Bringing Back The Water
Case Study Series

VILICUS INSTITUTE

VIRTUAL FENCING FOR WATER AND SOIL MANAGEMENT

LOR FOUNDATION

WWF

FIELD WORK

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SNAPSHOT

Tyrel Obrecht is a 5th generation rancher and manager of Louie Petrie Ranch which raises Black Angus cattle in Turner Montana.

With the support of the LOR Foundation and World Wildlife Fund Tyrel undertook a project to utilize radio collars to create virtual fencing for his cattle.

The intention of this project is to improve sustainable land and soil management and allow Tyrel to better manage his herd.

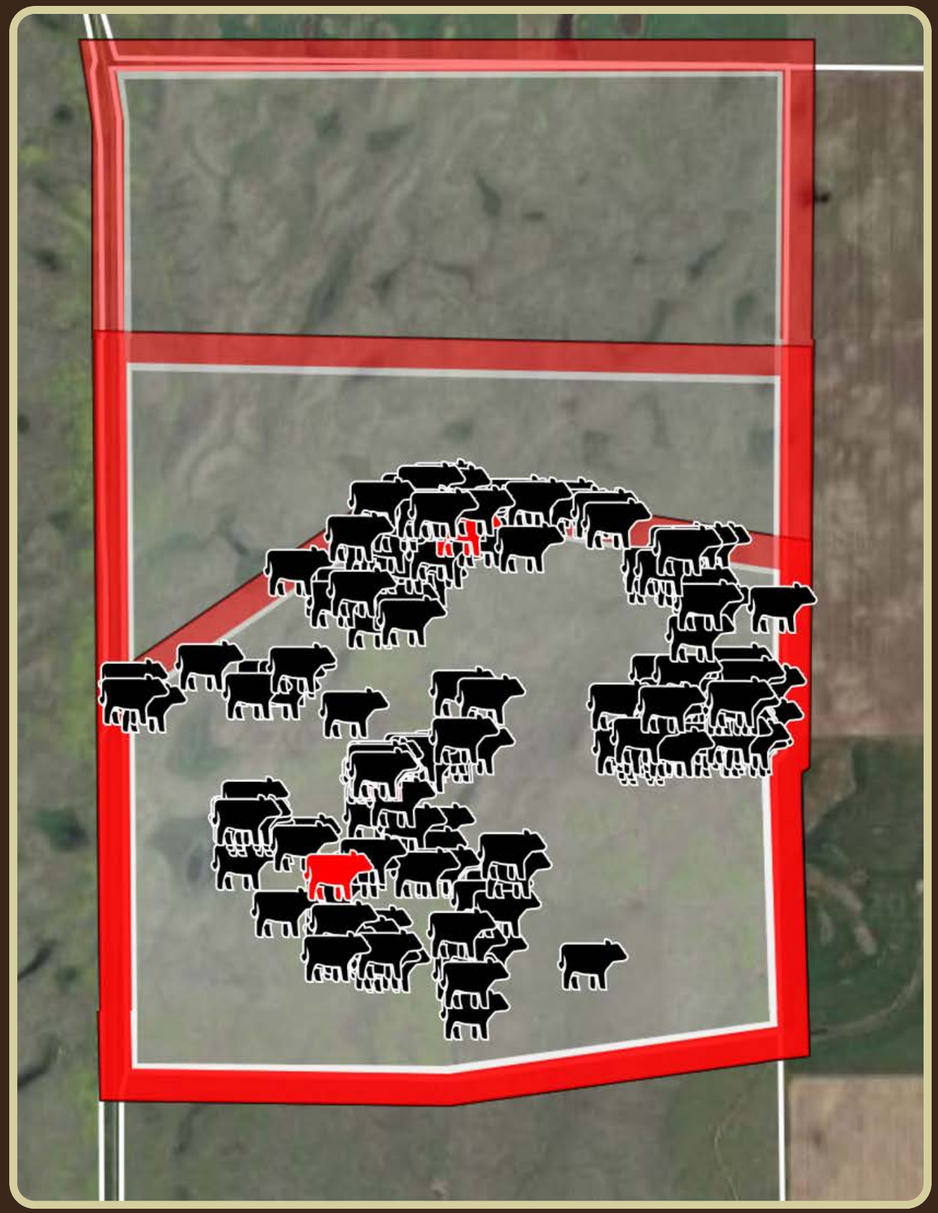
INSPIRATION

Physical fencing creates a barrier for wildlife. Virtual fencing would increase control allowing the Ranch to more efficiently manage their land and water resources.

Keeping cattle off of specific areas would allow those sections of pasture to rest and for vegetation to become more established, allowing it to create shade for the soil and catch more snow. This would also improve the ranchers ability to keep cattle out of creeks helping to prevent erosion. Increasing stock density in certain areas would make for more efficient grazing and trampling of biomass residue into the soil. These combined impacts would improve the soil health across the landscape.

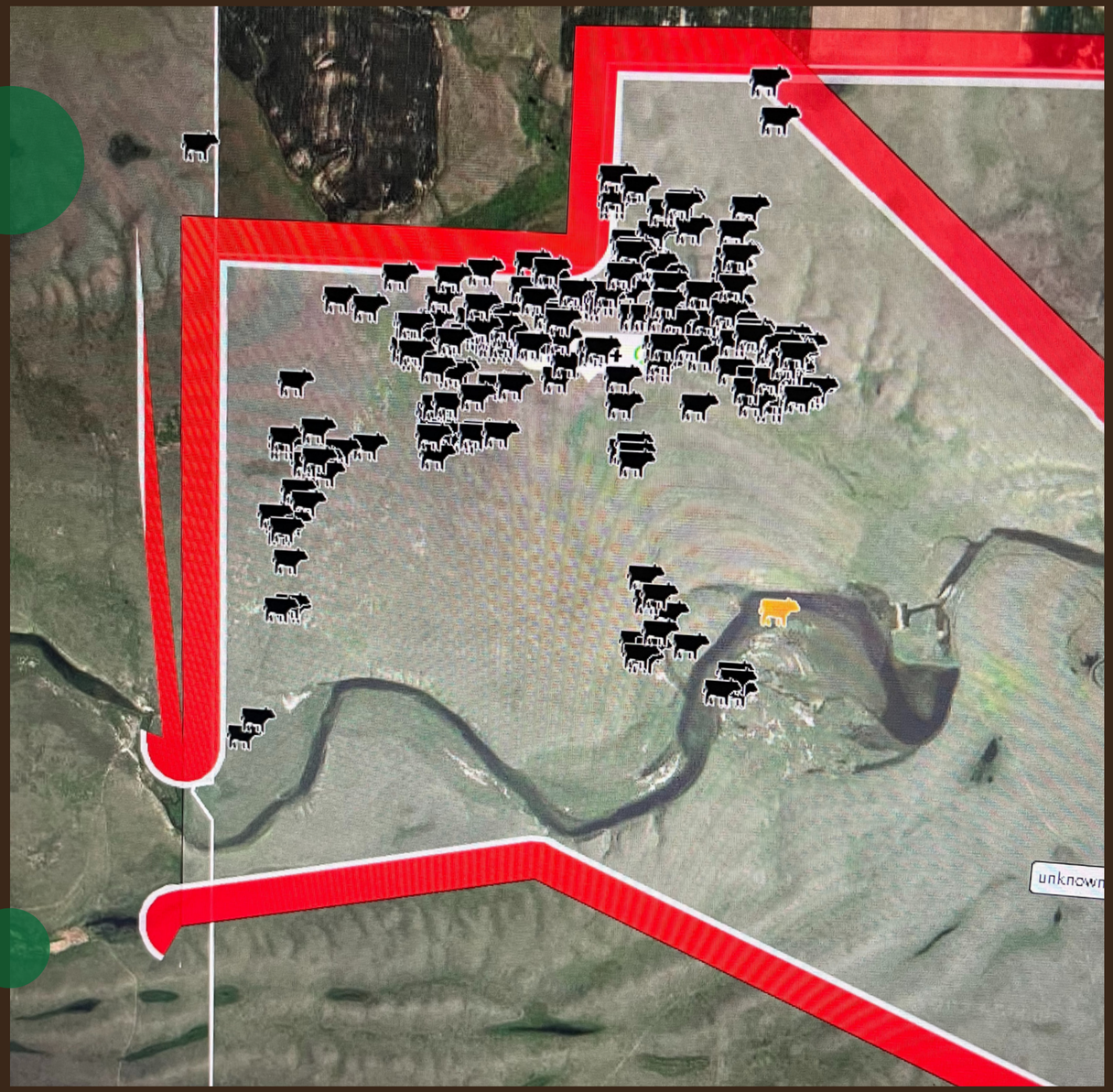
DESIGN & PLANNING

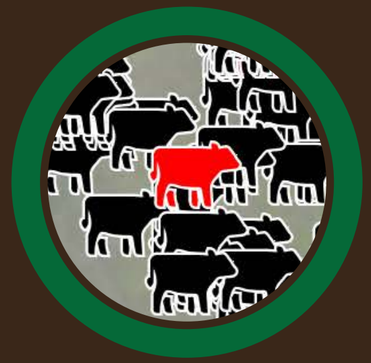
Tyrel purchased the radio towers from Vence Virtual Fencing. The towers cost $10k each, and Tyrel was able to get two of them with financial support from LOR Foundation and World Wildlife Fund. Given the terrain at Louie Petrie Ranch each tower has signal across about a 4 mile radius. The collars were rented for $40 each a year with a $10 per collar battery fee. The collars work with a computer program that uses satellite imagery to create a pasture map on a herd manager dashboard. The collars emit an electric shock, preceded by a beep which helps cattle to learn to back away from the fence line before getting shocked.



EXECUTION

It took the team at Louie Petrie Ranch about 4 hours to outfit his cattle with the collars and a total of 4-5 days for the cattle to be trained on the virtual fence. To train the cattle Tyrel first set the virtual fence line just inside the bounty of the physical barbed wire fence to teach the herd that getting shocked meant they were approaching the fence line. After a couple of days the sound stimulation of a beep was added so that the cattle began to associate the beep with a shock and the edge of their boundary. A couple of days after adding the sound stimulation Tyrel was able to create an entirely virtual boundary to contain the cattle.



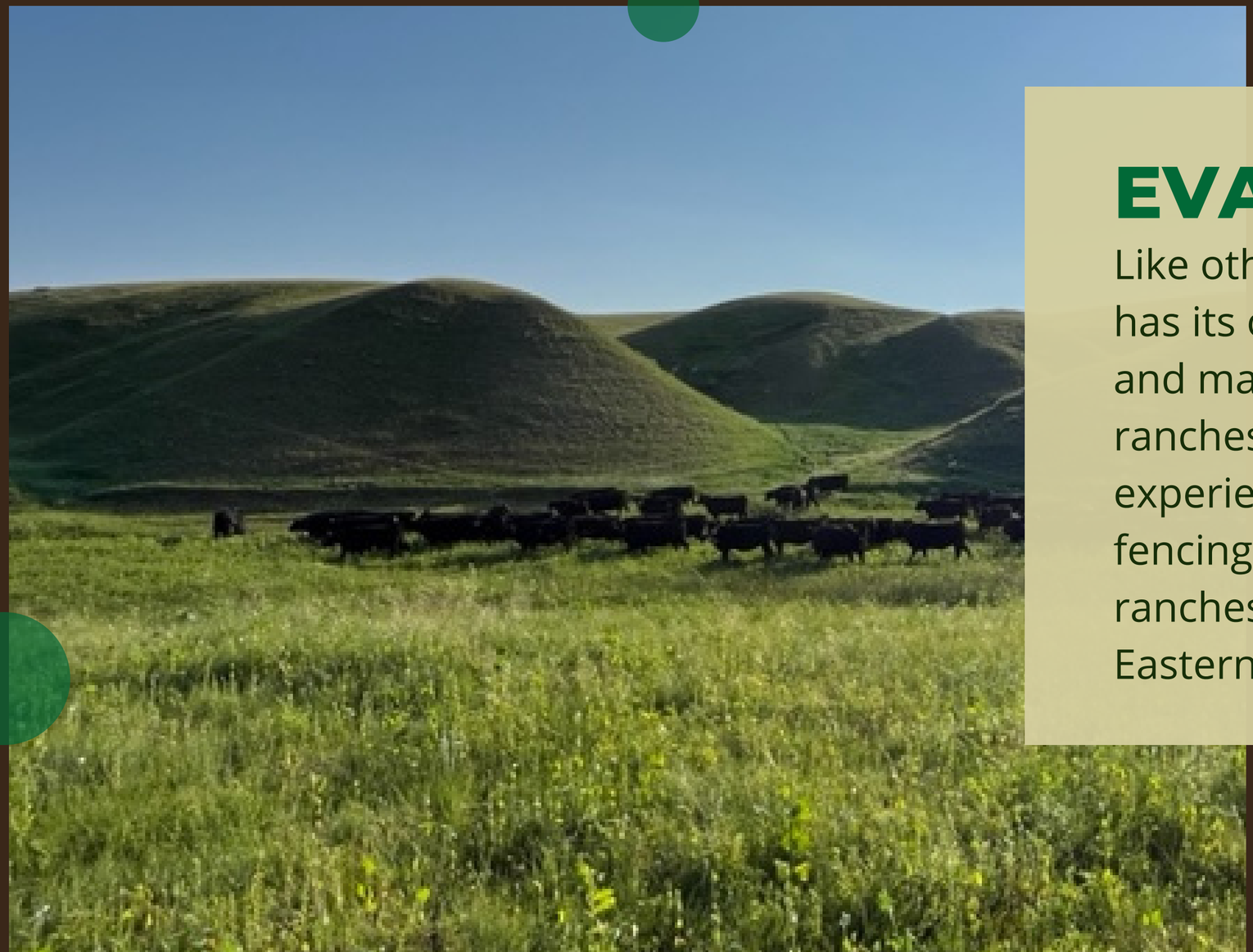


RESULTS

The World Wildlife Fund will likely return in 2029 to gather additional data.

Virtual fencing did allow the ranch to have increased control over their grazing areas.

Louie Petrie Ranch first used virtual fencing in the 2023 grazing season. The collars provided were fastened with a cable zip tie-like mechanism. Which failed in the majority of the collars. The company has since improved the fastening mechanism and is providing replacement collars to the Ranch for the 2024 season.



EVALUATION

Like other types of fencing, this technology has its own applications and limitations and may not be the best solution for all ranches and all situations. Based on his experience, Tyrel suspects that virtual fencing could be most beneficial for ranches in plains landscapes like those in Eastern and Central Montana.

REFLECTIONS

- Longevity of the collars could be improved by fencing the cattle away from items that they could rub on.
- Patience and careful observation of the cattle will make for a more smooth transition.
- The 4-5 month battery life of the collars makes them ideal for the yearlings grazed May-September. Utilizing these collars on their cows, who graze for upwards of 9 months would mean purchasing another battery for each collar.
- Virtual fencing could be most beneficial for ranches in plains landscapes like those in Eastern and Central Montana.

CONTACT VILICUS INSTITUTE

www.vilicusinstitute.org

connect@vilicustraininginstitute.org

406-394-2469

23856 Road 265 North
Havre, MT 59501

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About the LOR Foundation: LOR works with rural communities in the Mountain West to enhance livability and prosperity while preserving the character that makes each community unique.