Evaluating flash tags as a non-lethal deterrent of cattle depredation by grizzly bears and gray wolves in the upper green river grazing allotments

HOLBROOK TEAM

UNIVERSITY OF WYOMING

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Timeline

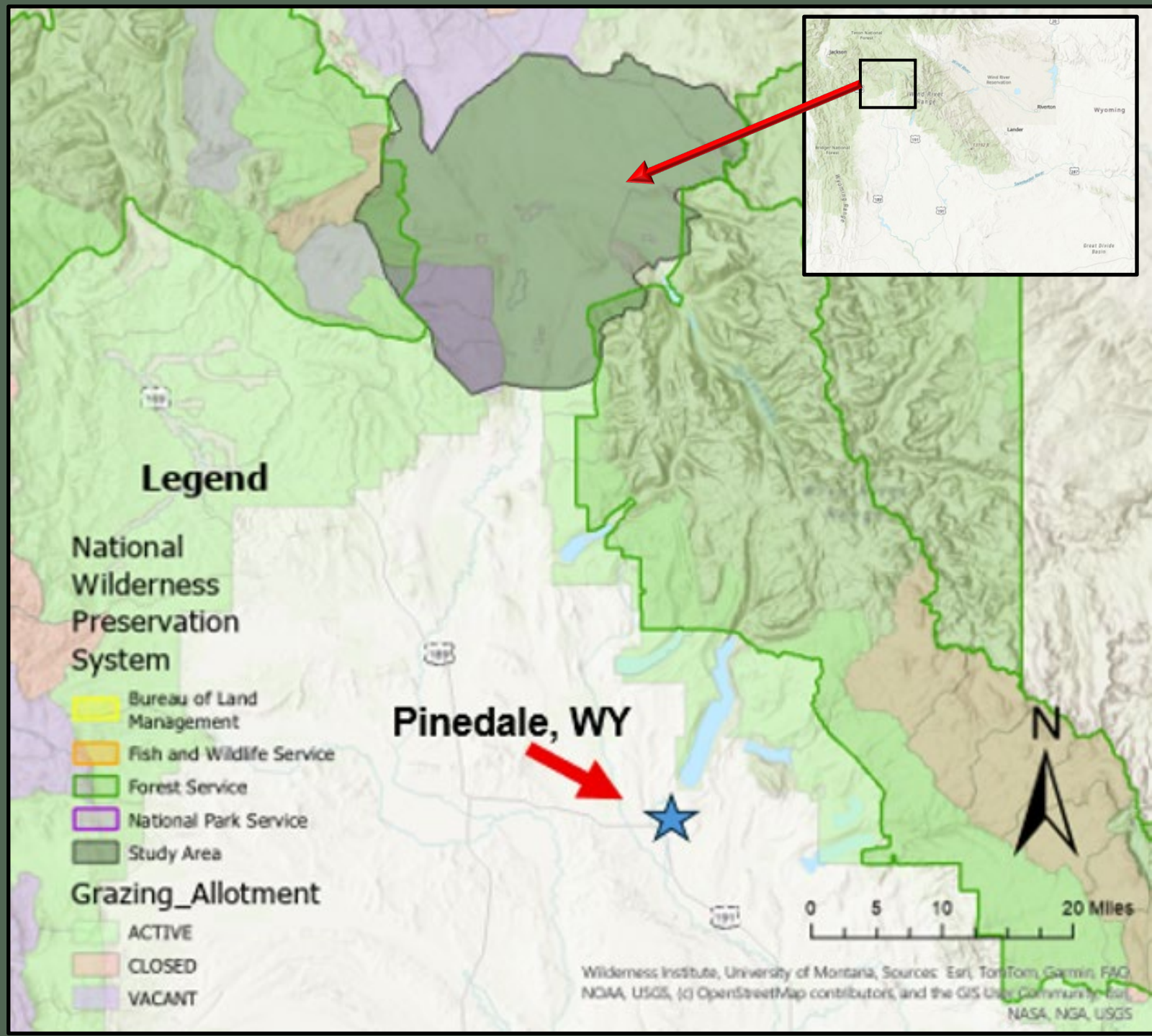
- **Completed our Pilot season in the summer (June-October) 2025 where we tested GPS transmitters, VHF transmitters and flash tags**

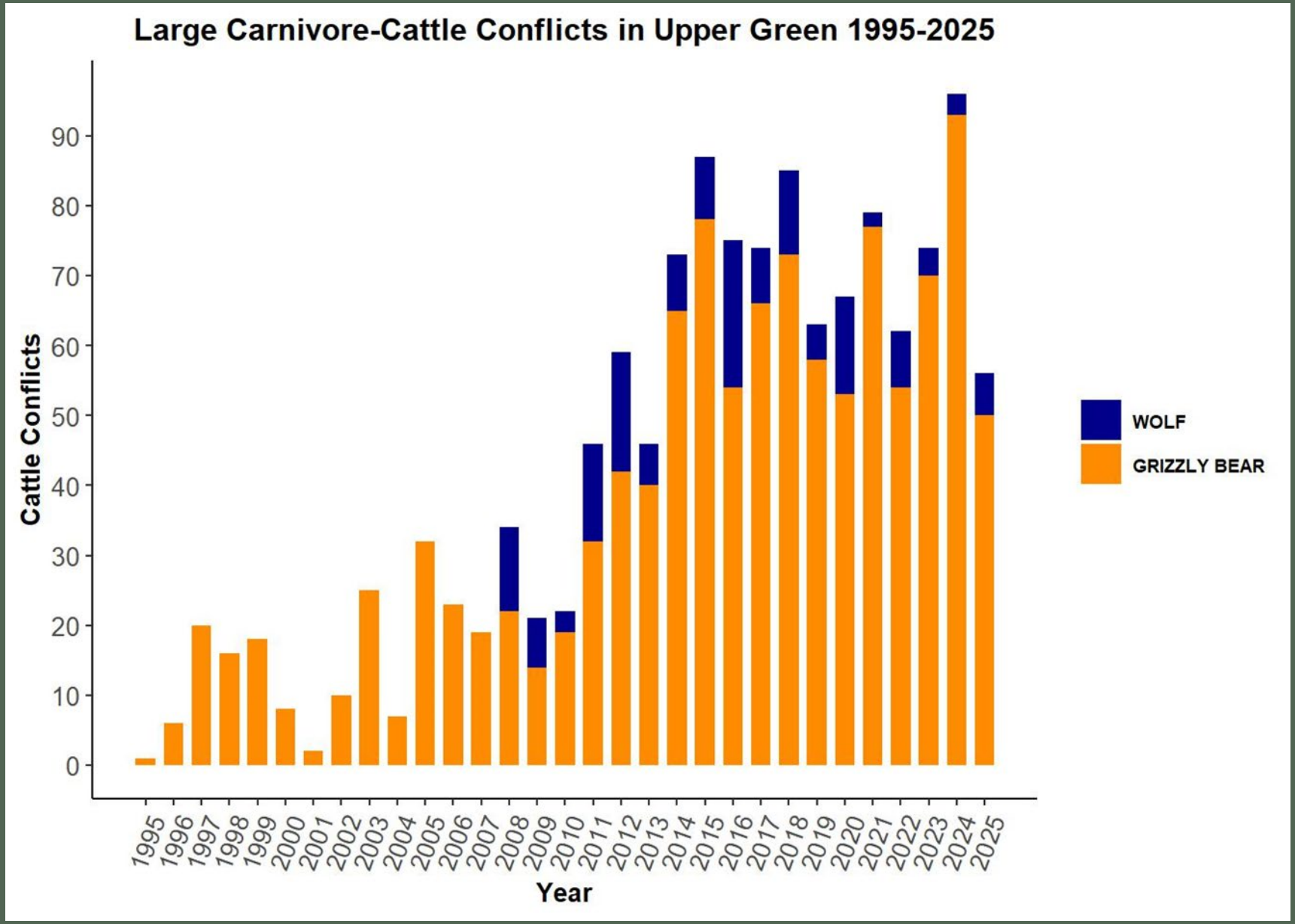


- **First full research efforts began in the summer of 2026 (June-October) and will continue in the summer of 2027**

Study Area

- **17 pastures**
- **4 cattle grazing rotations**




Large Carnivore-Cattle Conflicts in Upper Green 1995-2025
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GRIZZLY BEAR

New Tools for Biologists and Livestock Producers

- We are always interested in new tools

- The Upper Green River grazing area presents unique insights and challenges:
  - High densities of cattle
  - High densities of grizzly bears in suitable grizzly bear habitat
  - The area is fully encompassed by 1-2 wolf pack ranges annually (those territories can not be avoided)



New Tools for Biologists and Livestock Producers

- **Criteria for a nonlethal tool to be useful:**
  - Must be relevant at large scales
  - Need to be inexpensive
  - Need to remain with livestock constantly
  - **Need to actually deter depredation by large carnivores**

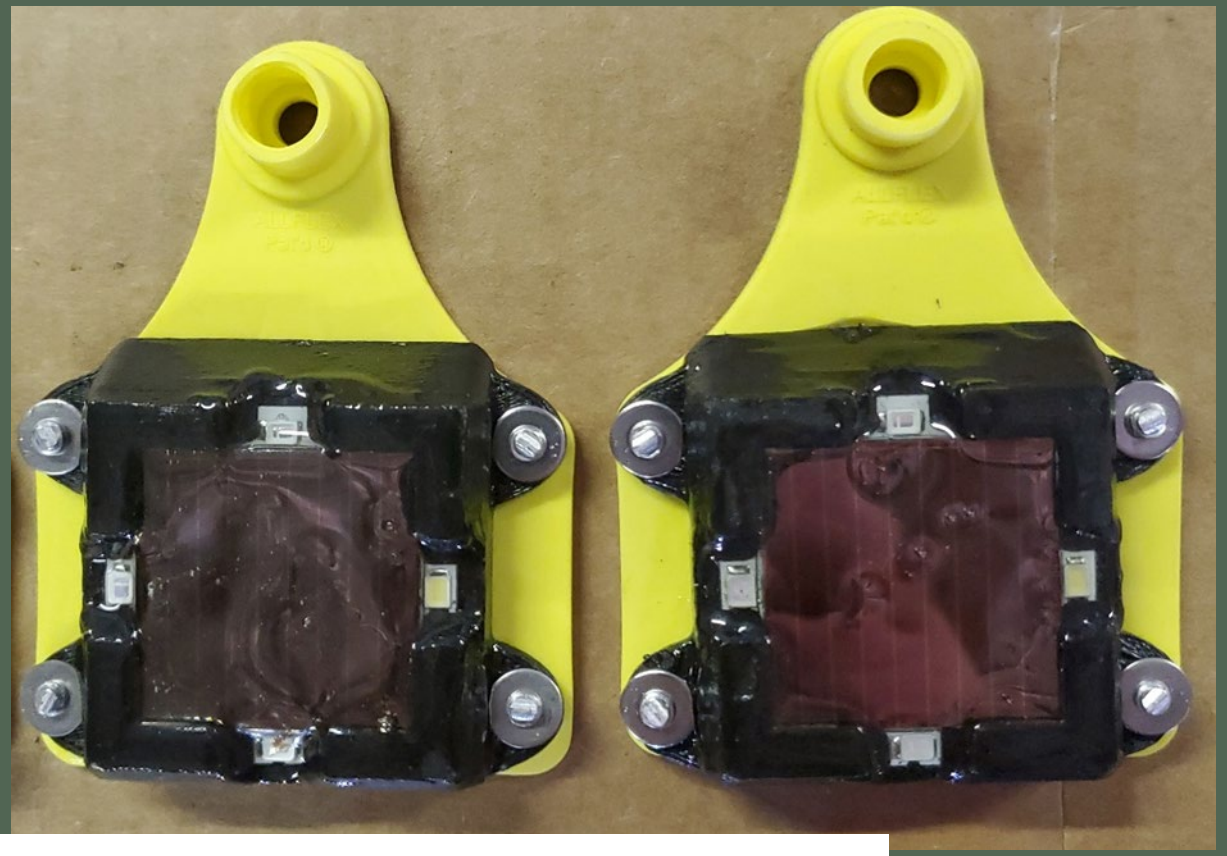
- **<u>Nonlethal ear tag deterrents</u> meet mostly all of these criteria, however, we lack an understanding of their efficacy for deterring depredation**



What are Flash tags?

- **Flash tags**
  - Motion activated
  - Only operate at night
  - Solar charged
  - Inexpensive and lightweight

- Previously used on sheep to deter coyote and wolf depredation
  - Positive results
  - Results were anecdotal



WYOMING NATURAL RESOURCES NEWS

Moo calves disco up the Green River, griz and wolves not invited

Sublette County cattle and sheep are part of across-the-West depredation reduction demonstration project attempting to ward off predators using motion-triggered LED lights fitted to livestock ear tags.





Warning: Flashing lights



Equipment Used

- Telemetry Solutions- model Neo Nano LS14500 Global positioning system (GPS) unit
- Advanced Telemetry Solutions (ATS) and Holohil VHF/ flash tag integrated units
- Telonics VHF ear tag unit
- Standard flash tag unit









2026 Season Deployments

- Totals for the 2026 season:
  - 200 GPS units
  - 300 VHF units
  - 150 Flash tags





Study Design - 2026

- Partnered with three ranches grazing in the Upper Green River grazing area

- Deployed VHF ear tag transmitters on ~30% of calves on each of the ranches
  - Half of each sample cohort will also be tagged with a Flash tag
  - Remaining 50% half will serve as a control sample (No Flash tag)
  - A portion of each control and treatment sample will also be fitted with GPS transmitters





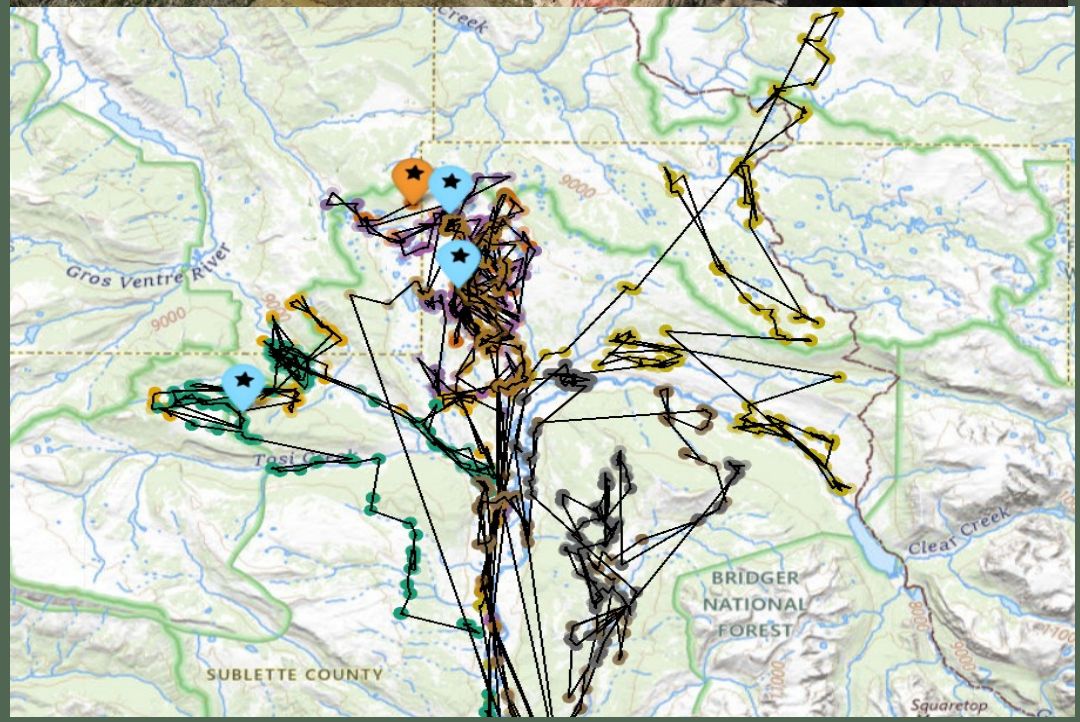


Study Design - 2026

- Monitor VHF transmitters twice weekly from the air.
    - Investigate all mortality signals to determine cause of death
    - Resulting data will be used to identify and evaluate survival between the control and treatment animals
- Spatial data will be useful for:
    - Movement analyses to evaluate interactions between sympatric large carnivores and domestic calves with and without Flash tags
    - Fine scale movements and habitat use







Myriad Variables

- Multiple factors influence calf survival beyond depredation
    - Pneumonia (dry and dusty conditions, large daily temperature fluctuations)
    - High Altitude Sickness (high elevation grazing pastures)
- Multiple factors cause annual fluctuations in depredation rates
    - Fluctuations in natural foods
    - Localized weather/climatic factors
    - Removal of chronic depredating bears
    - Variation in wolf pack dynamics (size and distribution)
    - Cattle grazing proximity to core areas for wolves

Experimental study design to test the effectiveness of flash tags at deterring depredation







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Fin

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