

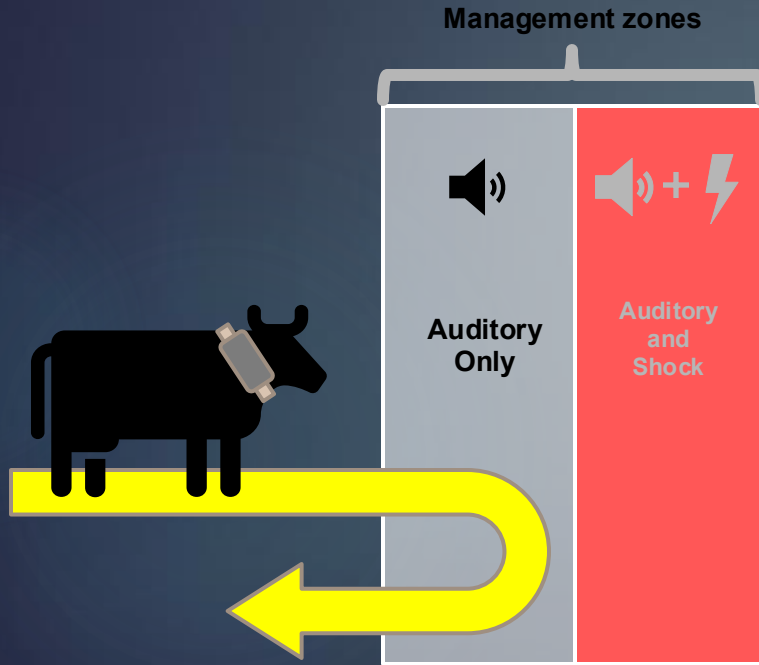
Application for Virtual Fencing

What can you do and how well
does it work...

Brandon Mayer
University of Arizona,
School of Natural Resources & the
Environment



What does Virtual fencing do for us.



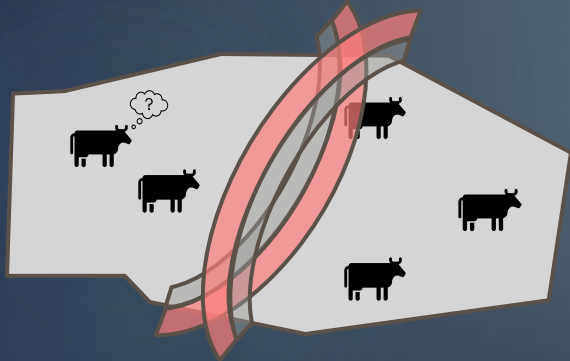
Virtual fencing allow users to plan, schedule, and remotely influence a herd:

- ▶ Controlling where grazing occurs
- ▶ Controlling when virtual fencing pressure is applied

What do I mean by “control”

Spatial Control

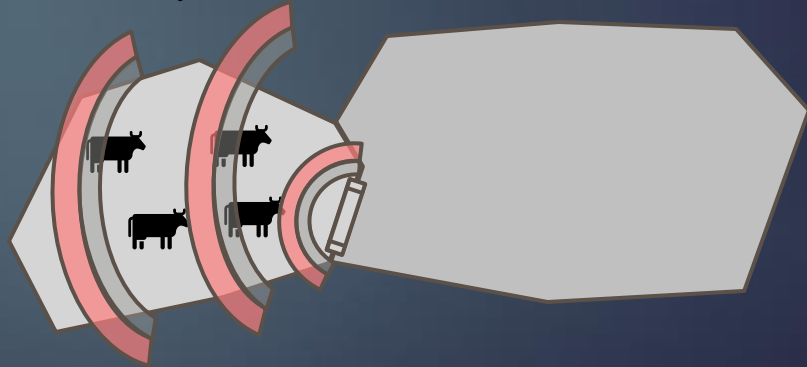
Spatial restriction of grazing within a pasture to better match available forage to forage use



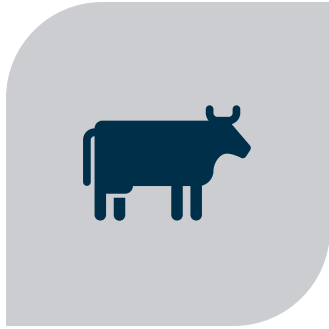
Timing Control

- Precise movement of herd between areas grazing is permitted

Day 00



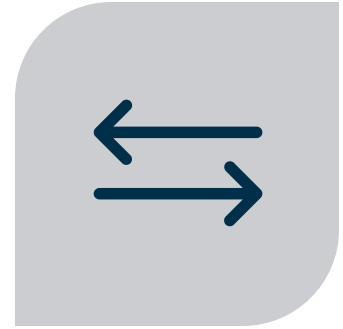
Potential Applications



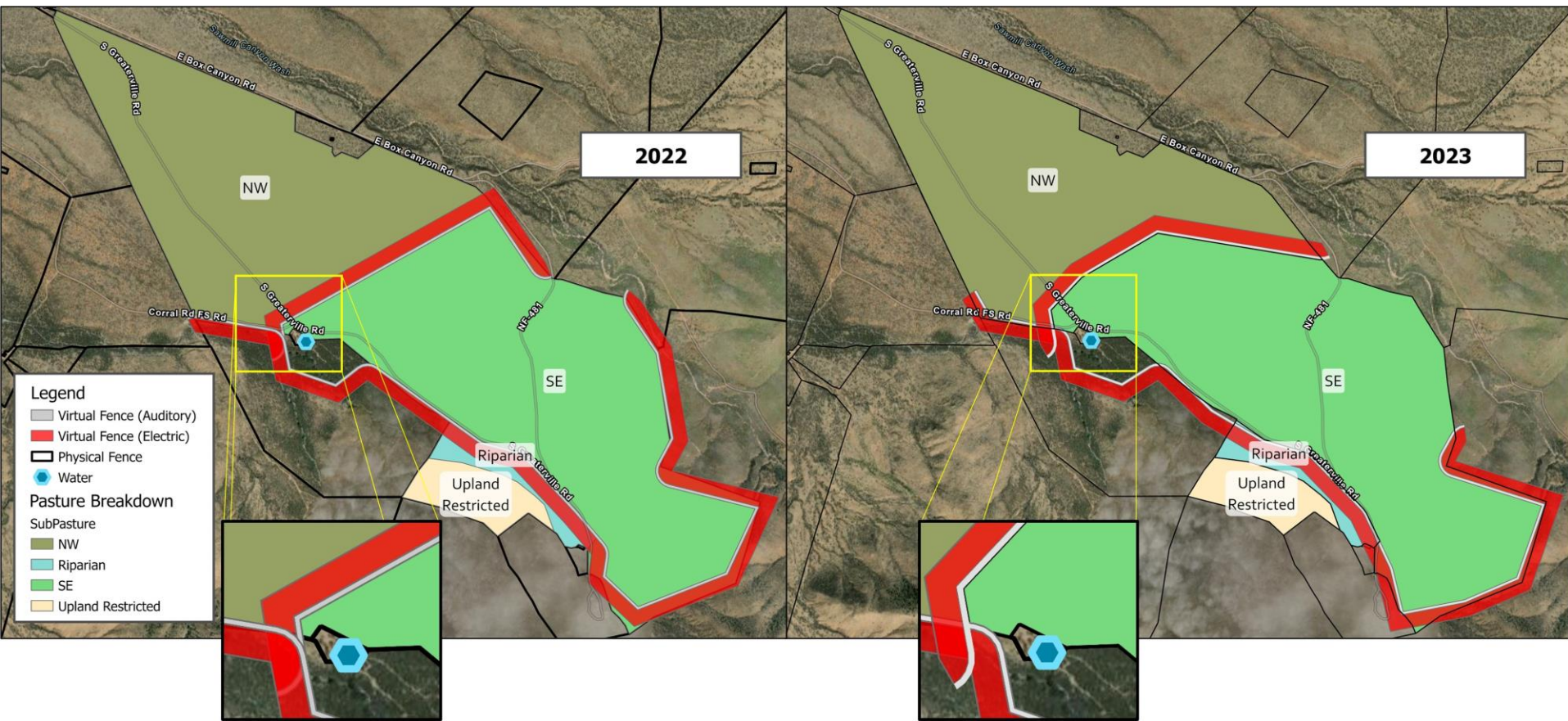
EXCLOSURES



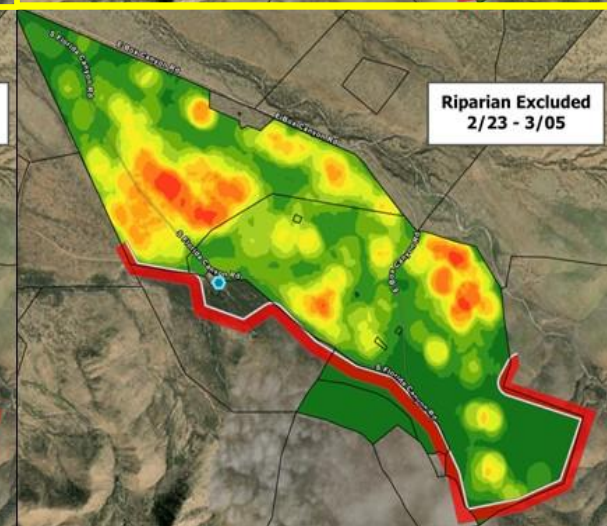
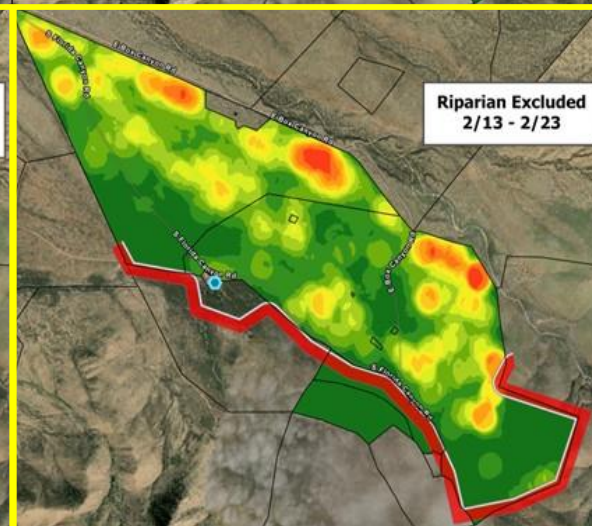
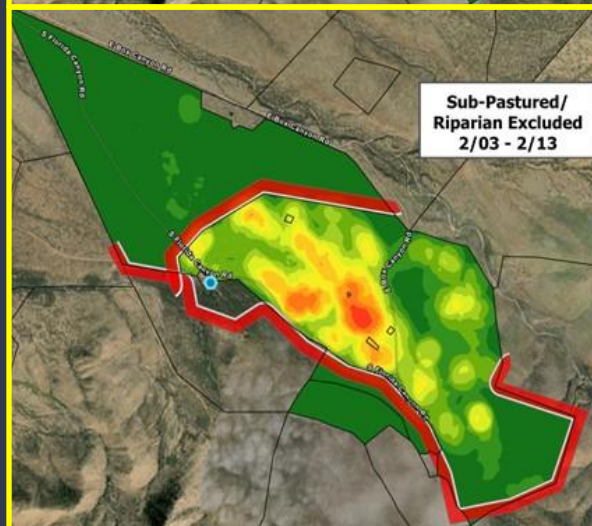
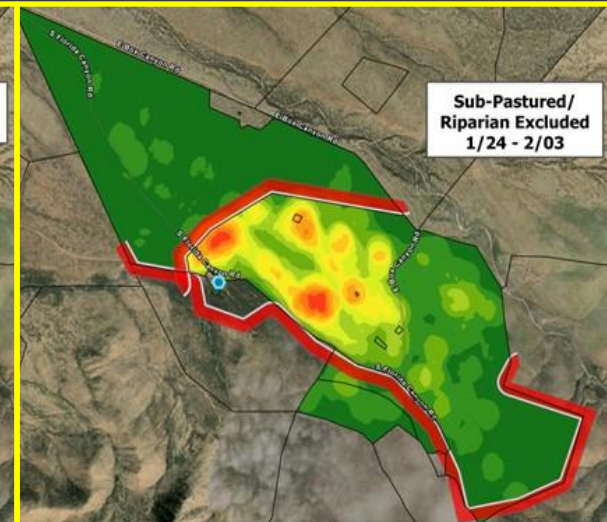
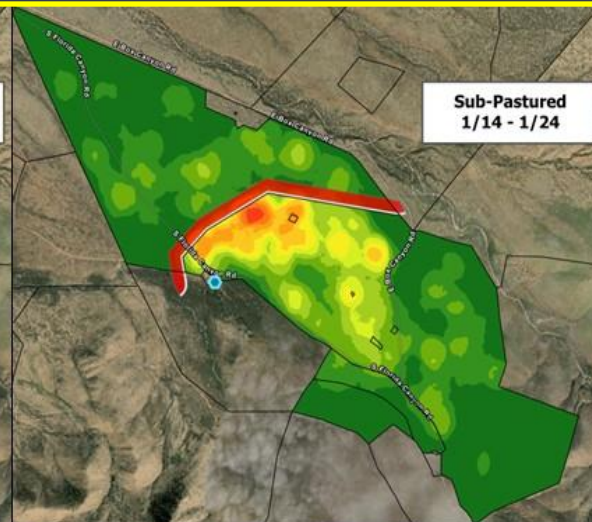
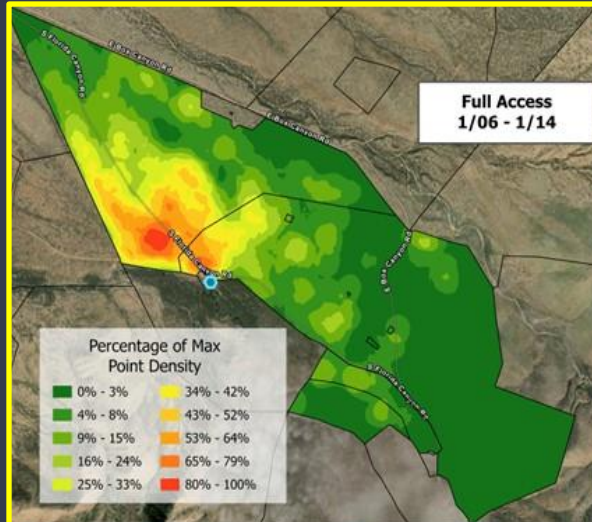
**SUB-
PASTURING**

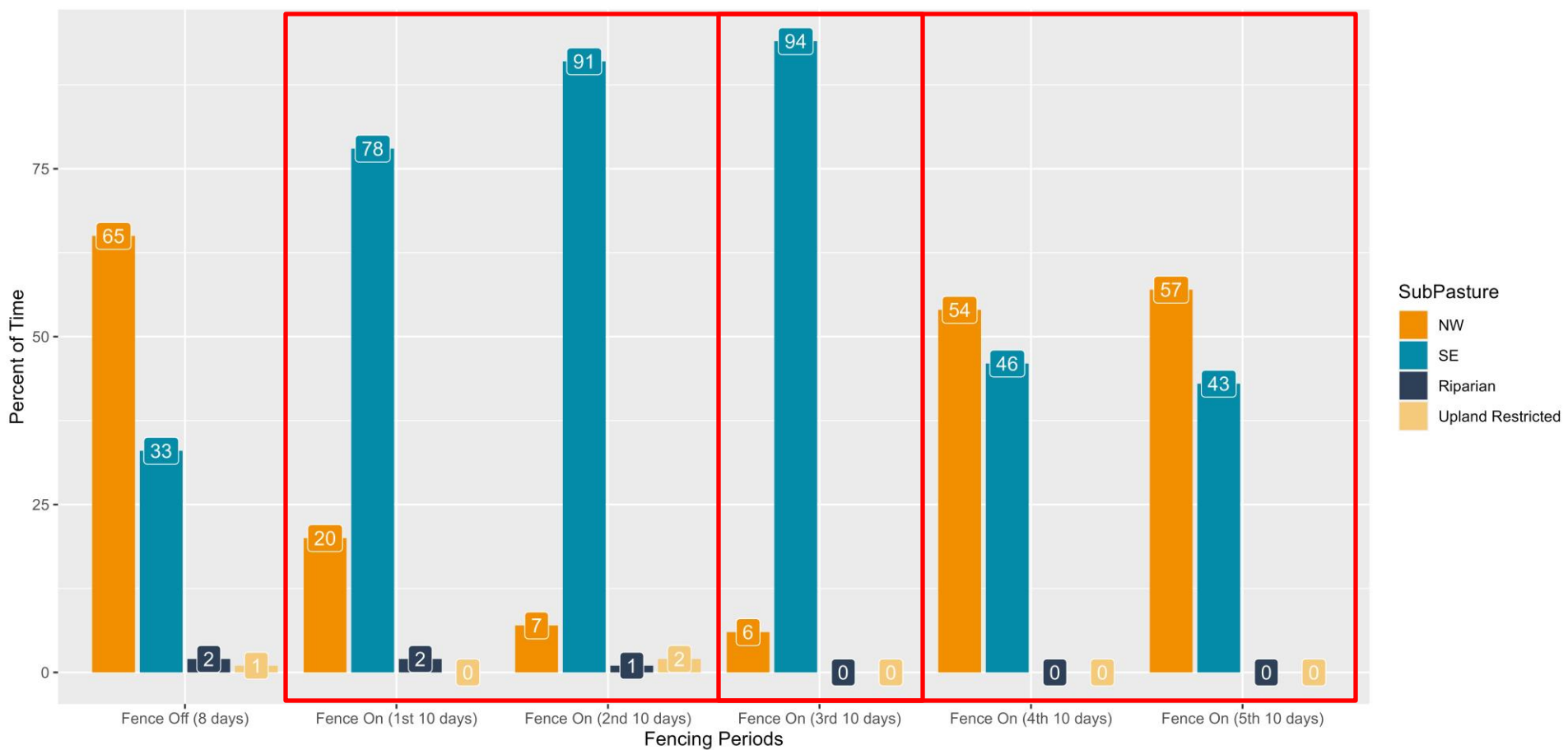


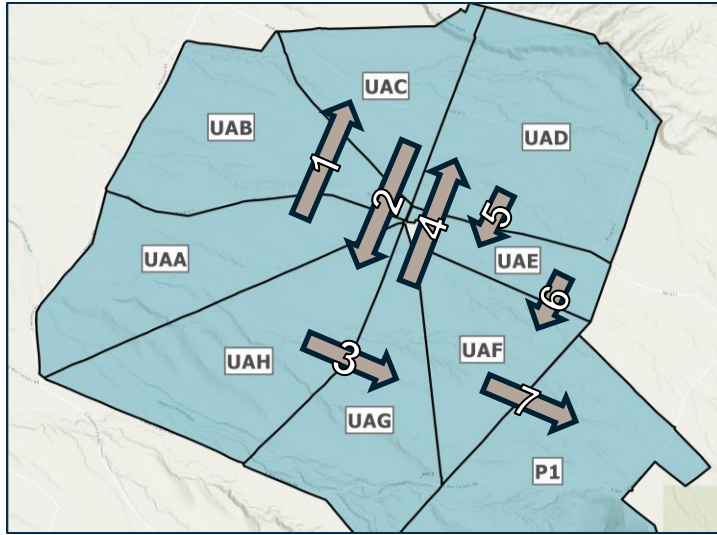
MOVEMENT



Control of Space: Where grazing occurs



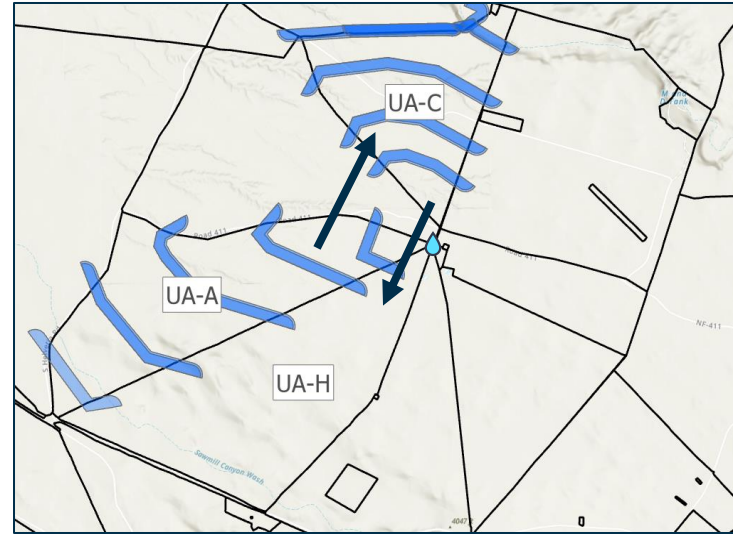




Maintaining a 10-day rotation during the growing season.



Labor intensive Short Staffed

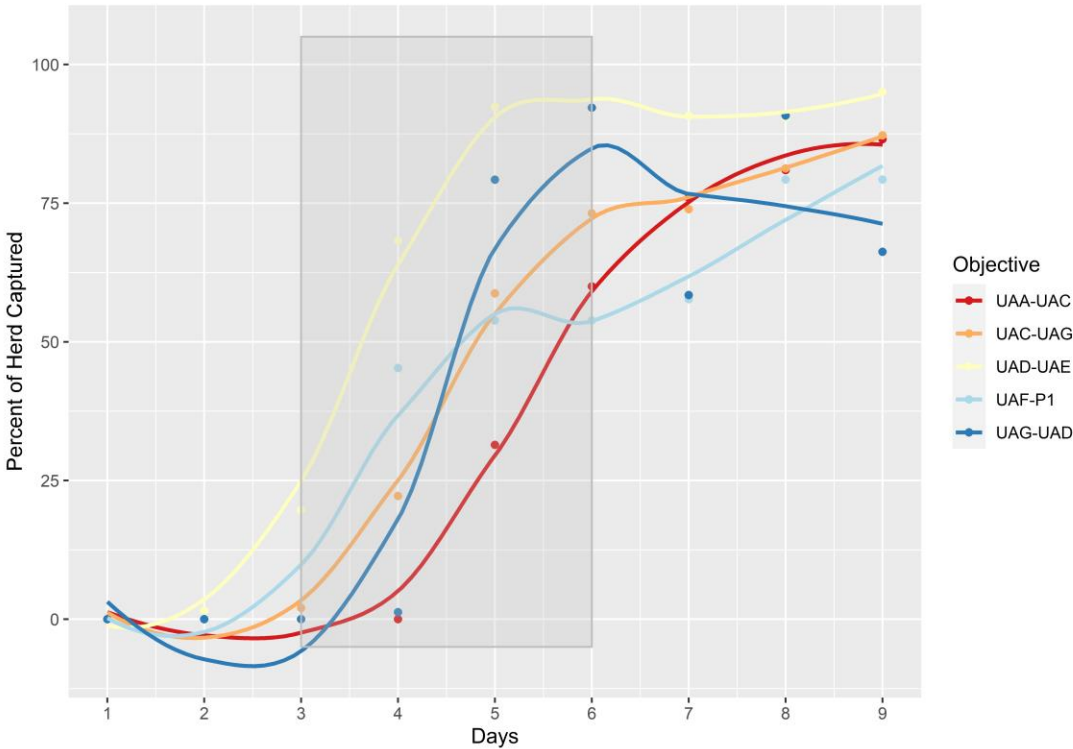


Using virtual fencing to execute a virtual rotation

Precision in Timing: Movement and Rotations

Passive Capture Results

End-of-Day Percent
of Herd Captured



- 50% of the

Objective	Rate
UAA-UAC	21
UAC-UAG	25
UAD-UAE	24
UAF-P1	17
UAG-UAD	35

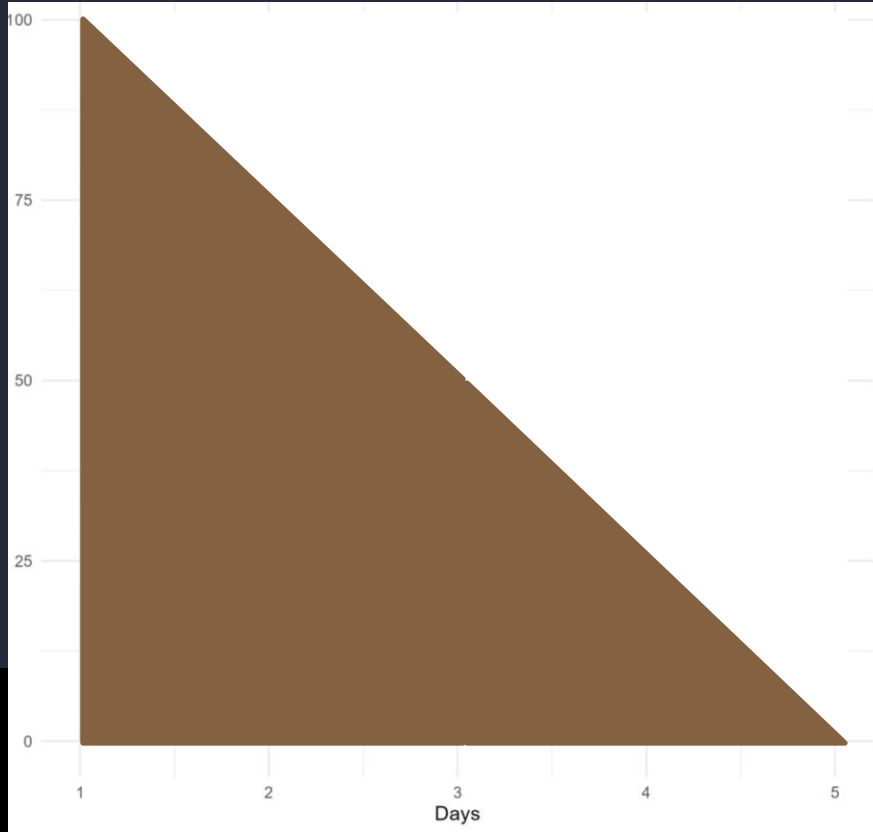
in 3.85 days.

Building this into our rotation

25% capture rate

**Turn on fences two
days before a move
and maintain
stocking!**

- 100/17% capture rate =
~6 days
- 3 days prior to move

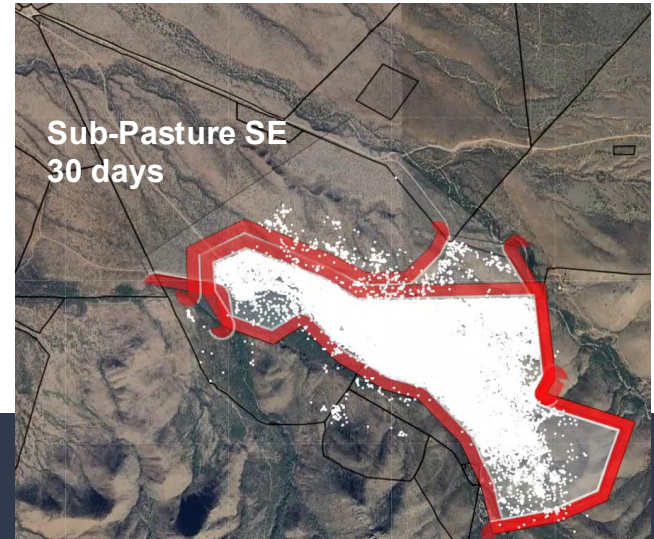
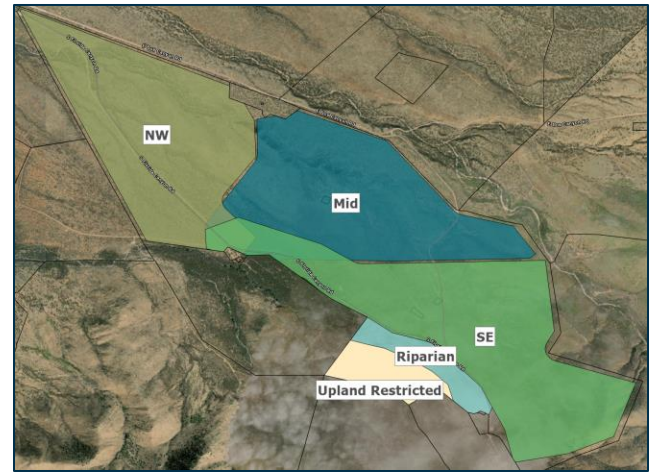
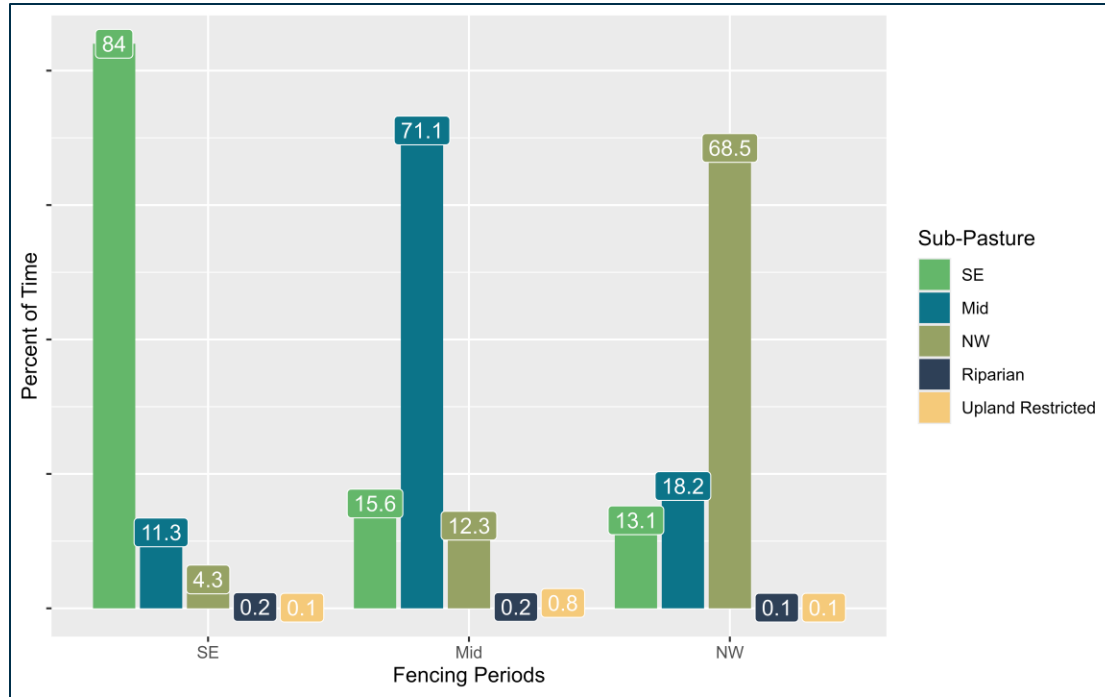


A Sub-pastured Rotation:

Adding Complication
because we can.



Results!

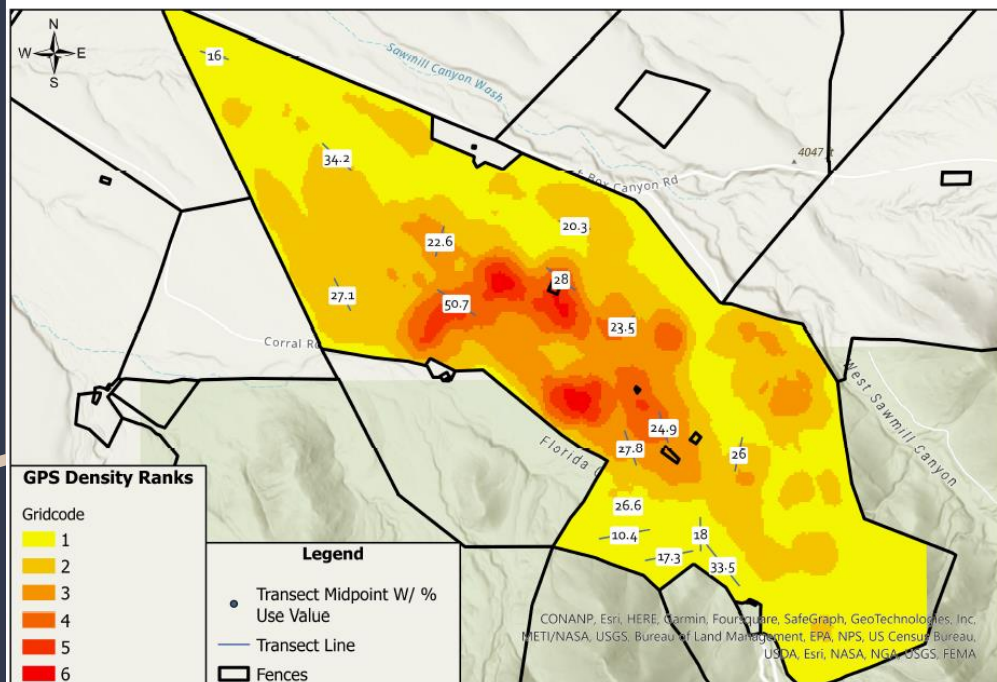


Integrating Tech: Adding Insight

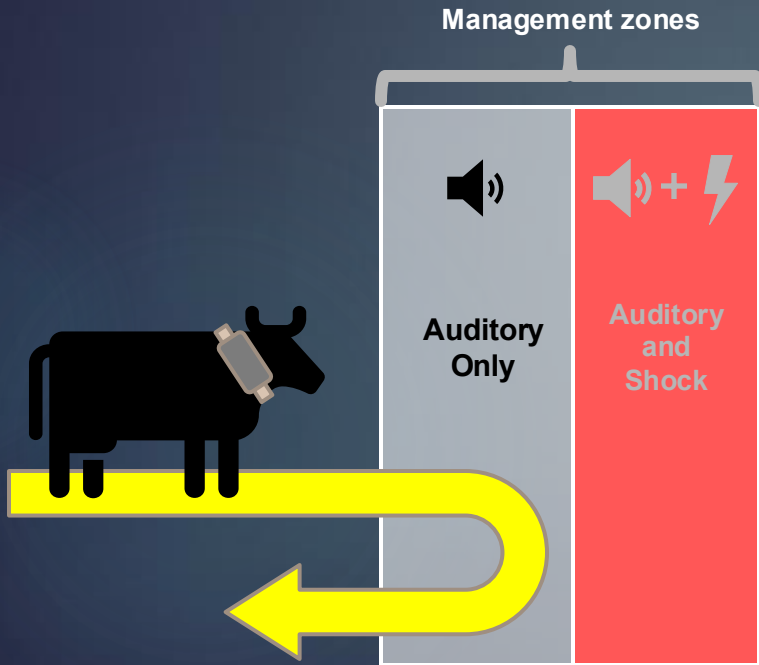
Virtual fencing provides more than just control.

- GPS can assist with locating cattle for collection.
- Insight in how efficient your operation is regarding distribution.

Pasture 8 Virtual Fence GPS Density/Utilization Study



Virtual fencing: In Conclusion



What can this technology do?

- ▶ Control/precision
- ▶ Inference
 - ▶ Decision vs results

Reduces the effort needed by the operator to integrate more intensive practices and focus on the Bigger picture

- ▶ Adaptability, Flexibility, Operations resilience
- ▶ Ecological resilience and sustainability

The University of Arizona

Virtual Fence Program



THE UNIVERSITY OF ARIZONA
**Arizona
Experiment Station**



Cooperative Extension



COLLEGE OF AGRICULTURE, LIFE & ENVIRONMENTAL SCIENCES
**Natural Resources
& the Environment**

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