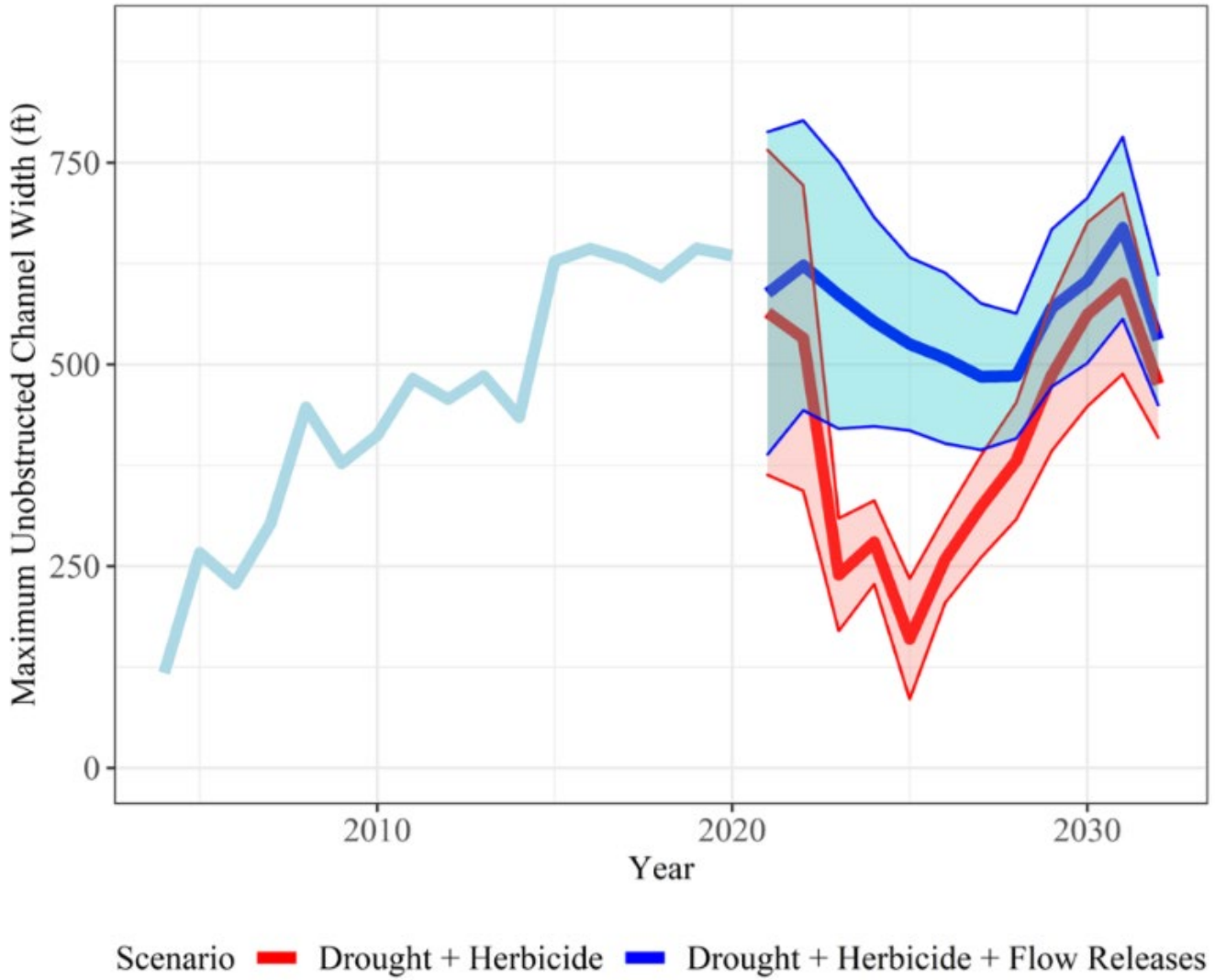
BQ1 Status – ongoing research (Channel Width Model)



Effectiveness of:

- Flow Releases
- Peak Flows
- Spraying
- Disking

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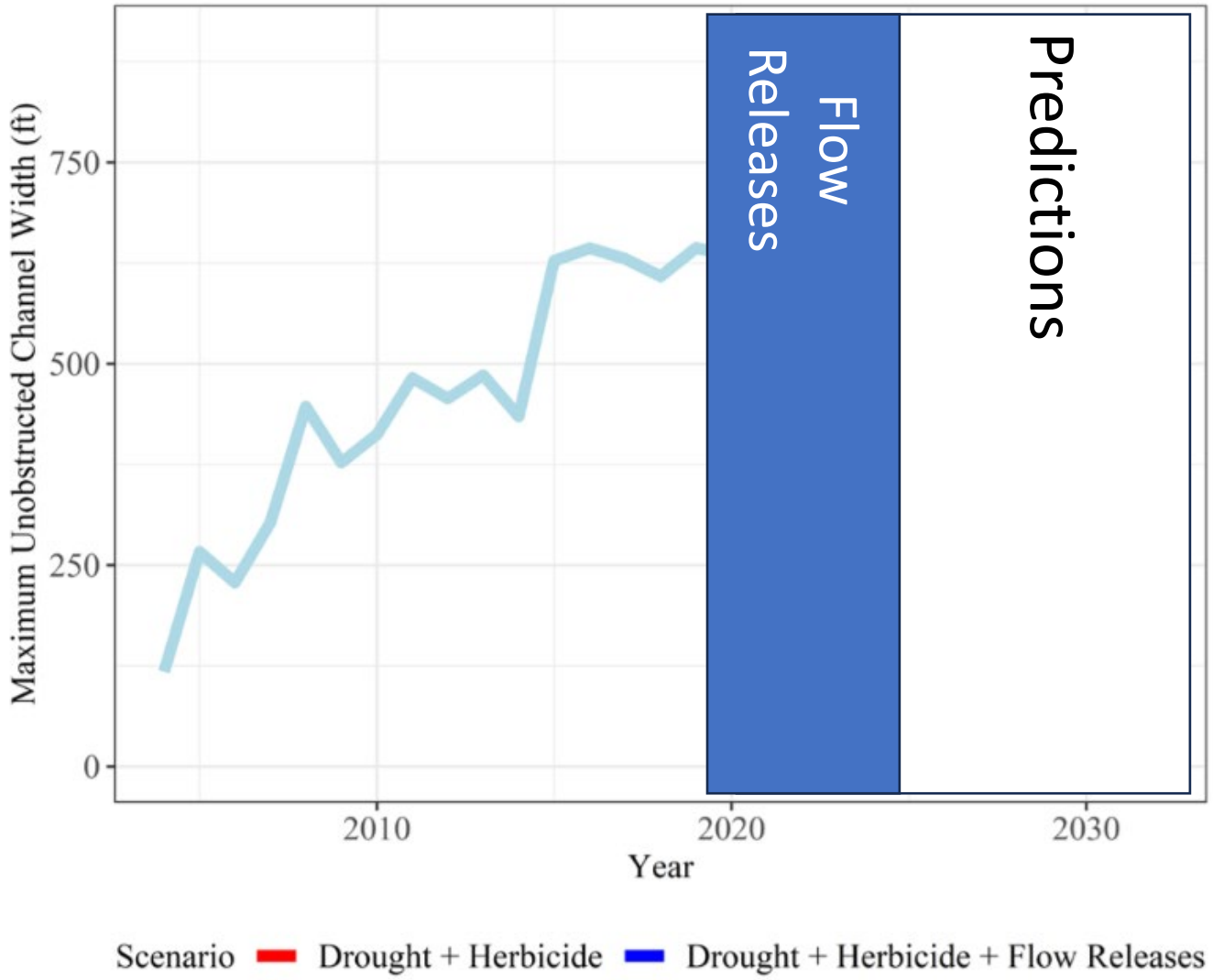
BQ1 Status – ongoing research (Channel Width Model)



Complexities

- Water Year Type
- Changes to *Phragmites* Spraying
- Effectiveness of *Phragmites* Spraying

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Extension Big Question #2: How effective is Program management of Phragmites for maintaining suitable whooping crane roosting habitat?

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- Maintain Flows
  - 1,500 CFS
  - June 1 – July 15
- Herbicide Spray
- Slow Phragmites Expansion
- Keep AHR Channel Width for Whooping Crane Roosting

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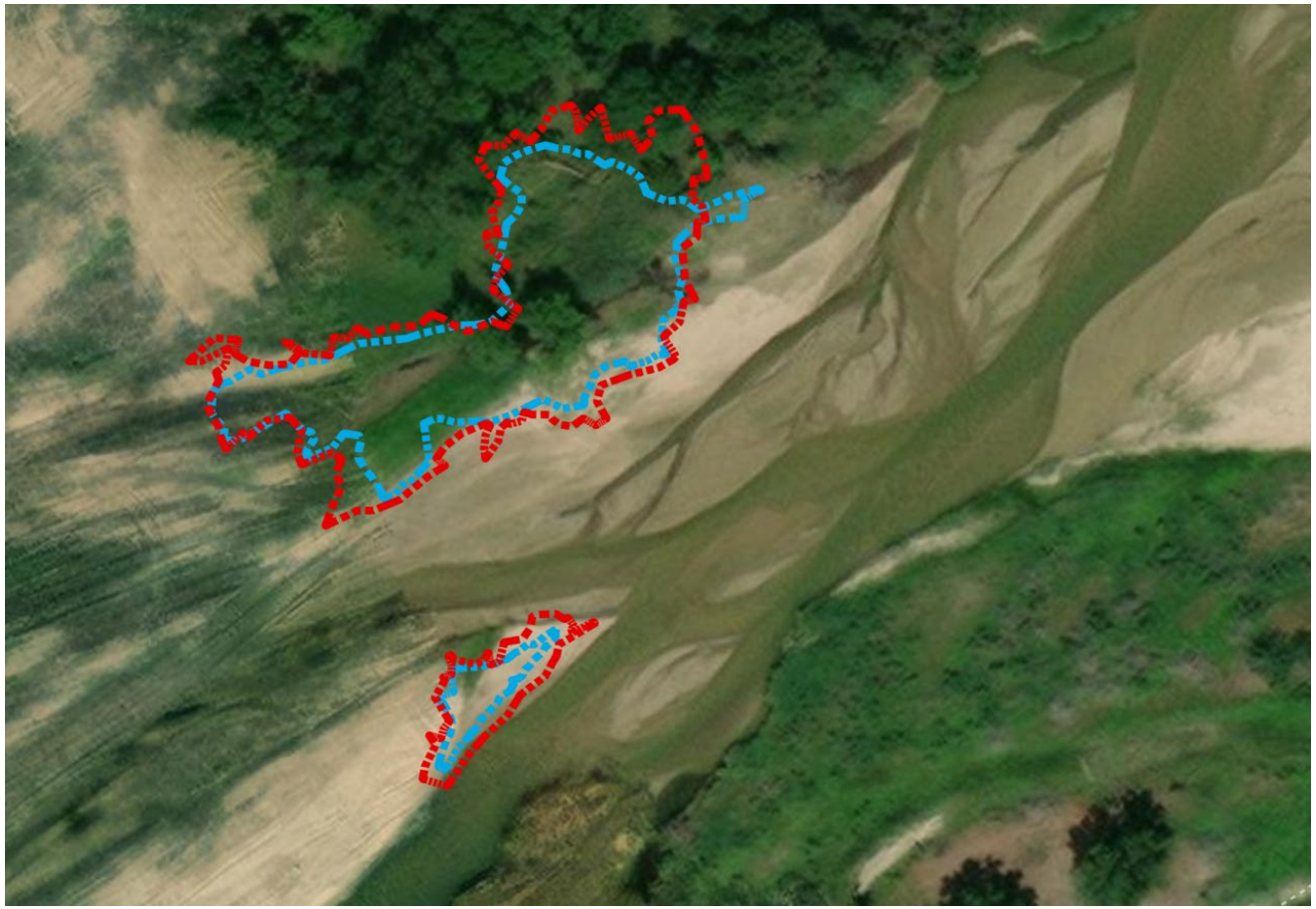
BQ2 Ongoing Research

Phragmites Growth & Expansion

- River Flow & Inundation
- Herbicide



May 2023 Patch Boundary

Oct. 2023 Patch Boundary

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Do We know Enough?

- Not Yet.
- Data shows variability.

Potential Surprises:

- Herbicide
  - Effectiveness Decline
  - Funding

Extension Big Question #3: Is sediment augmentation necessary to create and/or maintain suitable whooping crane habitat?

Management Hypothesis: direct, mechanical sediment augmentation…

…is necessary to halt narrowing and incision in the south channel downstream of the J-2 Return.

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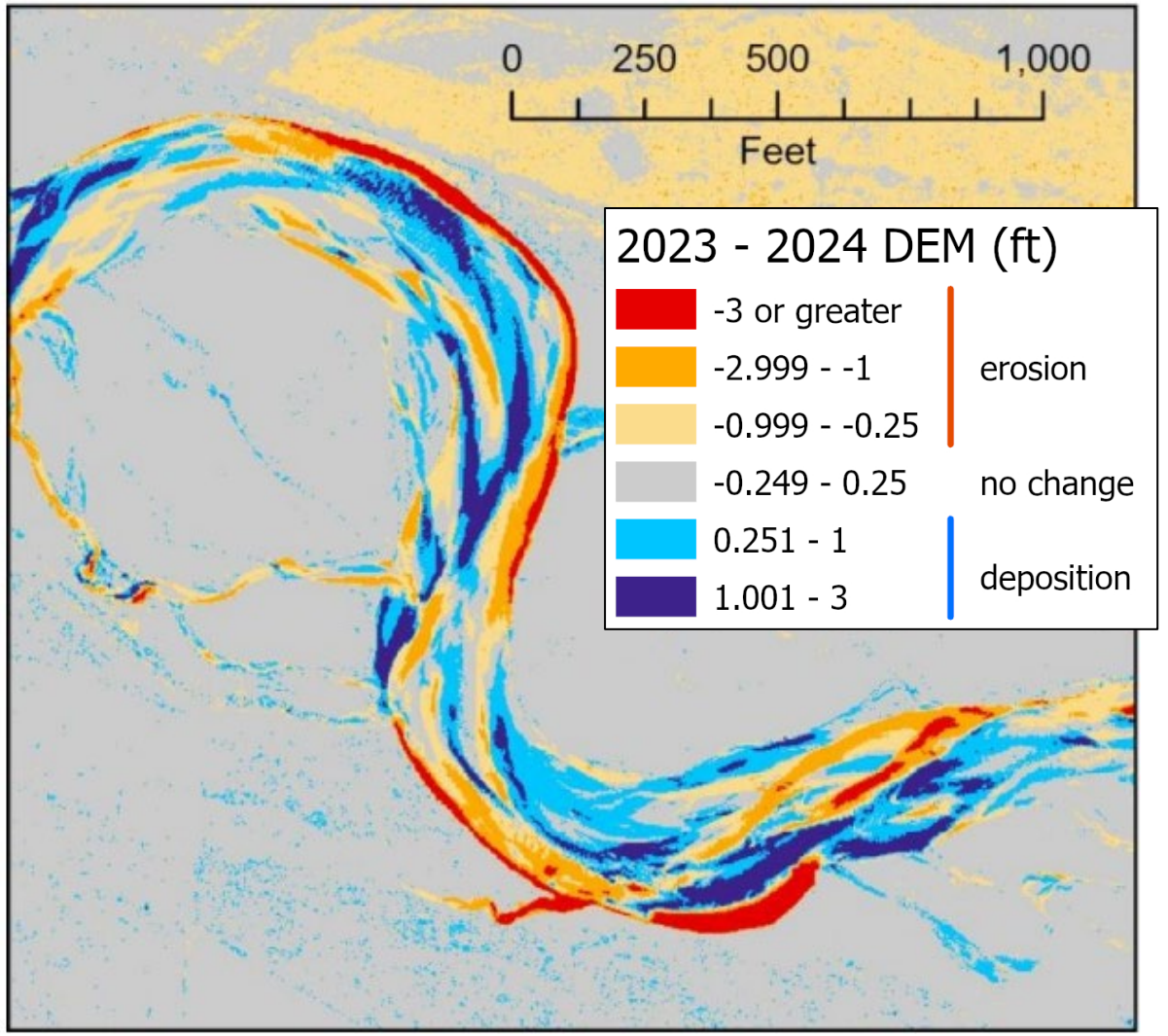
BQ3 Status – decision-making context

- Reach downstream of J2 Return has narrowed, become less suitable for whooping cranes
- Change has progressed downstream, but *slower than expected*
- Rate of downstream movement towards high-quality habitat is critical



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BQ3 Status – questions to address

- Rate and pattern of incisions, narrowing, planform change with *vs* without augmentation?
- If rate is unacceptable, how much augmentation is needed?
- Viable alternatives for equivalent effectiveness?

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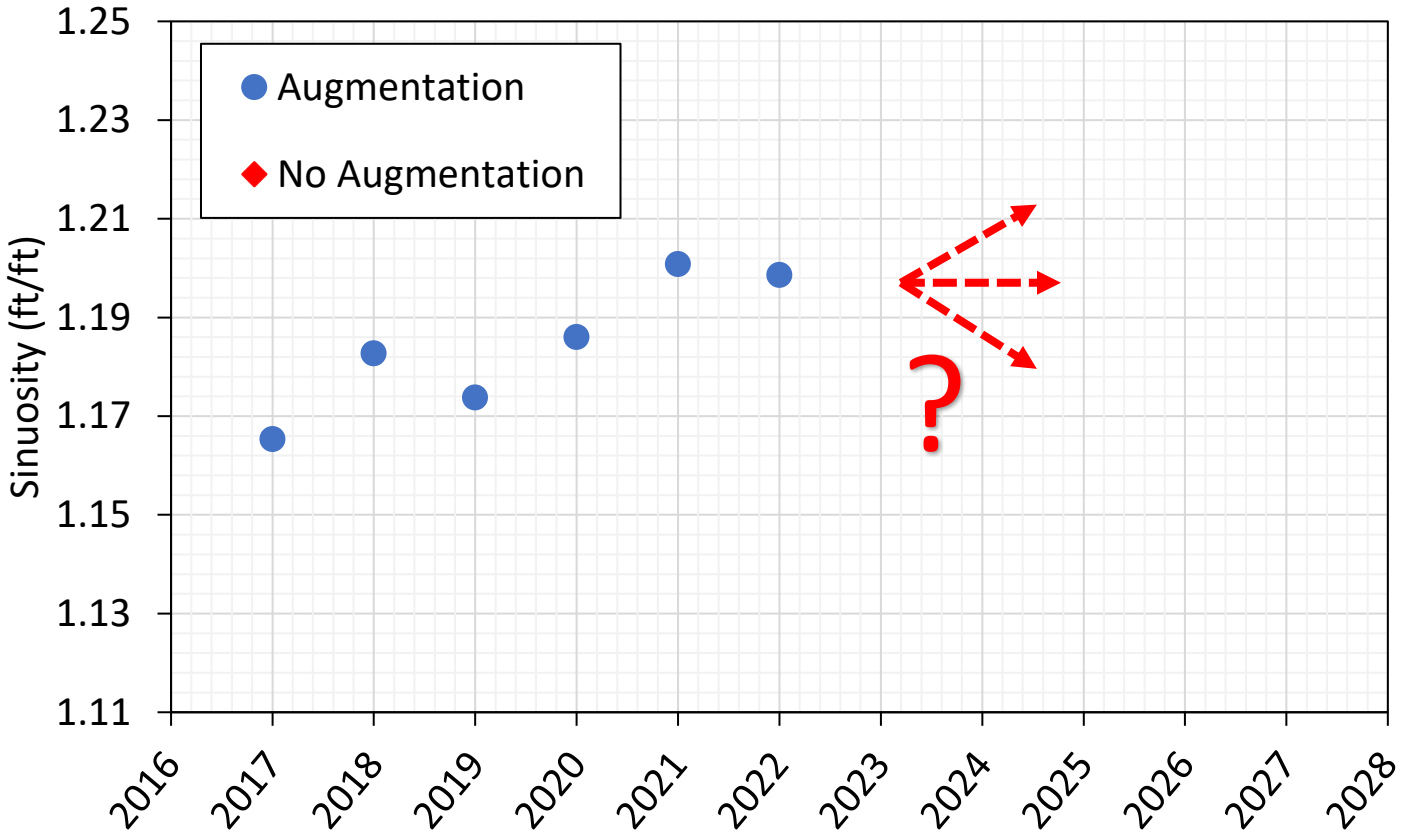
BQ3 Status – ongoing research

No Augmentation Experiment

- Estimate rates of incision, narrowing
- Determine augmented volume required to offset changes



Example – sinuosity during augmentation, and no-augmentation

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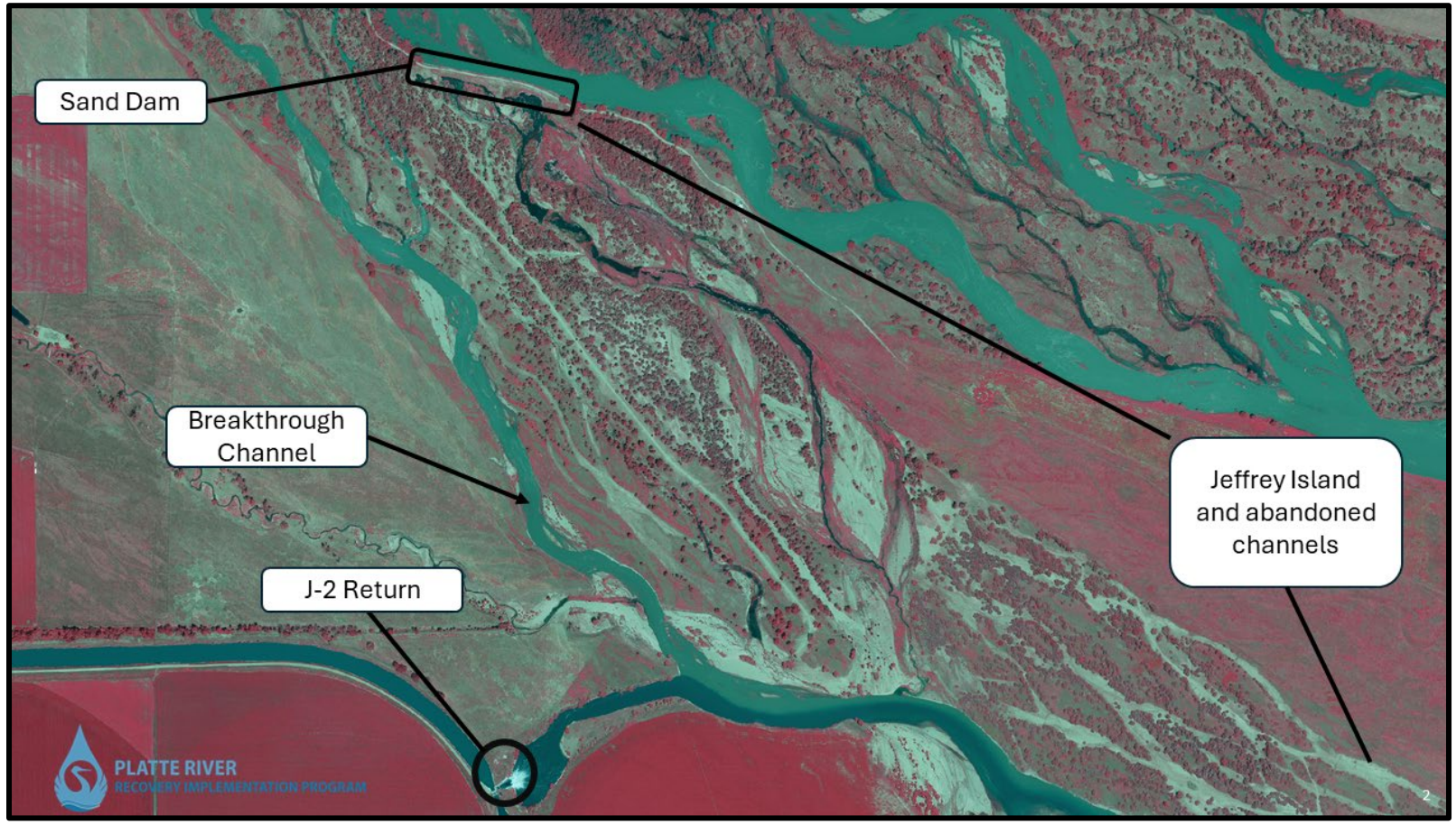
BQ3 Status – ongoing research

Feasibility, effectiveness of passive alternatives



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BQ3 – what we know

Full-scale augmentation from 2017 – 2022

- Synthesis complete
- Incision slowly progressing
- Lateral erosion high

Passive augmentation study

- Results to TAC next month

No augmentation monitoring

- Ongoing (began 2023)
- Natural experiment limitations

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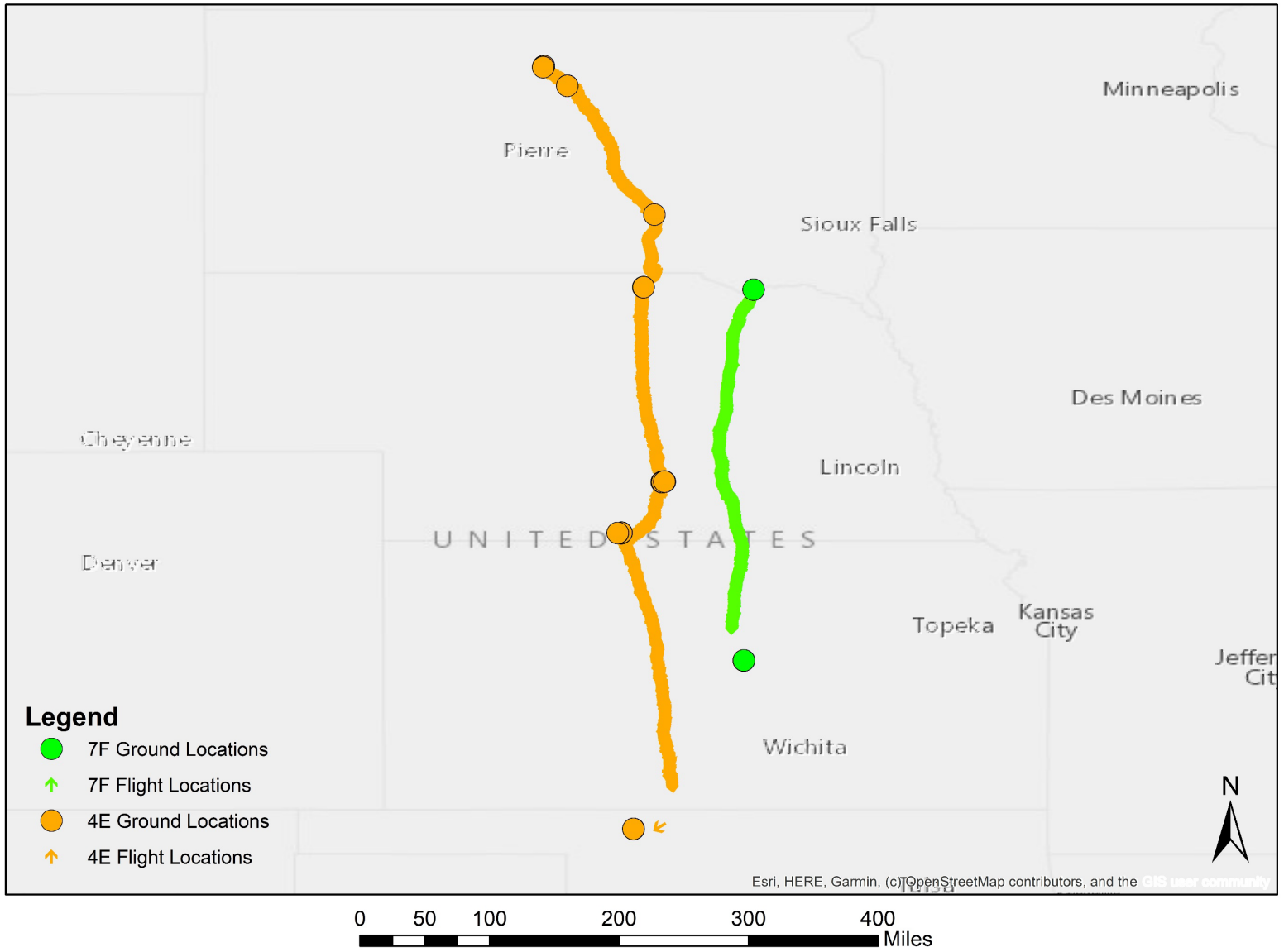
Extension Big Question #4-6: What factors influence WC decision to stop or fly over the AHR, how long they stay, and why use differs by season.

BQ4 Management Hypothesis: Probability of WC stopping within the AHR is a function of discharge.

BQ5 Management Hypothesis: Length of WC stopover within the AHR is a function of discharge.

BQ6 Management Hypothesis: WC use of the AHR in the Spring is greater than during the Fall due to higher flows during the Spring.

BQ4-6 Status – decision making context



Data

- Cellular Telemetry Data

Analyses

- Stopover/Flyover
- Stay Length

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BQ4-6 Status – decision making context

Do manageable metrics influence whether birds chose to stop in the AHR?

How much influence?

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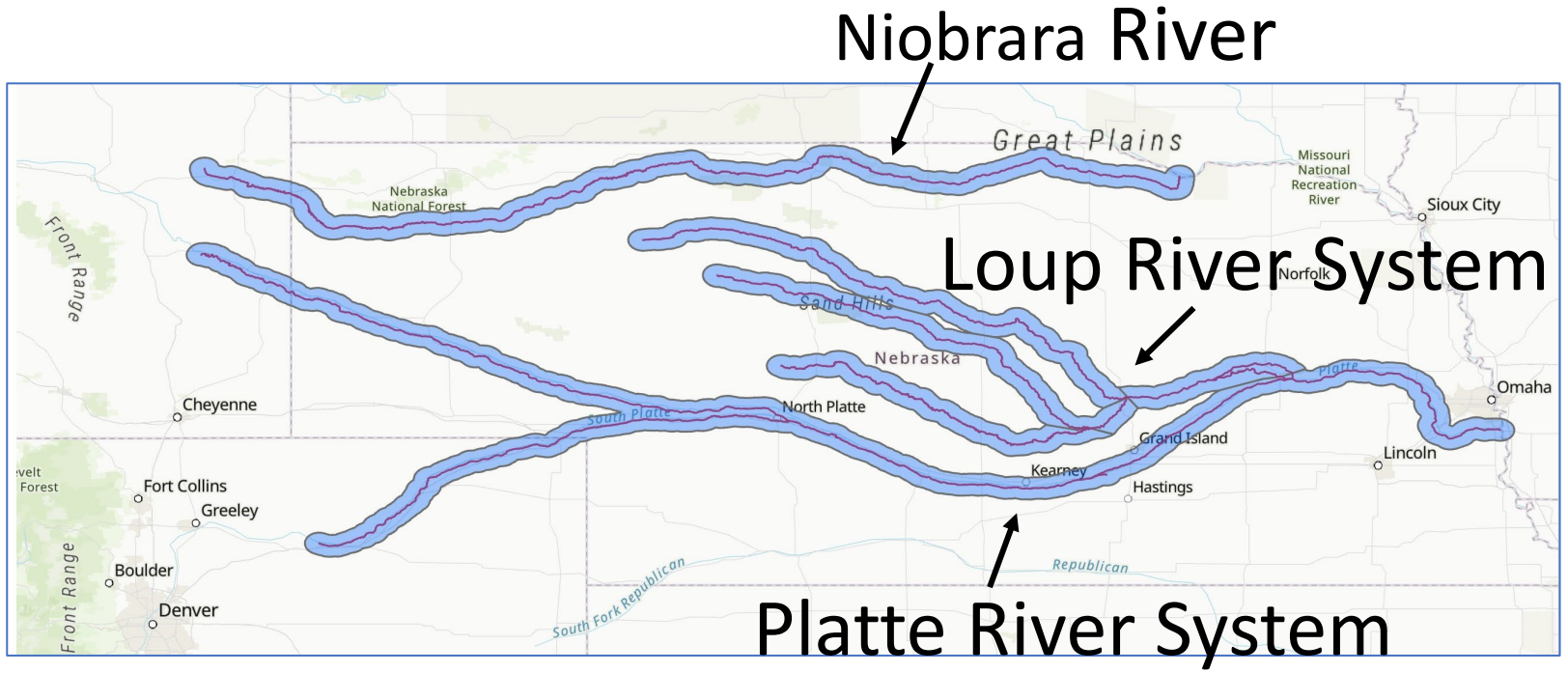
BQ4-6 Status – ongoing research

- Drivers of whooping crane stopover initiation
- Seasonal differences
- Comparison with other systems



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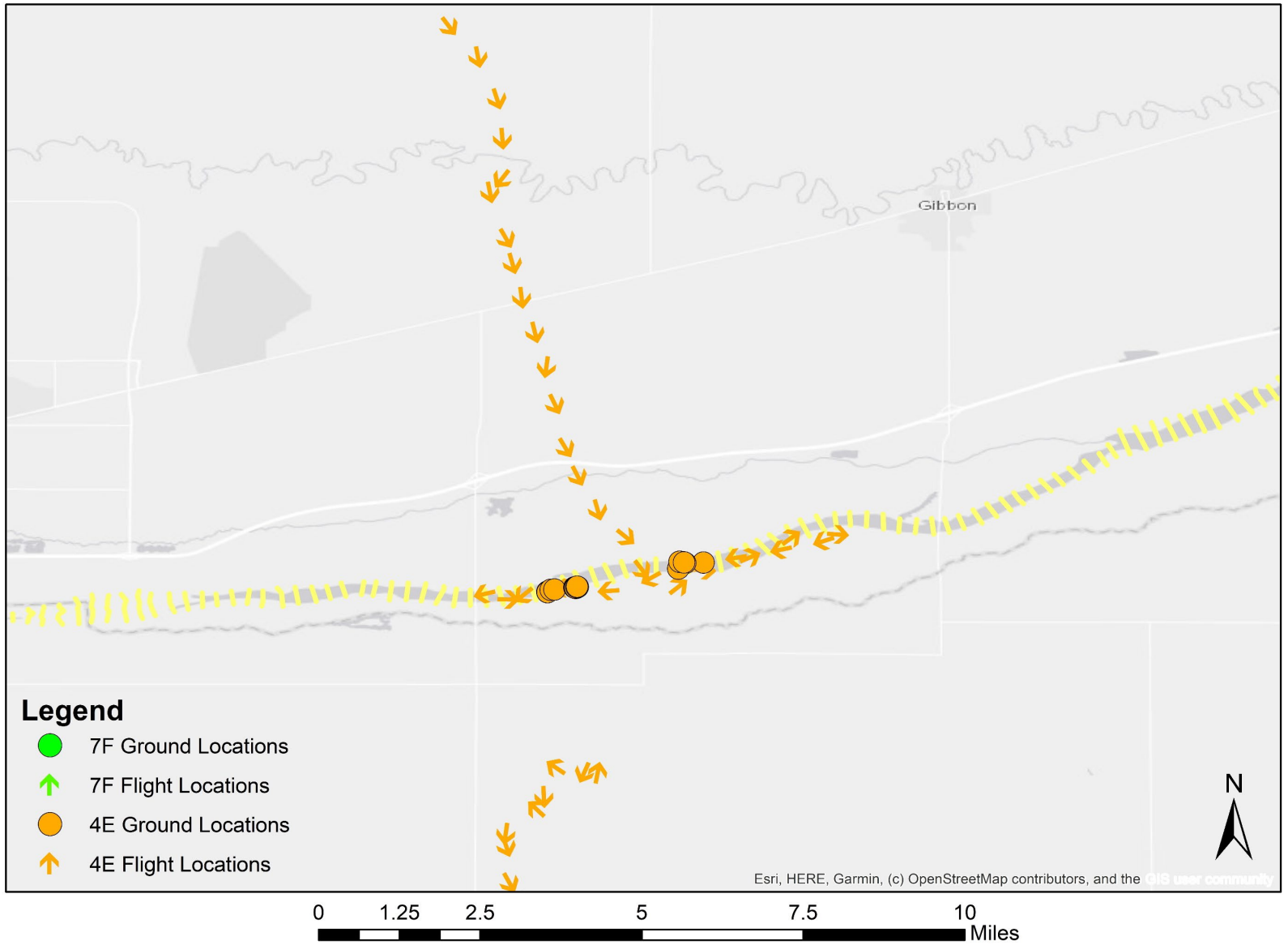
BQ4-6 Status – ongoing research



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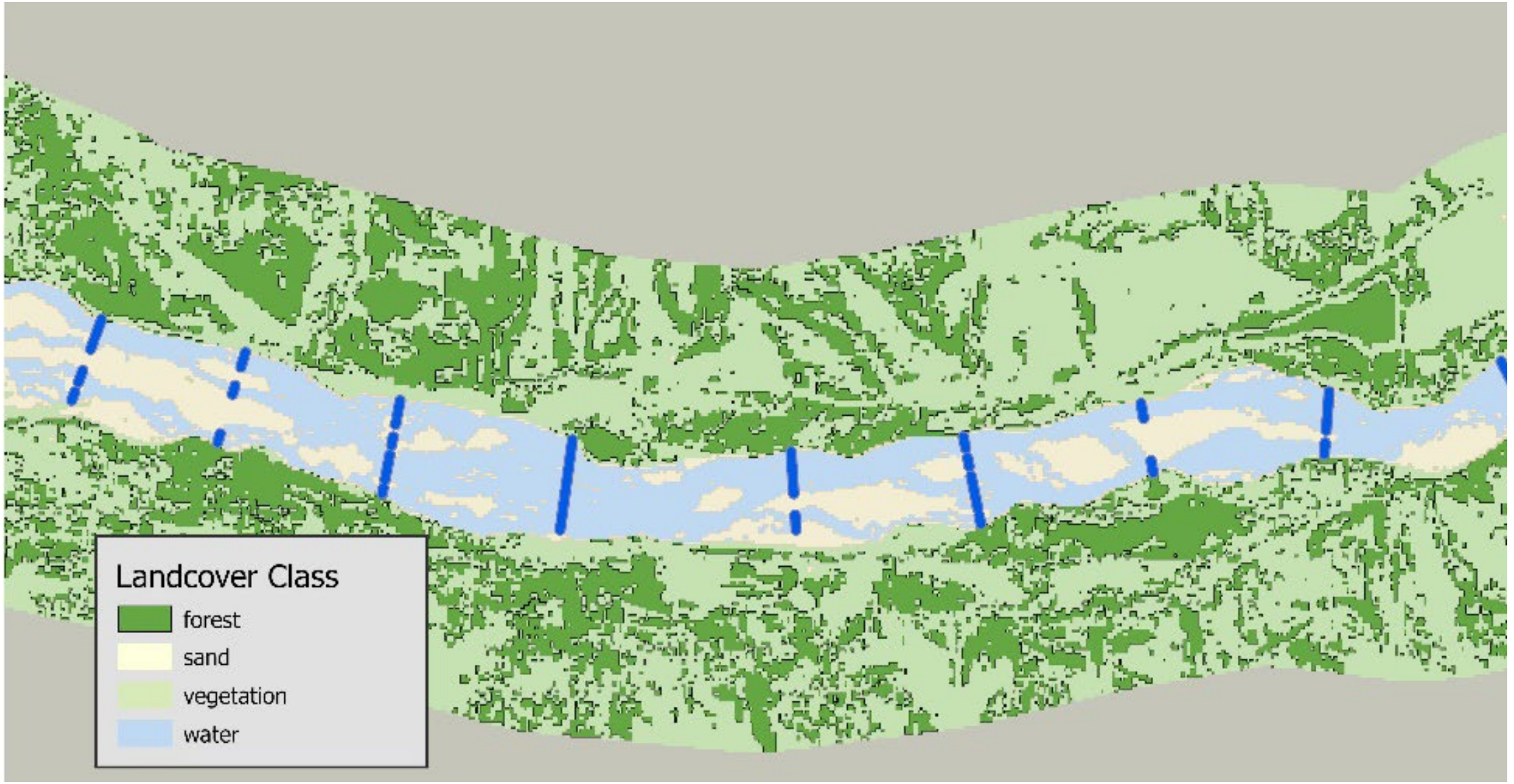
BQ4-6 Status – ongoing research



Extension Big Question #7: What effect do Program flow management actions to benefit WC, PP, and LT in the central Platte River have on pallid sturgeon (PS) use of the lower Platte River (LPR)?

- Program obligation to minimize/avoid impacts and quantify benefits for PS
  - Genetics Research
  - PS Habitat and Spawning Research

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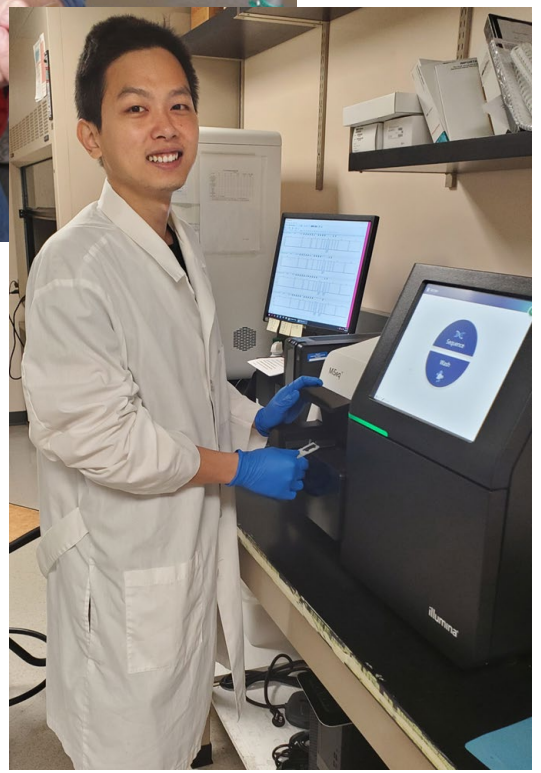
BQ7 What are we doing?

Pallid sturgeon genetics research

- Species identification and hybridization
- Reassess PS population dynamics
- Estimate effective population size



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BQ7 What are we doing?

Pallid sturgeon habitat and spawning research

- UNL tagging and tracking PS use and movement
- Extent and timing of PS use of LPR
  - 2025 ends data collection
- Identifying associated environmental variables and habitat metrics
  - 2026 data analysis

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BQ7 What are we doing?

Future Water Management Study

- Identify expected changes in LPR flow-related metrics (PS habitat metrics) due to PRRIP flow management

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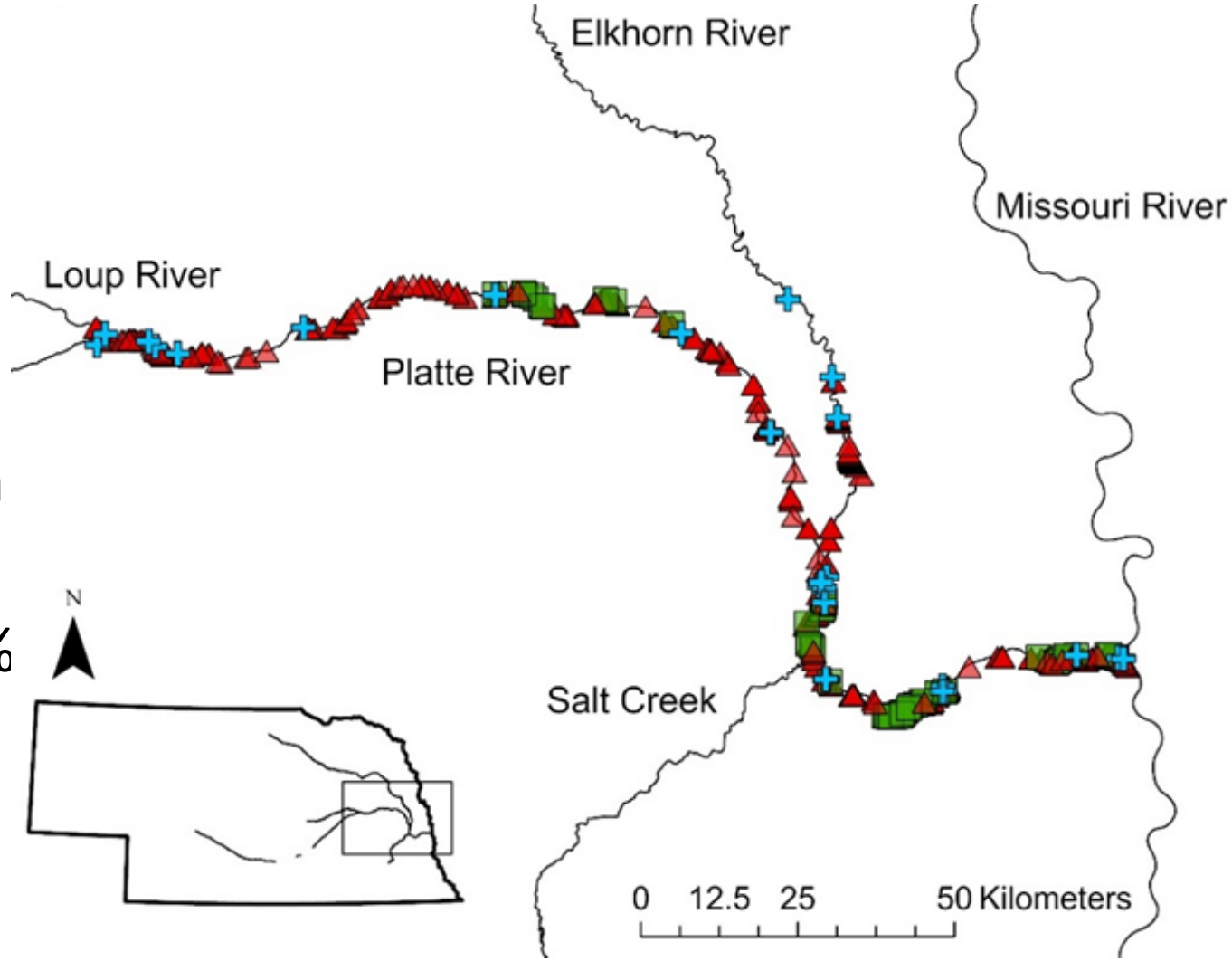
BQ7 What do we know?

- Use throughout lower Platte system
- 164 unique pallid sturgeon
- March through October
- Evidence of spawning behavior in lower Platte
- Magnitude of PRRIP actions ~20% of originally planned



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Extension Big Question #8-9: How much of an effect does predation have on PP productivity and how effective is Program management at mitigating losses due to predation?

Objectives:

- Quantify Impact.
- Evaluate effectiveness of predation management.
- Determine whether we continue predation management.

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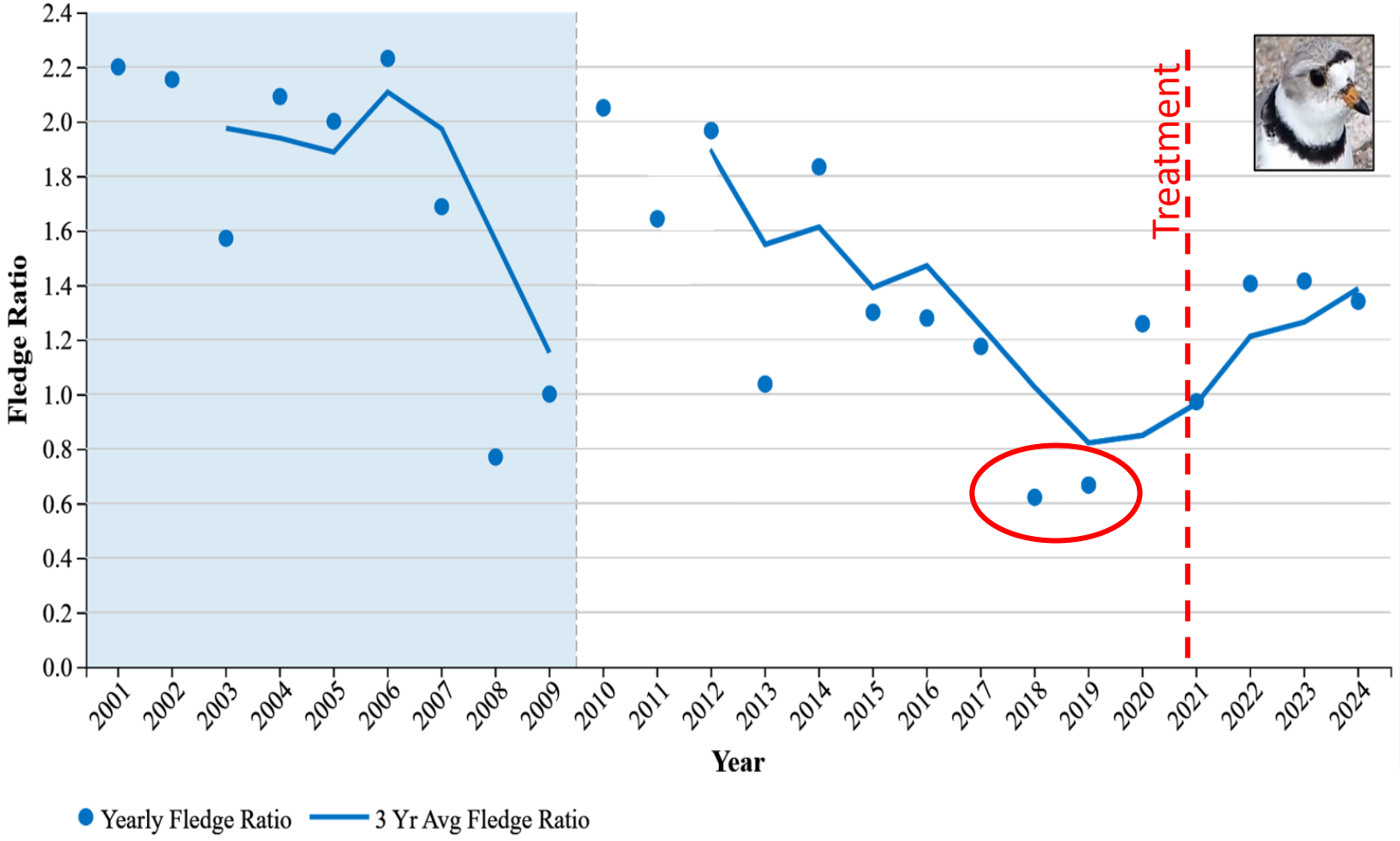
- Established piping plover habitat
- Observed Low productivity (2018-2019)
- Additional Predation Management (2021)



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Ongoing Research

Cameras

Lights

Fences

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Do we know enough?

- Uncertainty remains due to site/annual variation.
- Data analysis is underway.

Potential Surprises:

- External factors drive outcome.

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Extension Big Question #10: Wet meadow research.

Negotiation-related questions:

- Can the Program create/restore wet meadows at other locations?
- If feasible, will benefits extend to whooping crane use?

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Extension Big Question #10: Wet meadow research.

Objectives:

- Understand functional hydrological regime for wet meadows along the central Platte River valley
- Develop a modeling tool for land managers to inform management decisions.

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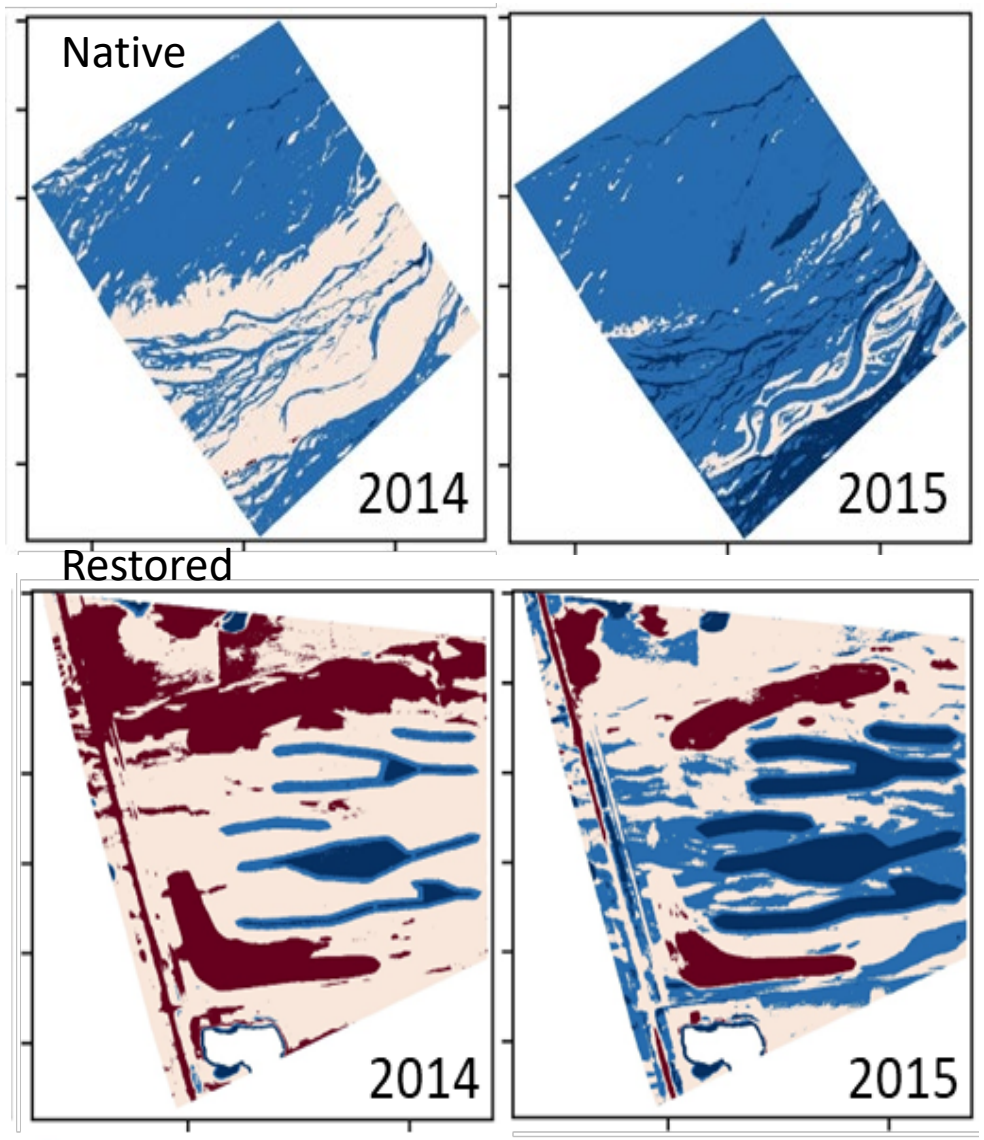
BQ10 What do we know?

- Spatial and temporal variability in depth to groundwater
- Linked to vegetation community

- Groundwater model
- Estimate water needed for flow releases or surface application



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BQ10 What do we know?

WEST Redo

- No positive selection for wet meadows

Roost Site Selection

- Amount of nearby wet meadow not important for roost site selection

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BQ10 Wet Meadow Policy

Approved at December 2024 GC

- Retain current definition of wet meadows
- Retain current wet meadow/grassland holdings
- Improve Program's management of wet meadow/grasslands
- Prioritize riverine habitats over creating additional wet meadows mechanically

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