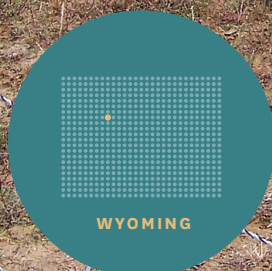


Goat Green

Wyoming Oilfield Restoration with BLM & Chevron

When nothing else worked to restore a heavily disturbed arid pipeline corridor & oilfields, 1500 mob-stocked goats removed weeds and established perennial grasslands and sage.



Goat Green at a Glance

RAINFALL

7 inches per year

PROPERTY DESCRIPTION

Sagebrush steppe

PROPERTY SIZE

n/a

ACRES IN GRAZING LANDS

1 million acres across WY and CO

PLANNED GRAZING SINCE

2007–2016

SPECIES

1500+ head of goats

GRAZING SEASON

June through October

PARTNERS

1 year contracts between Goat Green and Chevron

DOES THIS SAVE YOU MONEY?

n/a; Goat Green was paid to restore this site for Chevron.

GRAZING PERIOD

<1 day

LENGTH OF RECOVERY

180–360 days

MANAGING FOR

- Stabilize soils, reclaim damaged site
- Build soil health and tilth
- Reduce mowing and spraying, be efficient with resources
- Establish native vegetation
- Reduce weeds



*“This showed that intensive grazing
can be an effective tool for reclamation
projects when the underlying conditions
are appropriate.”*

—BLM WYOMING

Central Wyoming is hot, dry and sparsely inhabited. Sagebrush and tumbleweeds reflect the arid climate and a history of continuous grazing by cattle and sheep. Soils are nutrient poor but there are minerals: oil is a big business in Wyoming, and Chevron established thousands of oil wells in this area, mostly on land leased from the BLM. The construction of these wells and pipelines leaves a swath of destruction, and BLM requires these disturbed sites to be reclaimed to native vegetation post-construction. After the reseeding of perennial grasses failed multiple years in a row, noxious weeds took over the disturbed area, including some weeds that were poisonous for the cattle grazing the area. A company called Goat Green was hired to reclaim a series of these sites with their herd of 1500 goats. They were given 2 years to prove that goats could succeed where the standard playbook of machinery and herbicides had failed. BLM staff was skeptical, but willing to try this new approach.

HISTORY

While the struggle to reclaim these sites continued, a Chevron field supervisor drove past the home farm of Goat Green in Lander, WY and saw goats grazing on sagebrush and weeds. He contacted the company and a partnership was soon formed. Lani Malmberg of Goat Green was confident that intensive goat grazing and attention to soil health could reclaim these damaged sites and shift them from noxious weeds to deep-rooted perennial grasses and forbs. The BLM field office had no experience with goats, but was willing to let Chevron and Goat Green try this new approach.

Lani trucked in 1500 goats, portable electric fencing and tanker trucks of water. The first grazing was in 2007 and the neighbors were concerned that the goats were eating grass that would otherwise feed their cattle. The pipeline was a snake-like, 30 foot wide corridor that stretched for 10 miles. Each of the dozens of well sites was 4-6 acres in size.

Over a 10 year period, Goat Green grazed nearly a million acres in Wyoming and Colorado for Chevron, including well sites, road rights-of-way and pipelines. This partnership continued for 10 years, until Chevron sold these oil fields in 2016.

Benefits of adaptive grazing



Weed Control

Goats prefer weeds to grass and were well suited to this weedy, disturbed site



Establishment of Perennial Grasses

Multiple rounds of high density grazing allowed the perennial grasses to effectively compete.



Site Reclamation

This site was a headache for Chevron and the BLM; goat grazing stabilized the disturbed ground.



Be Efficient with Resources

Intensive goat grazing was used after multiple rounds of costly spraying and seeding did not achieve their goals.



Soil Health

With careful management, the goat herd was a tool for building soil health, soil nutrition and water holding capacity.

WHY GRAZING?

Other methods to reclaim these damaged grounds had failed, leaving the pipeline and oil well fields overrun with weeds. Herbicide had been unsuccessful in controlling the weeds, and the seeding of perennial grasses failed due to the lack of rain and the local cattle eating the tender sprouts of grass. Chevron turned to goats, since they love to eat weeds and prefer weeds to grass. Unlike cattle, goats have a narrow mouth that crushes nearly all the weed seeds, so their manure did not exacerbate the weed problem.

The goal for this grazing project was to restore native vegetation, reduce weeds, and stabilize the soil. Over the 2 year period Lani and the Goat Green goats were able to shift the site from annuals and perennial weeds to biennials and finally to perennials.

WHO GRAZES?

Goat Green is a private company that was hired by Chevron to reclaim the land, to fulfill the requirements of their permit with the BLM. While the BLM staff were skeptical about the effectiveness of using goats for this job, and the logistics of managing a herd of goats in such a remote location, they were willing to let Chevron try this approach, which BLM staff viewed as an experiment.

Lani and her son Donny grazed with 1500 goats in 1 acre enclosures of portable electric fence, moving the animals to new ground up to 20 times a day. This required a dedicated grazer on site with the animals. Goat Green staff travel with an RV and live on-site with the goats and a crew of trained dogs. The brief, intense disturbance provided by the goat herd successfully removed all the weeds while providing excellent manure and an influx of moisture to the dry soils.

SUCCESSES

The simplest sign of success was that the BLM staff were satisfied that the site had been adequately reclaimed, and were therefore willing to let the permits be closed. Chevron met their goals and this partnership continued for 10 years. The BLM staffers saw that this approach had merits. Visually, the site was clearly much improved, to the extent that the cattle were congregating along the pipeline to eat the perennial grasses that were newly flourishing in the sea of sagebrush.

This partnership ended in 2016 when Chevron sold their oil fields to another company.

BLM staff were not available to be interviewed for this article, but they



commented that this project was successful, noting that the goats “cleared the weeds successfully at each pad, added additional organic material, and reduced competition from undesirable species. The subsequent additional inter-seeding was highly successful.”

CHALLENGES

For Donny, Goat Green:

- Dealing with cattle owners along the pipeline route; Donny had to keep the goats confined to a 30-foot strip along the pipeline.
- Providing water for the herd of goats in such a remote area
- Dealing with a huge, powerful company that would only sign 1-year contracts.
- Having only 2 years to prove that goat grazing could improve the site and achieve the management goals
- Accepting that unmanaged cattle from other BLM leases (adjoining the pipeline) were eating the recovering grasses, hindering recovery of the site.

For BLM:

- Coordination with all of the parties involved: this project encompassed both privately deeded surface lands, BLM managed surface lands, and oil and gas facilities.

CHANGES & MONITORING

Over 3 years, with 1-2 rounds of grazing each summer, the goat herd successfully moved these sites through a rapid process of plant succession. First, the weeds were eaten by the goats. In the process of removing the weeds, the goats fertilized the soil and irrigated the site with nitrogen-rich urine. Their preference for weeds left any surviving perennial grasses to thrive, and also allowed biennial plants to become established. Deep-rooted perennial grasses became established as the primary plant community on the site.

Sagebrush also recovered very well in the goat grazing sites, which got the BLM interested due to their interest in sagebrush restoration. 2-year old sagebrush plants were frequently the size of 5-year old plants elsewhere.

Photo monitoring points show that over two years, this intensive grazing shifted heavily impacted areas from an infestation of invasive russian thistle to 2 foot tall perennial grasses.

Soil testing showed a 25% increase in soil organic matter and a doubling of phosphorus in the grazed plots. These modest changes are impressive given the challenges of the high elevation, arid landscape. ■

Advice to Agency Staff considering using this kind of grazing from Donny Benz:

“Do your research; everyone with weed issues calls county extension and gets advice on chemicals; there’s no book on the shelf that points to goat grazing”

“There are different ways to do things, not just the old ways”

“There’s no machine that can do what a goat can do: they break down the toxicity of poisonous plants... and then produce pure organic material in their manure, in a way that no other animal can do”

— DONNY BENZ, GOAT GREEN



The Profiles in Land and Management Series features the work of innovative ranchers and land managers who are achieving economic and ecological benefits on working lands.

This project is supported by TomKat Ranch, the McKnight Foundation, the Globetrotter Foundation, and Armonia LLC, and by the hardworking agencies, land managers, and ranchers that generously shared their stories and time.

Lead Author: Gregory Horner

See more profiles at www.landandmanagement.com

Donny Benz of Goat Green

<http://www.goatseatweeds.com/>,
970-219-0454

Lani Malmberg

ewe4icbenz@gmail.com

Kristen Lenhardt

Deputy State Director, Communications,
Bureau of Land Management—Wyoming;
klenhard@blm.gov