

PRRIP Wet Meadow Hydrology Report Peer Review

2024 PRRIP Science Plan Reporting Session

Omaha, NE

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Chadwin Smith, Ph.D. – PRRIP EDO

* Wet Meadow Hydrology Report authored by **Kristen Cognac**, Ph.D., formerly of the PRRIP EDO



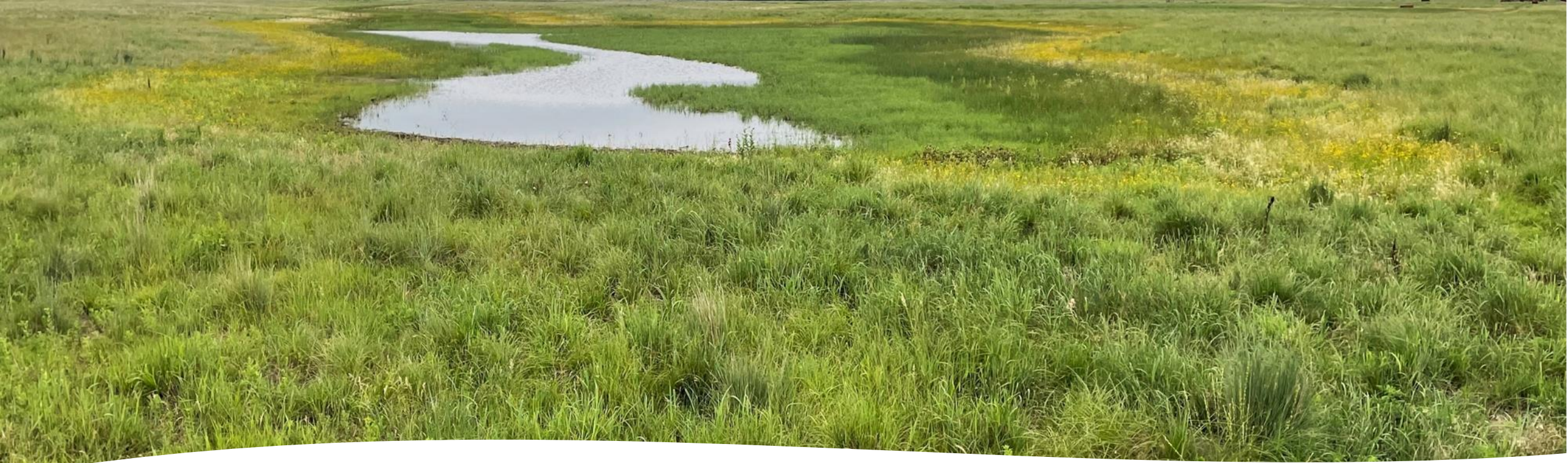
Wet Meadows & PRRIP Extension Science Plan

Extension Big Question #10: Wet meadows research (NOTE: this is a carryover task from the First Increment to specifically address the physical processes involved in wet meadow hydrology)

Learning Objective*₁: Understand relationships between hydrological and meteorological variables and groundwater levels at natural wet meadow sites.

Learning Objective₂: Understand what constitutes a functional hydrological regime for wet meadows along the central Platte River valley which can be used as a reference and applied to manage other sites.

Learning Objective₃: Develop a modeling tool that can be used by land managers in the central Platte River valley to inform management decisions.



Wet Meadow Hydrology Report – Key Contributions

Quantify

Quantify hydroregime at a native and a restored wet meadow site

Link

Link groundwater to vegetation classes

Develop

Develop simple model that predicts GW level given stage, ET, precipitation

Perform

Perform river-ground surface elevation analysis



Wet Meadow Hydrology Report – Key Contributions

Quantify hydroregime at a native and a restored wet meadow site:

- Hydrology is highly variable within and between sites
- Sites become wetter to the east

Link groundwater to vegetation classes:

- Develop targets for management
- Determine required changes in hydrology

Develop simple model that predicts GW level given stage, ET, precipitation:

- Apply to make predictions about management strategies

River-ground surface elevation analysis:

- Screen/ assess hydrologic conditions at wet meadow sites without intensive data collection

Peer Review Results – Quick Summary

Three (3) reviewers:

- **Greg Kamman**, PG, CHG – cbec eco engineering
- **Dr. Steve Loheide** – University of Wisconsin-Madison
- **Dr. Mark Rains** – University of South Florida

One reviewer chose to remain anonymous, so none will be identified in the Peer Review Report (i.e., Peer Reviewer #1, #2, #3)

Peer Review Results – Quick Summary

Scope of Work Questions:

- 1) Adequately address all objectives? – **Yes**
- 2) Reasonable and scientifically sound conclusions? – **Yes**
- 3) Any references omitted? – **A few offered for consideration**
- 4) Statistics current, results useful? – **Yes**
- 5) Biases and errors addressed appropriately – **Mixed responses**
- 6) Future work items reasonable and helpful to decision-makers? – **Generally yes; a few ideas offered for consideration**

Peer Review Results – Quick Summary

A Few Key Issues to Address:

- 1) Period of analysis – did not include any dry water year-types, results may be biased toward normal and above-normal water year-types
- 2) Underlying assumptions – need to explain limitations of methods and assumptions
- 3) Several edits related to grammar, figure text, etc.

Peer Review Results – Quick Summary

Next Steps:

- Complete Peer Review Report (Chad)
- Propose edits and changes in response to comments (EDO; Kristen help?)
- Review & discuss Peer Review Report and proposed changes/edits (TAC)
- Communicate with Peer Reviewers (Chad)
- Final changes/edits to Wet Meadow Hydrology Report (EDO + TAC)
- Present to GC for discussion & approval

**Questions
Or
Comments?**

