Waterfowl Reproductive Success and the North Park Irrigated Meadows Conservation Program

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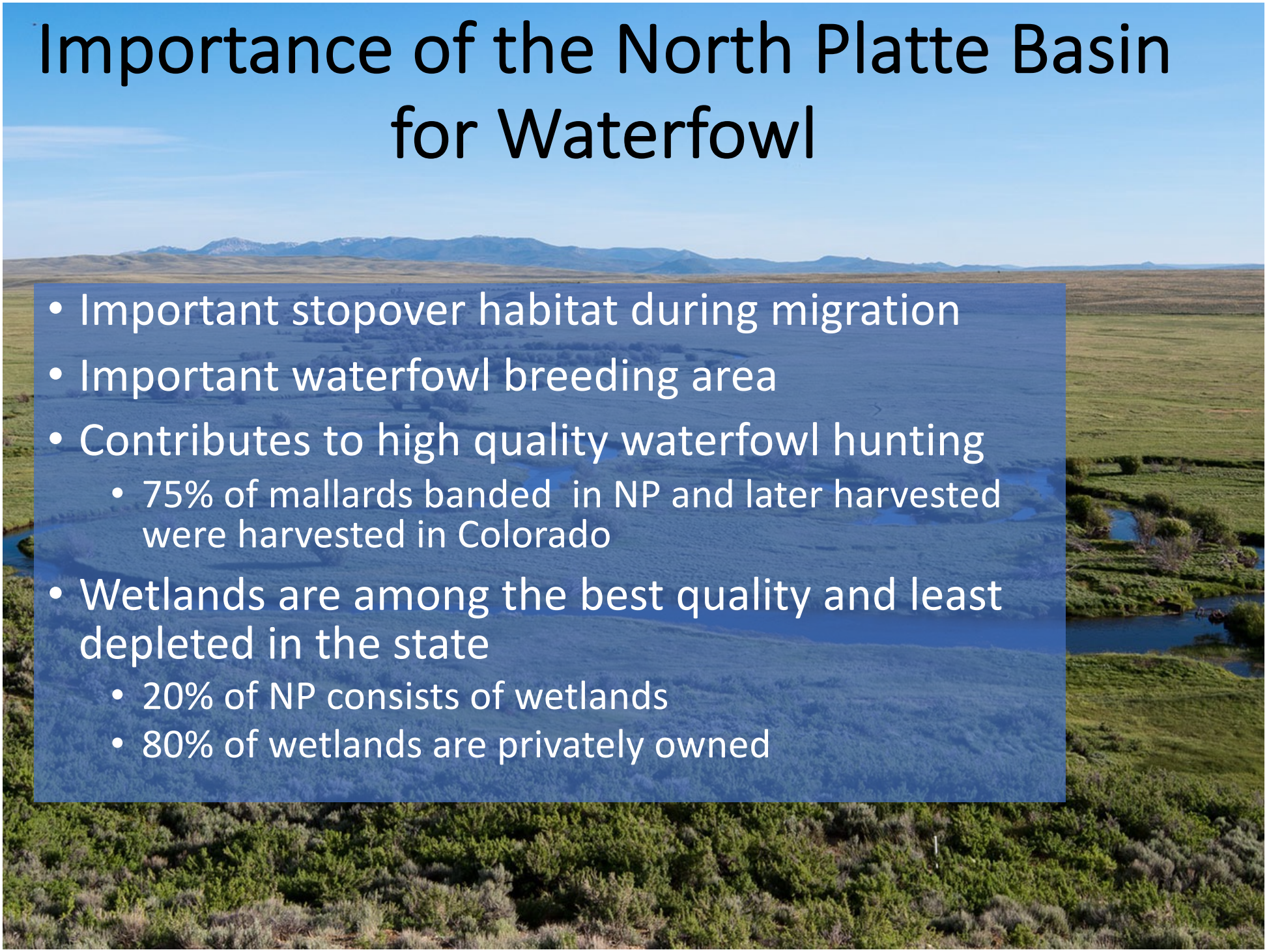
Importance of the North Platte Basin for Livestock Production

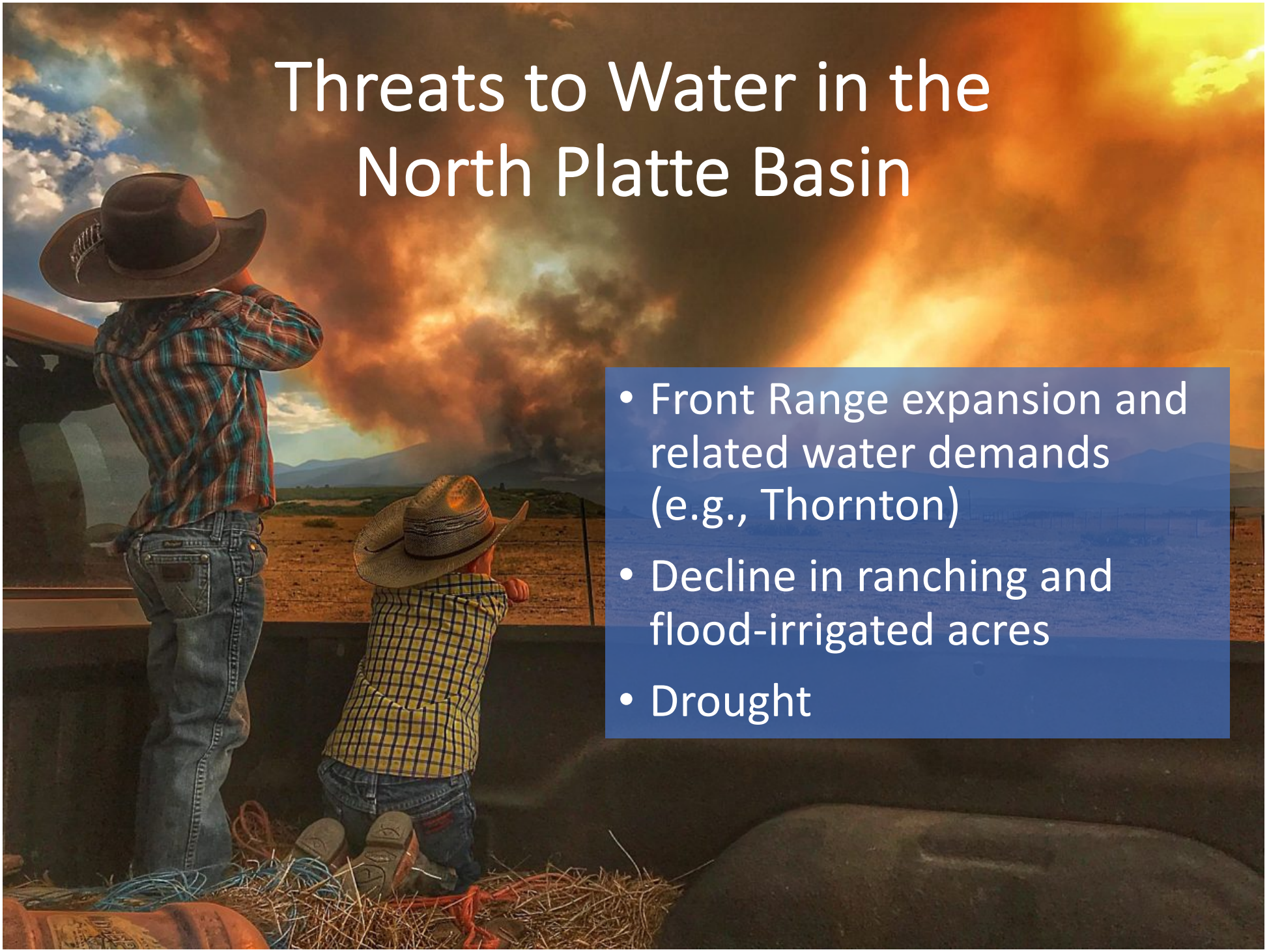
- Rangelands
- High quality Timothy grass hay
  - The flooding of hay fields has immediate and long-term benefits to the ranch, and may also enhance the watershed for fisheries, wildlife, and downstream users

Importance of the North Platte Basin for Waterfowl



- Important stopover habitat during migration
- Important waterfowl breeding area
- Contributes to high quality waterfowl hunting
  - 75% of mallards banded in NP and later harvested were harvested in Colorado
- Wetlands are among the best quality and least depleted in the state
  - 20% of NP consists of wetlands
  - 80% of wetlands are privately owned

Threats to Water in the North Platte Basin



- Front Range expansion and related water demands (e.g., Thornton)
- Decline in ranching and flood-irrigated acres
- Drought

San Luis Valley, CO

FIG. 3. Flooded hay meadows are numerous and provide attractive breeding areas for waterfowl in the San Luis Valley.

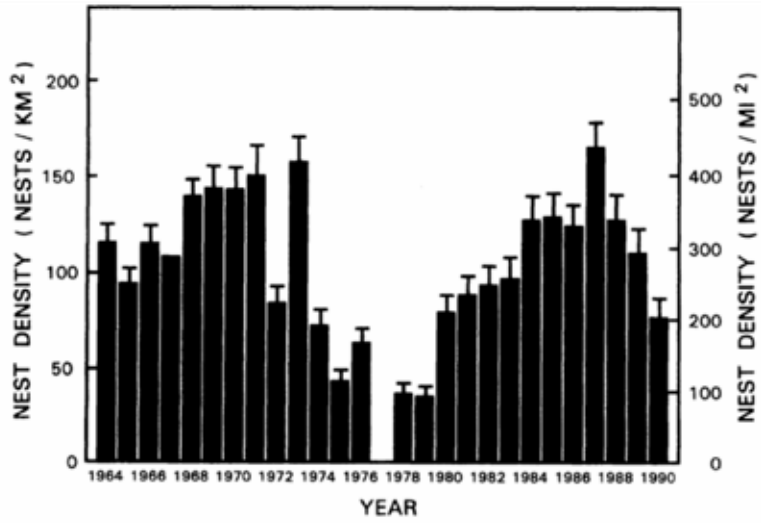
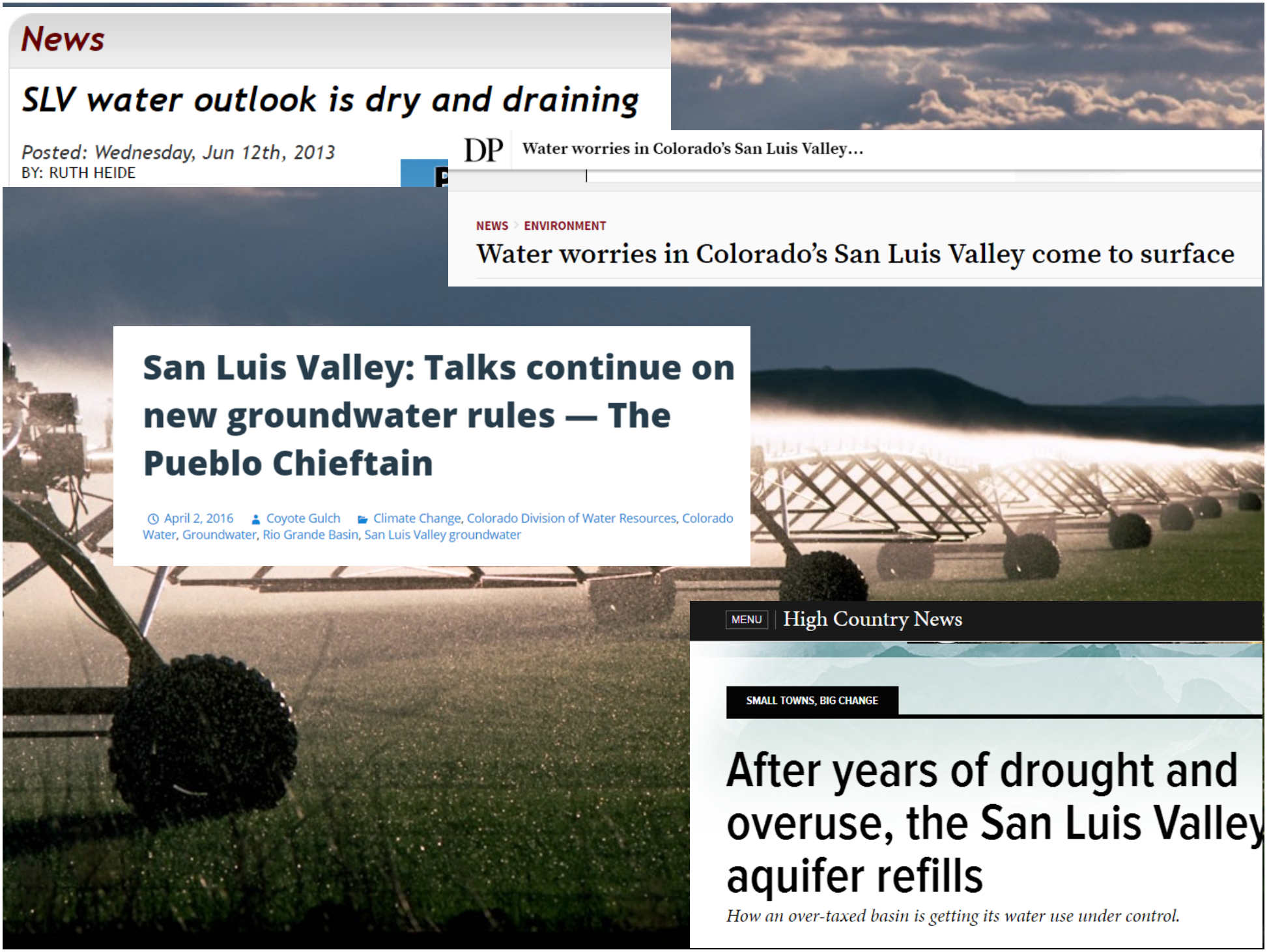


Fig. 5. Estimated annual duck nest densities on the Monte Vista National Wildlife Refuge, Colorado, 1964–90 (excluding 1977). Lines above the histogram bars depict +1 SE of the mean.

Historically had the highest reported densities of nesting ducks in N.A. !!

FIG. 5. Fall and winter concentration of mallards on Monte Vista National Wildlife Refuge. (Photo courtesy of the Monte Vista National Wildlife Refuge.)



News

SLV water outlook is dry and draining

Posted: Wednesday, Jun 12th, 2013
BY: RUTH HEIDE

DP | Water worries in Colorado's San Luis Valley…

NEWS › ENVIRONMENT

Water worries in Colorado's San Luis Valley come to surface

San Luis Valley: Talks continue on new groundwater rules — The Pueblo Chieftain

April 2, 2016 Coyote Gulch Climate Change, Colorado Division of Water Resources, Colorado Water, Groundwater, Rio Grande Basin, San Luis Valley groundwater

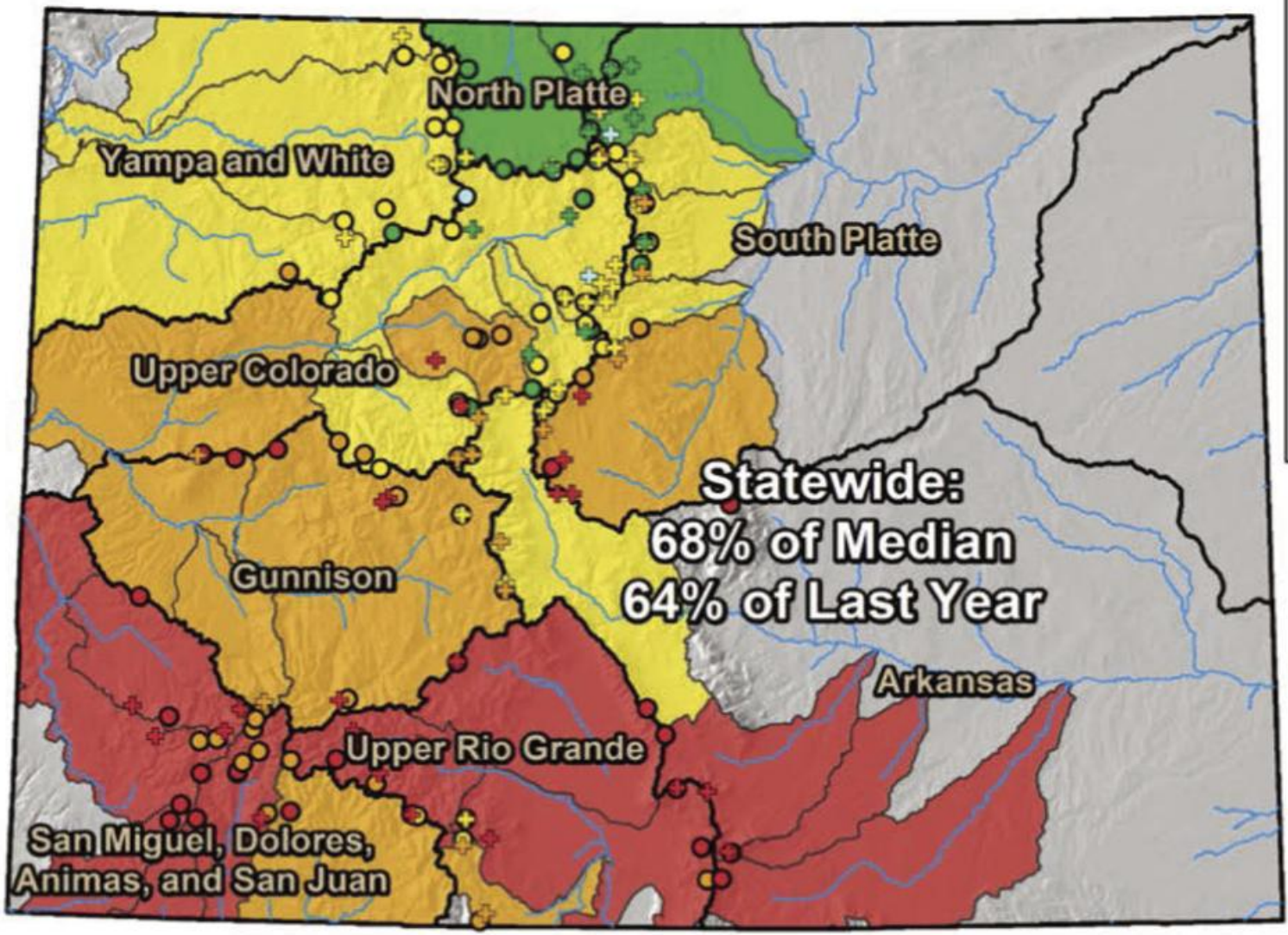
MENU | High Country News

SMALL TOWNS, BIG CHANGE

After years of drought and overuse, the San Luis Valley aquifer refills

How an over-taxed basin is getting its water use under control.

Colorado Monthly Snowpack Summary
April 1, 2018



Basin Snowpack
Percent of Median

- >= 150
- 130 - 149
- 110 - 129
- 90 - 109
- 70 - 89
- 50 - 69
- < 50
- SNOTEL
- Snow Course

N

0 25 50 100 150 200 Miles

USDA United States Department of Agriculture
Natural Resources Conservation Service

Meet the Collaborators: Landowners

- Four private landowners currently identified by DU for irrigation improvements
- Additional ranchers have allowed nest searching access
- Many more could be included if other funds could be leveraged in the future

Meet the Collaborators: Ducks Unlimited

- #1 wetland conservation organization in the world
- Strong history of working collaboratively with private landowners
- History of irrigation improvement projects
- Several engineers, hydrologists, and biologists will be working on this project

Meet the Collaborators: CO Parks & Wildlife

- CPW Wetlands program
  - Invested in a variety of riparian, wet meadow, and marsh projects in NP that helps conserve basin water resources
  - Attracts numerous people to NP for fishing, hunting, and wildlife viewing
  - Goal of increasing shallow, seasonally flooded wetlands
    - program recently approved additional flood –irrigated wetland projects for 2017-2020

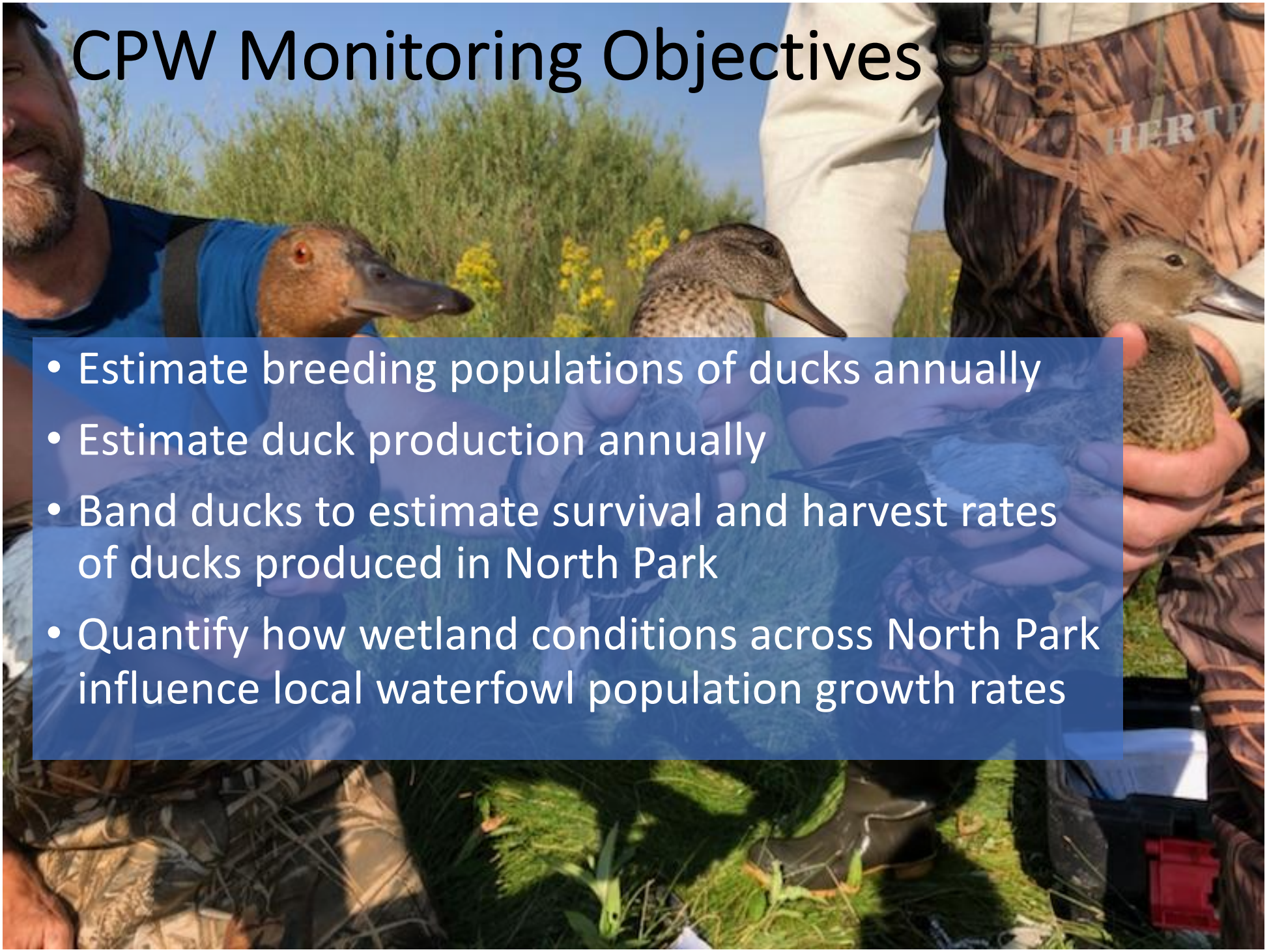
Meet the Collaborators: CSU (Casey Setash)

- Recently finished a master's degree at CSU studying waterfowl in the San Luis Valley
- Ran CPW's North Park field operations in 2018
- Would be responsible for leading the waterfowl monitoring aspects of the proposed project

Future Prospects

- DU & CPW have funded projects improving over 2,000 irrigated acres in North Park over the last 5 years
- Decreasing budgets means that targeted programs with measurable returns on management investments are more important than ever before

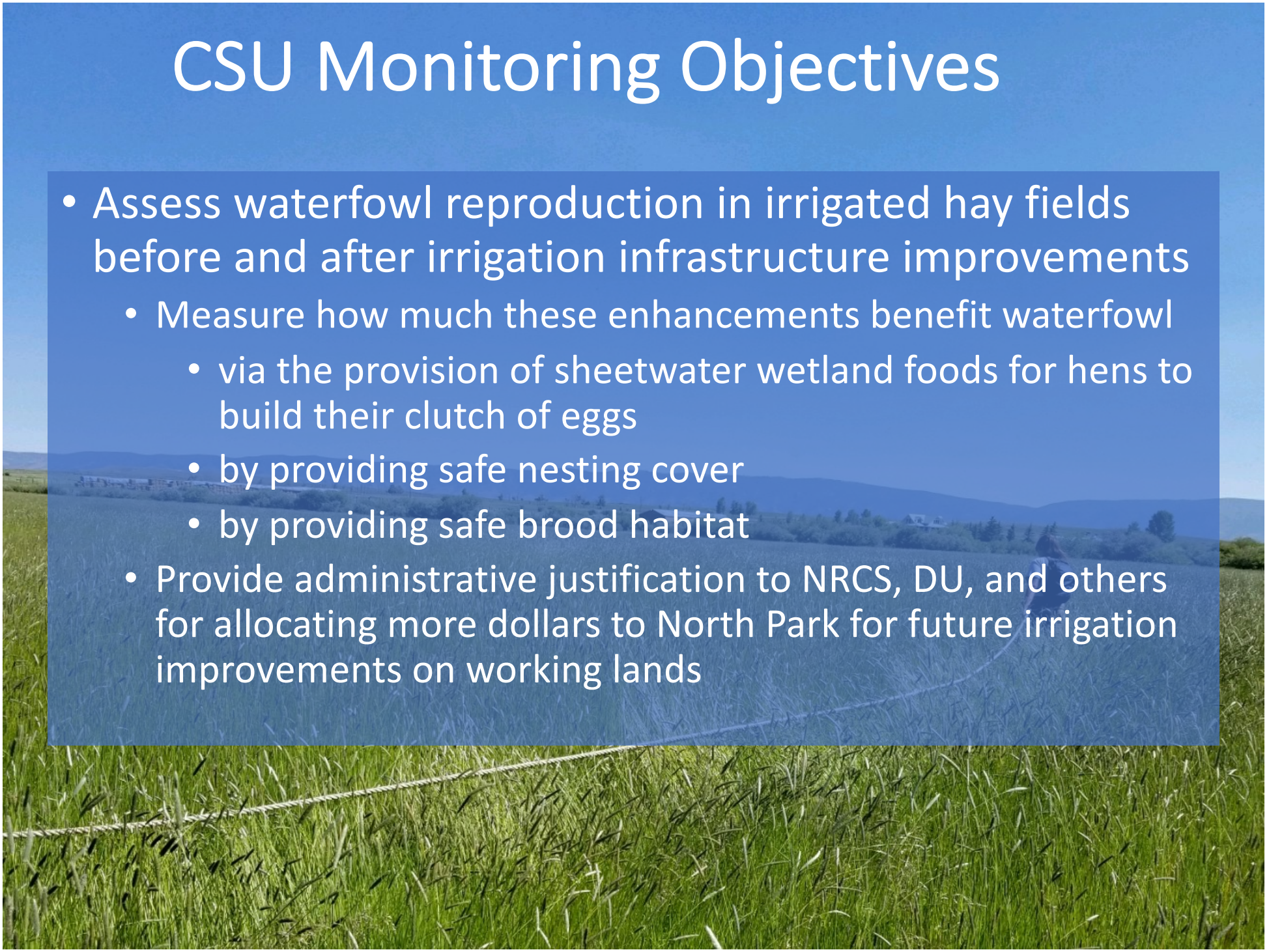
CPW Monitoring Objectives



- Estimate breeding populations of ducks annually
- Estimate duck production annually
- Band ducks to estimate survival and harvest rates of ducks produced in North Park
- Quantify how wetland conditions across North Park influence local waterfowl population growth rates

CSU Monitoring Objectives

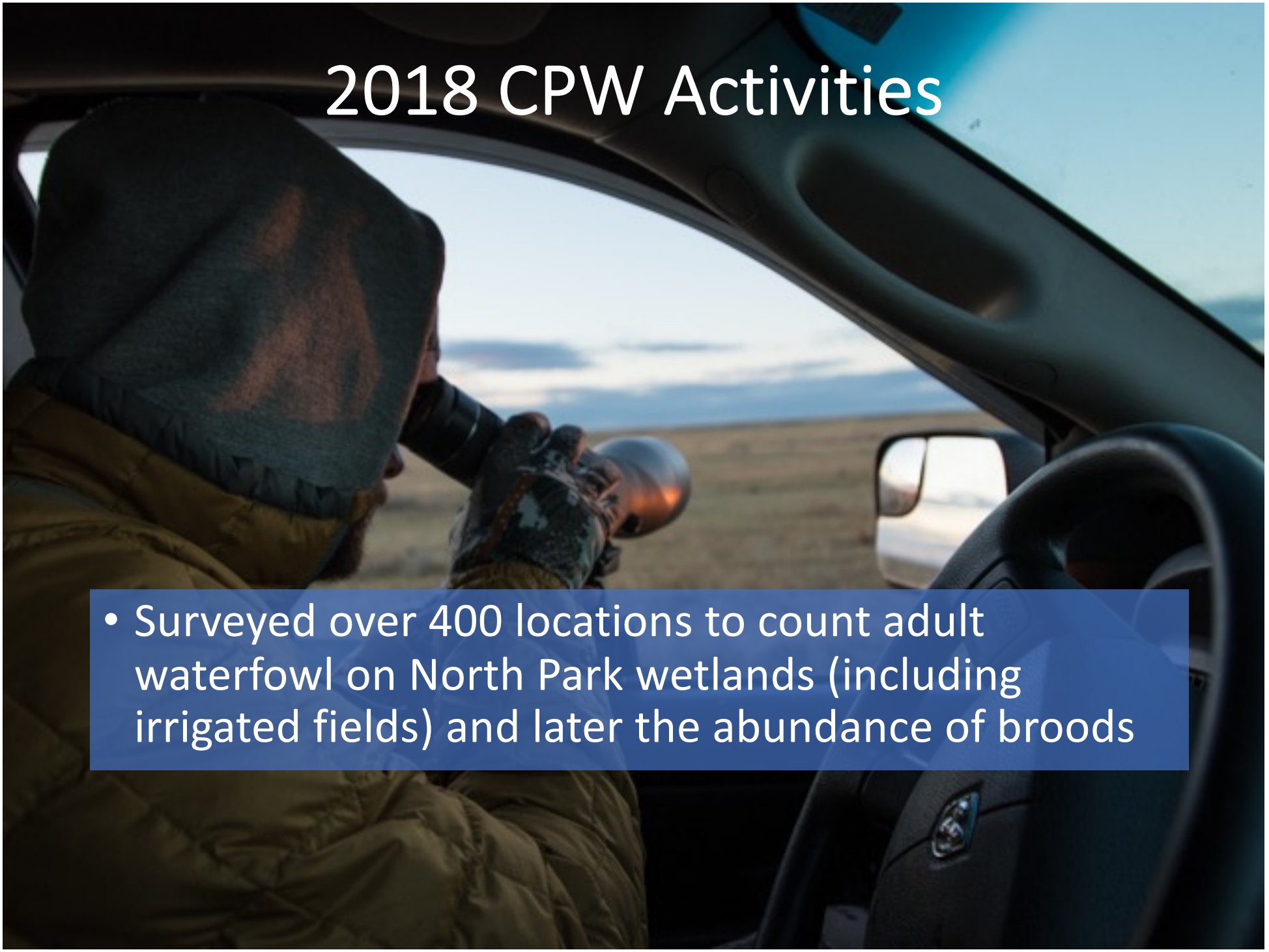
- Assess waterfowl reproduction in irrigated hay fields before and after irrigation infrastructure improvements
  - Measure how much these enhancements benefit waterfowl
    - via the provision of sheetwater wetland foods for hens to build their clutch of eggs
    - by providing safe nesting cover
    - by providing safe brood habitat
  - Provide administrative justification to NRCS, DU, and others for allocating more dollars to North Park for future irrigation improvements on working lands



CSU Monitoring Objectives

- Assess benefits of irrigation infrastructure improvements for landowners and downstream users
- Work with landowners to measure benefits that they would like to know more about
  - Enhance biomass and nitrogen content of forage
  - Maintain soil moisture across years of drought
  - Maintain water table that enhances return flow volumes in late summer and fall
  - Cool surface return flow temperatures, which benefits fisheries

2018 CPW Activities



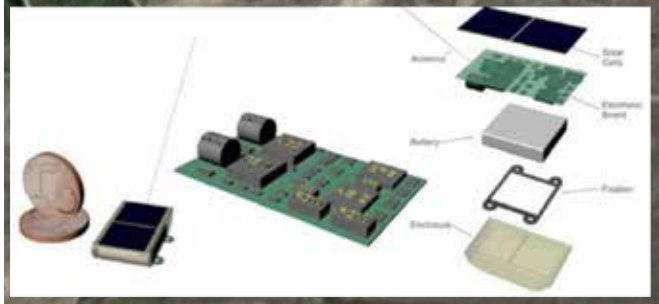
- Surveyed over 400 locations to count adult waterfowl on North Park wetlands (including irrigated fields) and later the abundance of broods

2018 CPW Activities

- Instead of dragging a chain between ATVs, Casey and her team dragged a rope between observers and walked over 150 miles to find duck nests!
  - Found just 40 nests using this approach, which were located in wet meadows, along ditches, and around ponds
  - Ropes may be too light to flush females in thick hay

2018 CPW Activities

Proposed Activities



Proposed Timeline

- ***2019***: Monitor duck reproductive success on private and public lands
- ***2020***: DU makes infrastructure improvements
- ***2021***: Monitor duck reproductive success on private and public lands
- ***2022***: Publish results, provide landowners with reports illustrating best management practices, and development of extension and public media about the win-win benefits of flood irrigated hay lands

Project Outcomes

- Increased number of irrigated acres in North Park
- Technical assistance to landowners
- Best management practices
- Public education and outreach

Why Spend $$ Monitoring Impacts?

- Decreases uncertainty about the benefits to landowners and downstream users of water
- Decreases uncertainty about the benefits to ducks
- Justification for allocating future conservation funding for projects that improve irrigation infrastructure on private lands in North Park and similar intermountain basins

Additional Benefits

Batzer & Resh. 1992. Wetland management strategies that enhance waterfowl habitats can also control mosquitos. Journal of the American Mosquito Control Association 8:117-125

Success Stories

- TNC & Rice Farmers – California
  - Waterbird Habitat Enhancement Program (WHEP)
- Working Wetlands program – North Dakota
  - Delta Waterfowl
- NRCS EQIP in Idaho and Oregon to support flood-irrigated agriculture
  - IWJV