GROW WILD

# Bighorn Sheep Habitat

## 2025

# Project Background

In the grand expanse of the Greater Yellowstone Ecosystem, the Rocky Mountain bighorn sheep (*Ovis canadensis)* stands as a sentinel of wild places — a species whose fortunes are bound to rugged cliffs, nutrient-rich foraging grounds, and the dynamics of a shifting climate.

Historically abundant across North America's mountain landscapes, bighorn sheep populations have declined due to disease pressure, human development, and habitat degradation. Invasive species such as cheatgrass, houndstongue and spotted knapweed — aptly named "habitat transformers" — displace native grasses and forbs necessary for sheep nutrition, particularly on critical winter ranges.

Grow Wild's bighorn sheep habitat initiative began in 2010 with its focus being restoring the Spanish Peaks herd winter range — an area identified as essential winter habitat threatened by invasive species encroachment and adjacent land conversion.

Over the past 15 years, this initiative has brought together scientists, land managers, local stewards, and eight partner organizations to apply science-based treatments that enhance forage quality and ecological resilience.

## By the Numbers

**Years: 15**

**Partners: 8**

**Our Investment: $16,868**

**Matching Funds: $161,879**

# Spanish Peak Bighorn Herd

The Spanish Peaks bighorn herd is a defining feature of this landscape, ranging from Durham Meadows to Beartrap Canyon along Highway 64 and into steep slopes within the Custer-Gallatin National Forest. With a home-range population estimated at roughly 150-200 individuals, it remains a relatively stable yet vulnerable native population of *Ovis canadensis* distinct from neighboring herds such as the Taylor-Hilgard group.

Spanish Peaks sheep depend on a mosaic of nutritious grasses, sedges, and forbs on summer range and bunchgrasses and shrubs during winter. However, invasive species have reduced the quality of forage, directly influencing survival and reproductive success. These challenges are compounded by habitat loss from development and fragmented private-public land interfaces that allow noxious weeds to spread unchecked.

While the herd's current numbers suggest relative stability in the context of broader Yellowstone bighorn populations, its limited winter range means that even modest improvements or losses in available forage can have outsized impacts on winter survival and long-term viability. Continued collaborative management is essential for maintaining not just population size, but the health and genetic integrity of this native herd.

Peak Photography

# Goals and Scientific Aims

Our project pursues three interlinked goals:

**1. Restore native grass and forb communities** essential for bighorn nutrition and winter survival

**2. Manage invasive plants** with targeted treatments informed by field experiments

**3. Build ecological resilience** in the face of climate variability and ongoing land-use pressures

# Field Trials

In 2025, Grow Wild and its partners continued multi-year monitoring of invasive species control on critical Spanish Peaks bighorn sheep winter range. Building on treatments initiated in 2022, the project evaluated the long-term effectiveness of cheatgrass suppression and the subsequent response of native plant communities under challenging, dry, and rocky site conditions.

Three experimental sites—representing low, moderate, and high pre-treatment cheatgrass cover—were sampled for the third consecutive year following application of Rejuvra® (indaziflam) or Plateau® (imazapic) herbicides. Across all sites, cheatgrass control remained highly effective in 2025, with both treatments maintaining near-zero cheatgrass cover and density, confirming strong treatment longevity.

However, native plant recovery has been slower and more variable. While some increases in desirable grass and forb cover were observed—particularly in Plateau-treated plots at the highest cheatgrass site—overall native species abundance remains low, and bare ground persists across much of the project area. Basin wildrye, a native grass, exhibited limited root development with the Rejuvra treatment suggesting continued establishment constraints related to soil conditions, moisture availability, or residual herbicide treatment effects.

A fall dormant seeding trial conducted in 2024 on Plateau®-treated plots did not result in detectable establishment by June 2025, highlighting the difficulty of revegetation on this site. These findings underscore that while invasive species suppression is a critical first step, native plant recovery on bighorn sheep winter range is a long-term process requiring sustained management and adaptive strategies.

# Management Implications

**Results from 2025 reinforce several key management considerations for bighorn sheep habitat restoration:**

- **Long-term invasive control is achievable.** Both Rejuvra® and Plateau® provide durable cheatgrass suppression, even three years post-application, making them valuable tools for protecting winter range forage quality.
- **Native recovery is site-limited.** Soil depth, moisture, and surface rock strongly influence revegetation success; invasive removal alone does not guarantee native plant establishment.
- **Revegetation strategies must be refined.** Traditional broadcast seeding may have limited success under current site conditions, indicating a need to explore alternative methods, timing, or species selection.
- **Adaptive management is essential.** Continued monitoring will guide future decisions on whether and where additional seeding, soil preparation, or modified treatment approaches are warranted.

**Collectively, these findings support a mindful, science-based approach to restoration, one that balances effective invasive species suppression with realistic expectations for recovery in a changing climate and complex mountain landscape.**

# Acknowledgments and Gratitude

We extend sincere appreciation to our partners whose sustained collaboration and technical expertise make this work possible — including federal and state agencies, local land stewards, and research collaborators. Their shared commitment to data-driven management, long-term monitoring, and adaptive restoration strengthens the effectiveness of this project and advances collective understanding of bighorn sheep winter range dynamics.

We also acknowledge the river and the canyon that shape this landscape, whose geomorphology, hydrology, and soils influence vegetation patterns and wildlife use across seasons. These interconnected systems, shaped over millennia, provide the ecological foundation that supports bighorn sheep and countless other species within the Greater Yellowstone Ecosystem.

As restoration practitioners, we recognize that habitat recovery is neither linear nor guaranteed. In a changing climate and complex mountain environment, our role is to apply sound science, learn from outcomes, and adjust management accordingly. We are grateful for the opportunity to contribute to the long-term stewardship of this landscape and to help sustain functional, resilient habitat for future generations of wildlife and people alike.

## Partners