



EXTENSION

Grass Forecasting on Native Rangeland Pasture

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Management During Drought

1. When it rains matters

2. Decision making tools

3. Management to maximize production



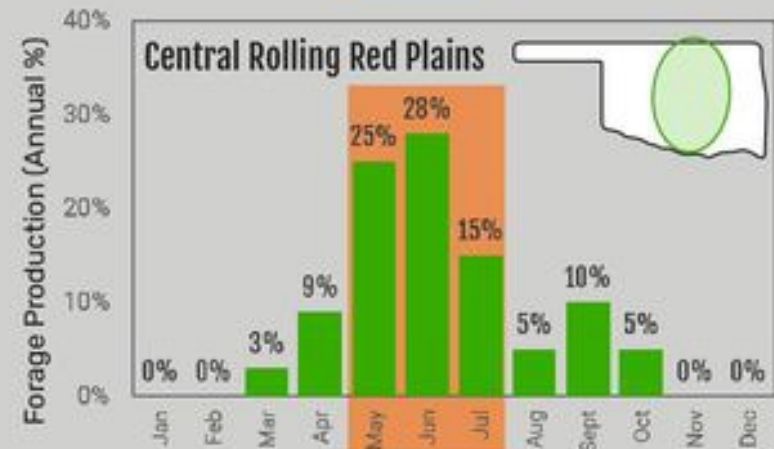
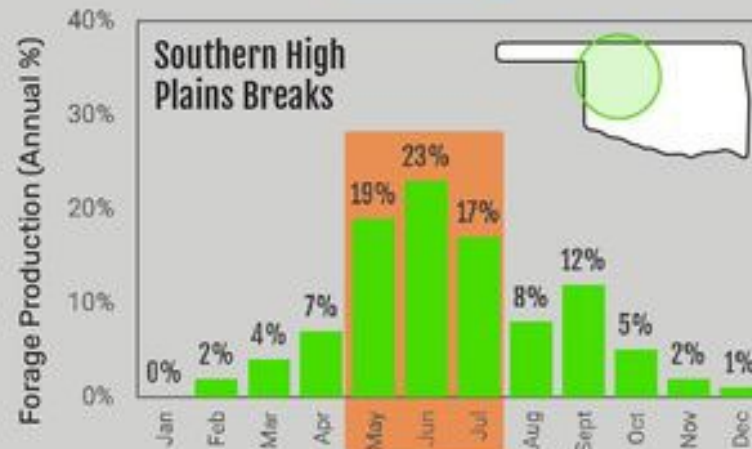
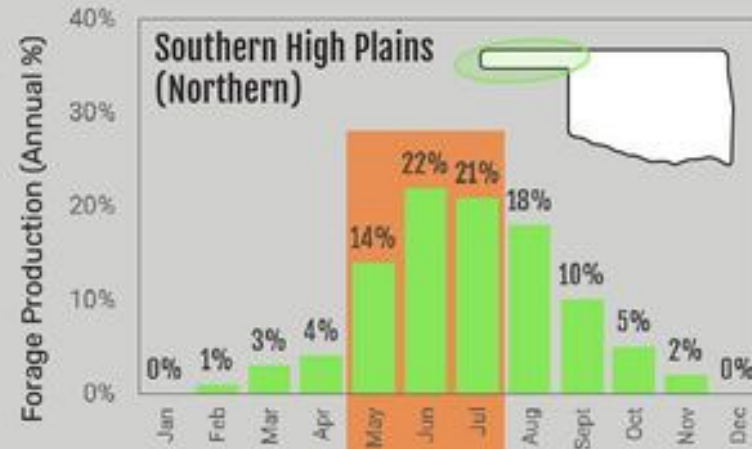
When It Rain Matters

Native/rangeland pastures grow after the average low exceeds 60°F in the spring.

About 70% of the production occurs before Aug 1.

The Rain in Oklahoma Plains Falls Mainly in... May, June, & July.

This rainfall provides for **57 - 74%** of yearly native pasture forage production.



Decision Tools – How much forage has grown?



Monitor rangelands across the USA

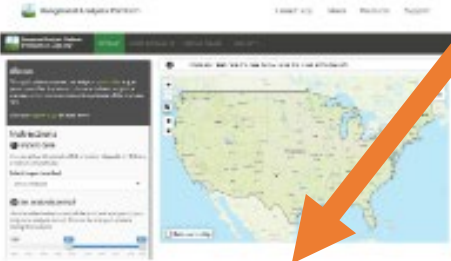
[NEW: Rangeland Analysis Platform version 3.0](#)

Apps and Tools



RAP

Launch RAP



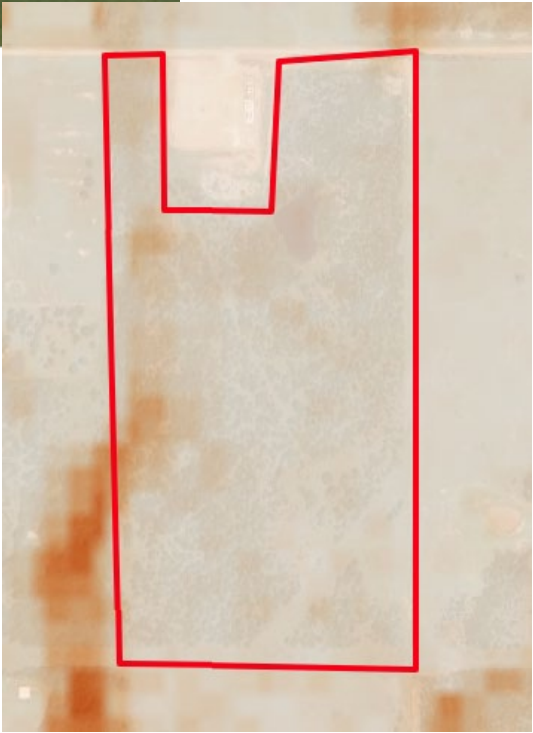
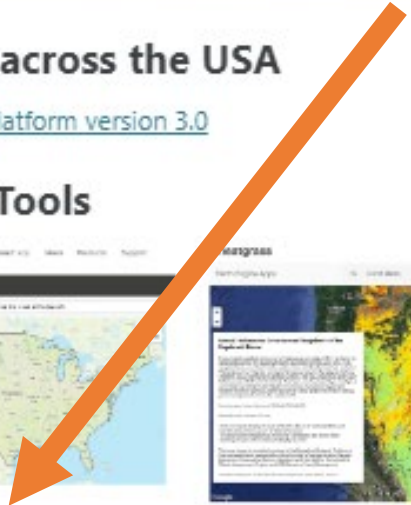
Production Explorer

Launch Production Explorer



Partner Tools

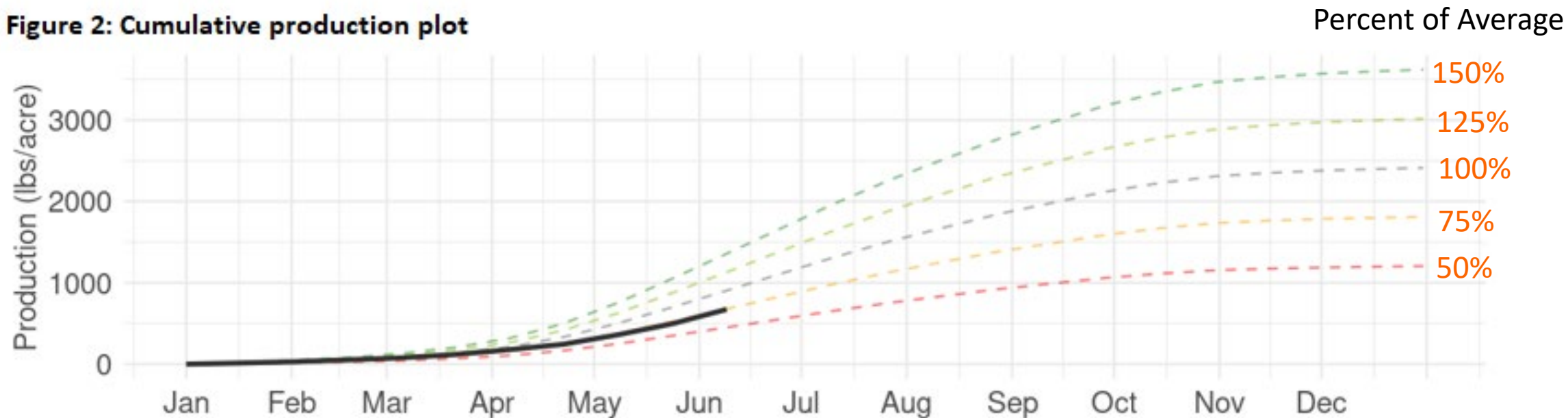
Visit page



Decision Tools – How much forage has grown?

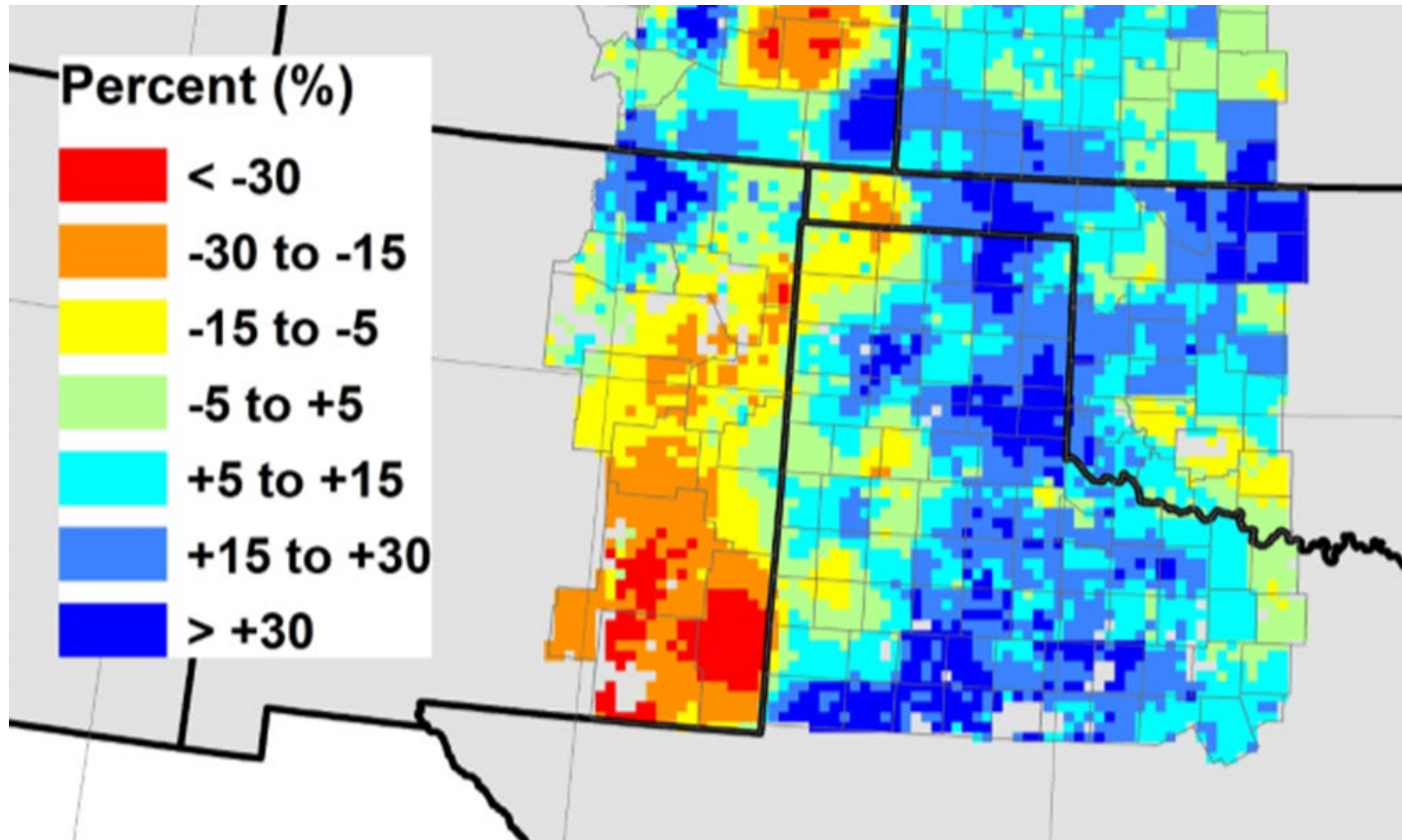
Rangeland Analysis Platform – free web app, no download, <https://rangelands.app/>

Figure 2: Cumulative production plot



Production estimate every 2 weeks.

Decision Tools – Grasscast

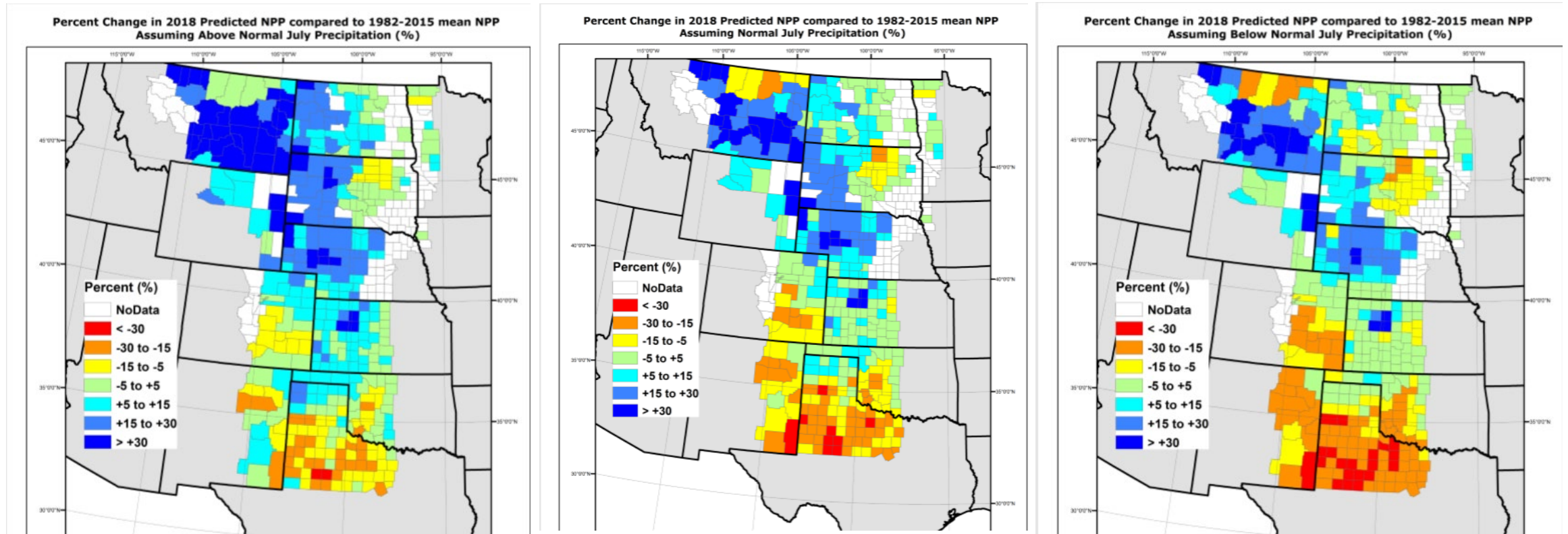


July 16, 2019

- 6 mile by 6 mile grid
- Updated every 2 weeks
- Shows % change in production
- Best used mid-summer

Decision Tools – Grasscast

<https://grasscast.unl.edu>



Above Normal Rainfall

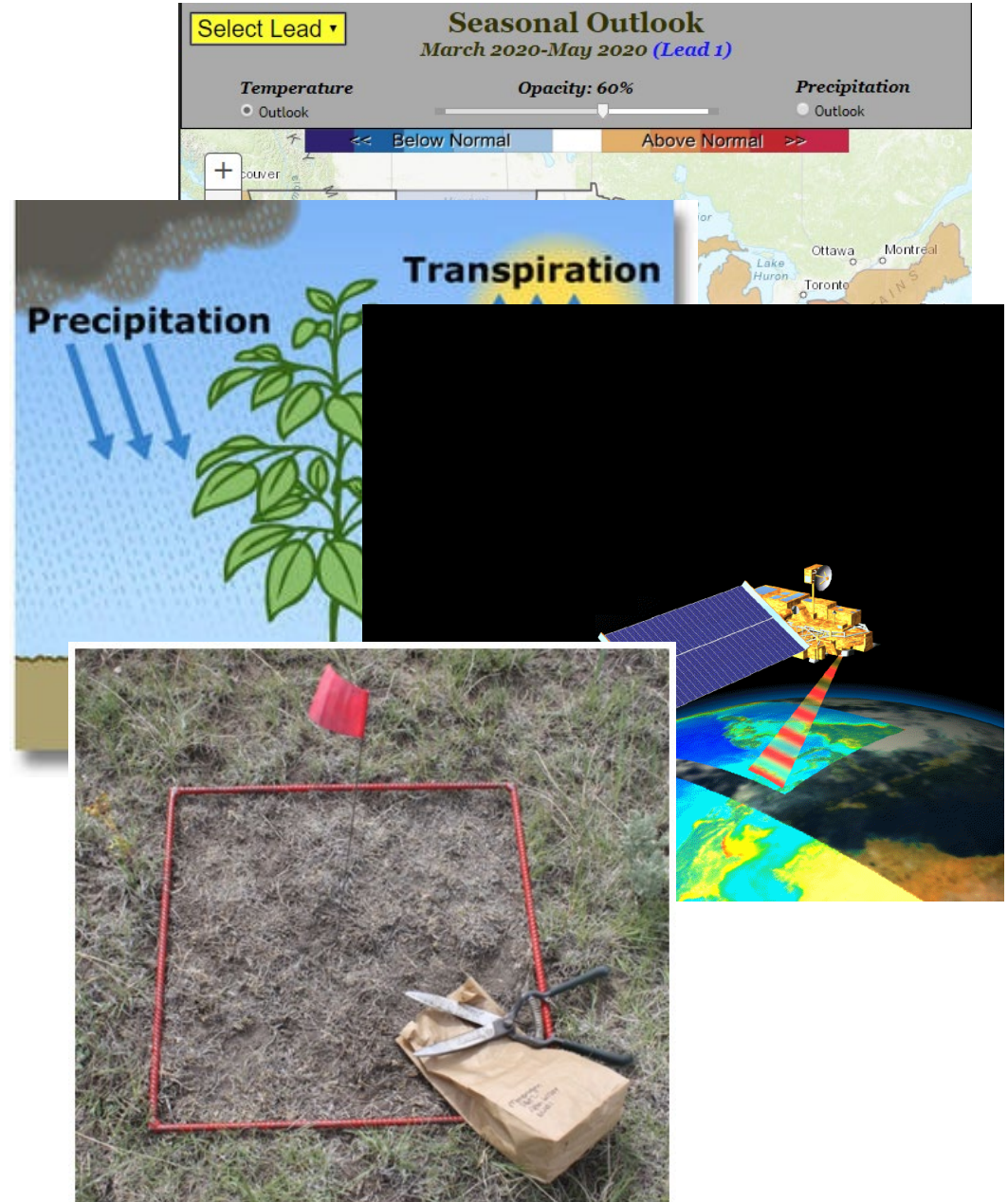
Normal Rainfall

Below Normal Rainfall

Some areas will produce less than normal regardless of how much rain they received. Check this in June/July.

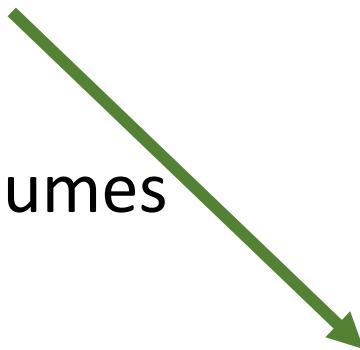
Grasscast

1. Observed weather + forecasted (NOAA)
2. Evapotranspiration (how much is actually available to plants)
3. Greenness (satellite imagery - modis NDVI)
4. Measured production from 30 year data



Grasscast Limitations

- I don't know my productivity.
 - Historical productivity
- Productivity prediction assumes it is grassland



GRASSLAND PRODUCTION FORECAST

Grass-Cast Outlook Maps Archive Historical Data FAQ Quick Links Contact Us

Grass-Cast Maps

- Maps Discussed
- About Our Maps
- Introductory Video
- How to Read the Maps
- Grass-Cast Handout
- Science Webinar Recording
- Acknowledgements
- Historical Productivity
- Print PDF

Grass-Cast Maps (Static Image) Grass-Cast Maps (Zoomable)

% Change in Grassland Production for Your Area this Summer Compared to 1981-2018 Mean

For the 3 maps (scenarios) below: "If precipitation between now and August 31st is above (left map), near (middle map), or below (right map) the 1981-2018 mean, grassland production in your area (in pounds per acre of peak standing biomass) will be ____% more or less than the 1981-2018 mean."

% Change in Grassland Production (lbs/ac) this Summer, Compared to 1981-2018 Mean

For the map below: "Given *actual* precipitation observed through Aug 31st, grassland peak biomass during the summer of 2019 is estimated to be ____% more or less than the 1981-2018 mean."

Percent Change in 2019 Predicted ANPP compared to 1981-2018 mean ANPP
Final Growing Season Forecast

Minimize Drought Impacts on Pastures

Conservatively stock pastures
(Leave at least 50% plant biomass)

1. Lowest reduction in production during drought
 2. Recover most quickly after drought
-



Stocking Rates



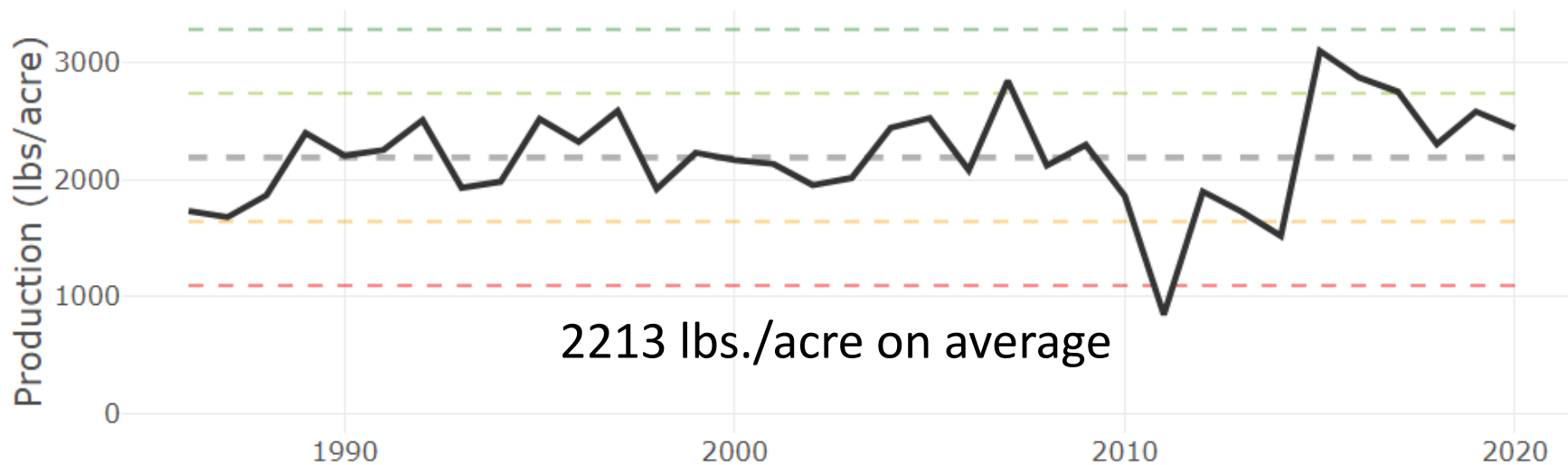
How much forage am I growing?



Rangeland Analysis Platform – Forage Production and Stocking Rate Calculator

You enter:

1. Pasture boundary
2. Cattle size
3. Estimated intake
4. How long they will graze



Land unit name

Land unit area (acres)

Average size (lbs) of the animal while grazing the land unit.

Average intake (% of body weight) that the animal consumes each day.

1.5% 2.5% 4.5%

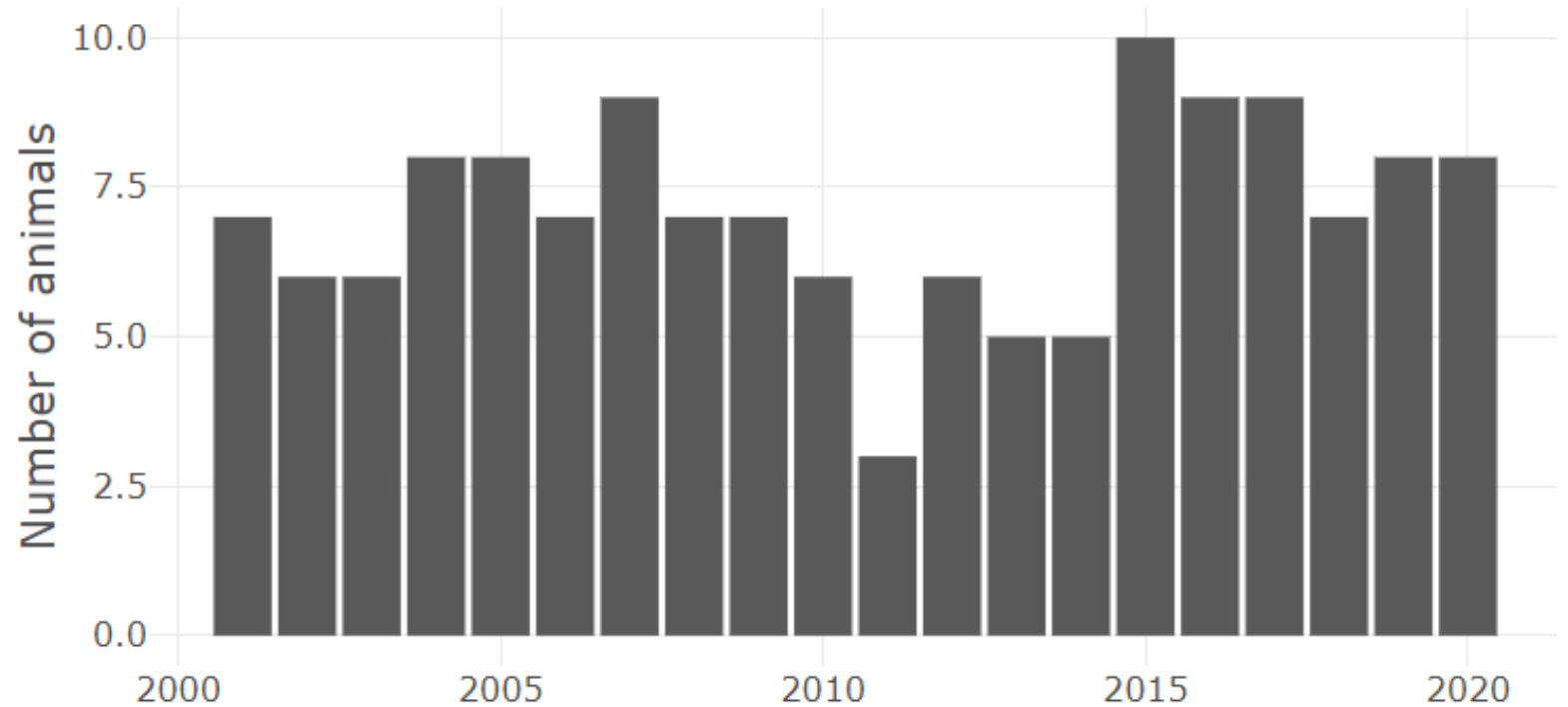
1.5 2.1 2.7 3 3.3 3.9 4.5

Number of days livestock will be grazing this land unit.

0 365

Number of 1300lb cows this pasture could carry year-round

www.rangelands.app



Average

Lowest value

Highest value

Range

Production (lbs/acre)

2213

844

3097

2253

Stocking rate (animals)

7

3

10

7

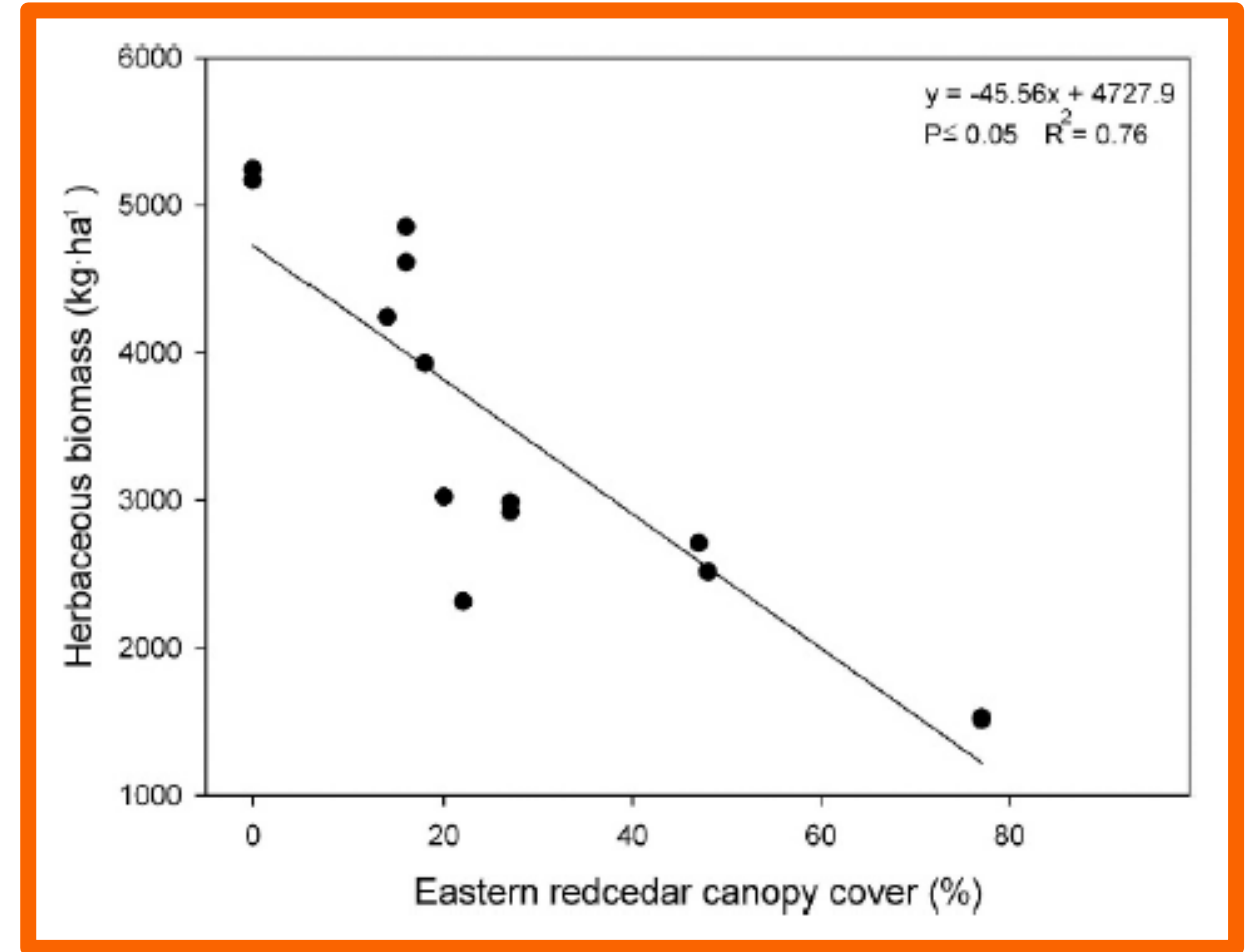
#1 Range Management Practice – Control Eastern Redcedar Trees

No cedar

- 4730 lbs/acre
- Annually 8 acres/ 1000 lb. cow
- 10 cows on 80 acres

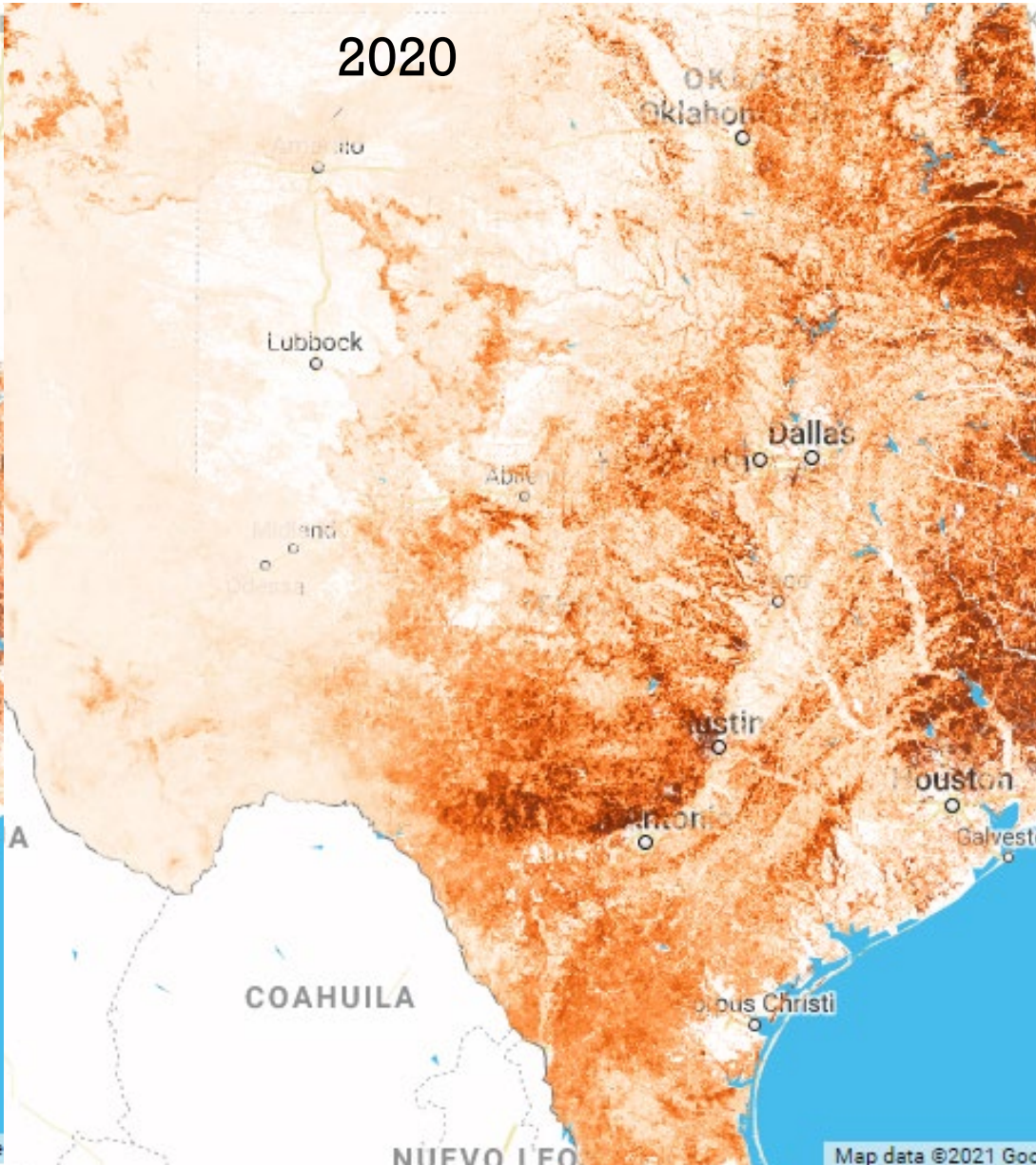
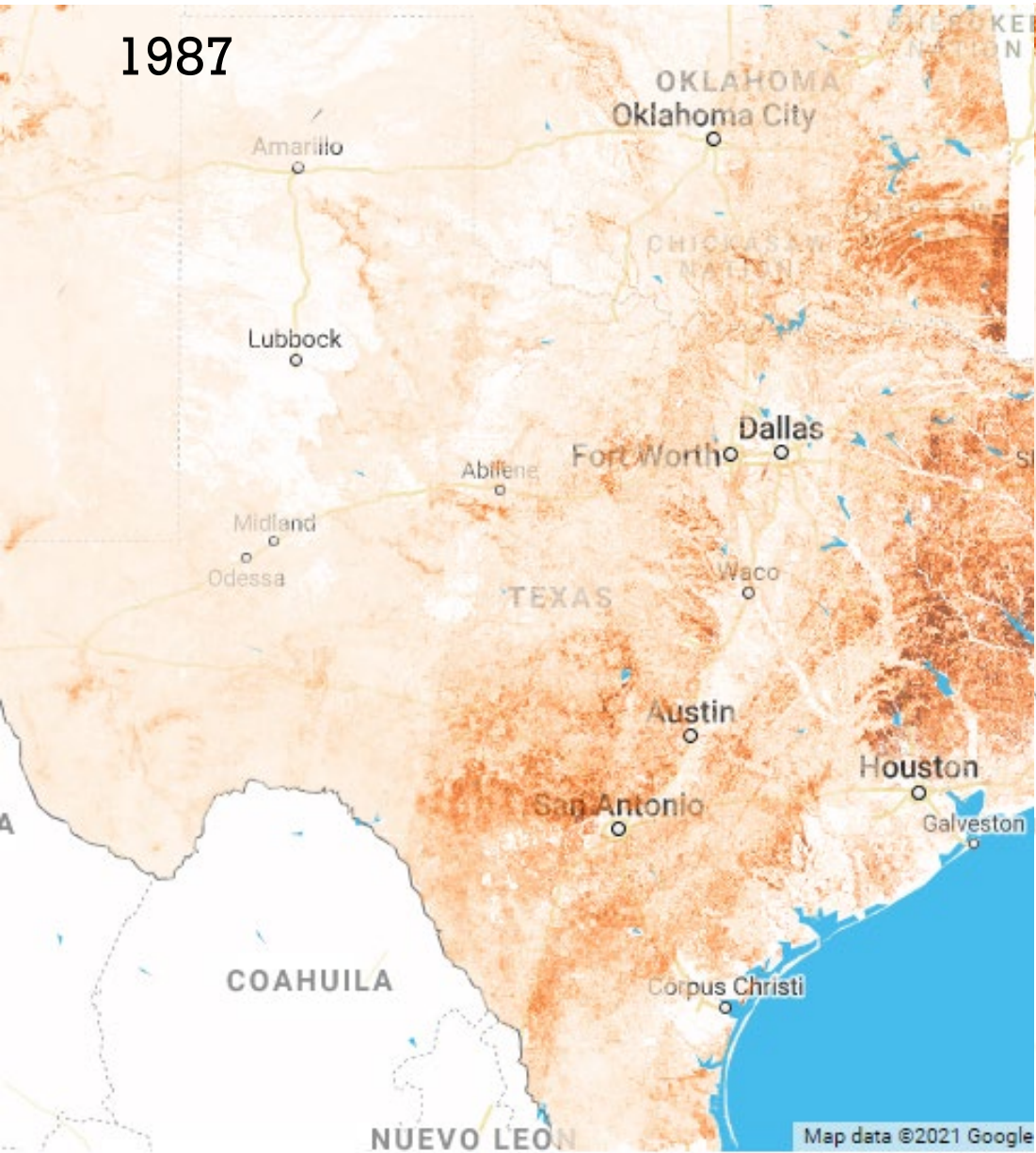
80% cedar

- 1300 lbs/acre
- Annually 27 acres/ 1000 lb. cow
- 3 cows on 80 acres



400 lbs/acre LESS FORAGE for every 10% INCREASE IN CEDAR canopy

Tree Cover Change in 33 Years



Trees increasing on prairies for 100-150 years.

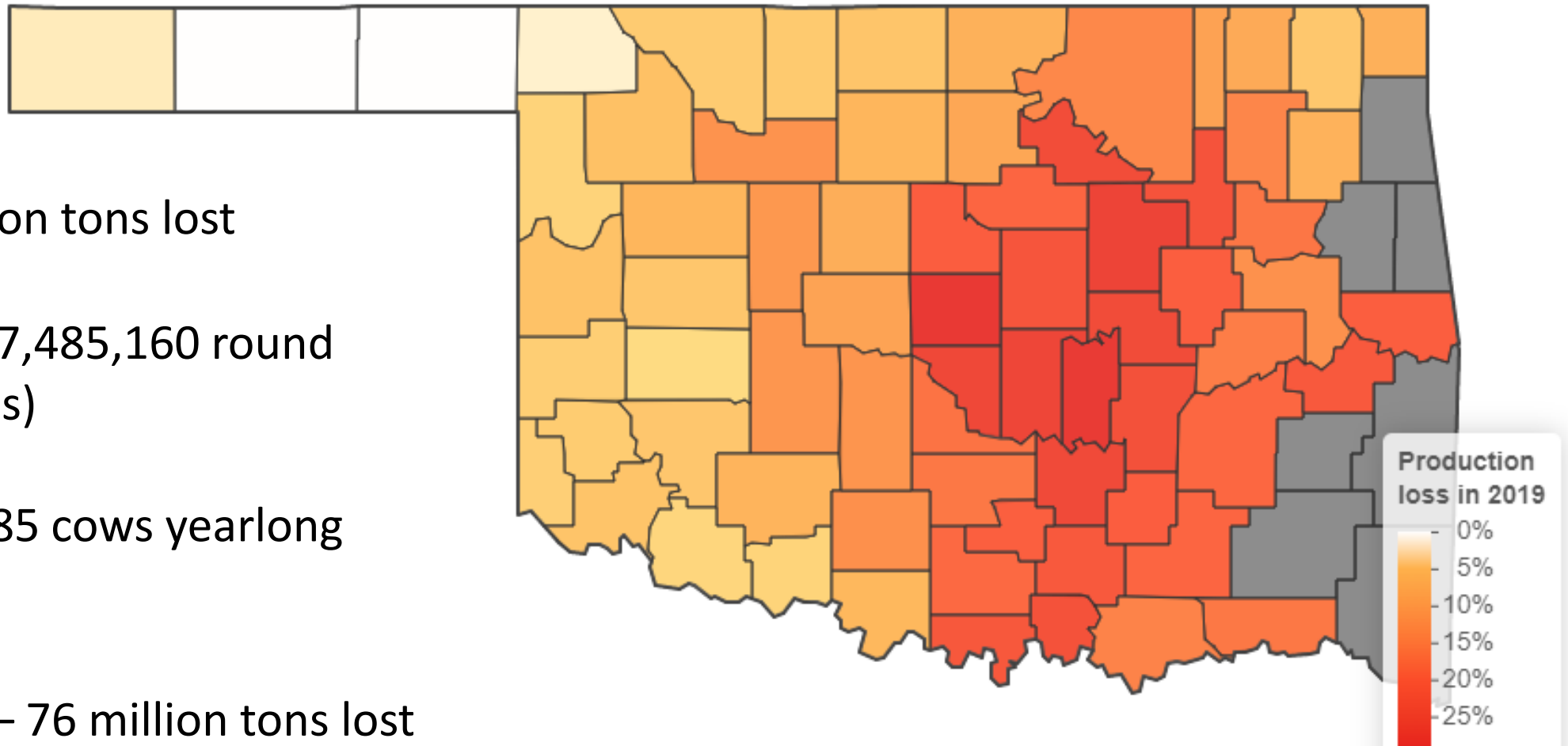
Image:
Rangeland
Analysis
Platform

Oklahoma Rangeland Productivity Loss From Trees

2019 – 4.4 million tons lost

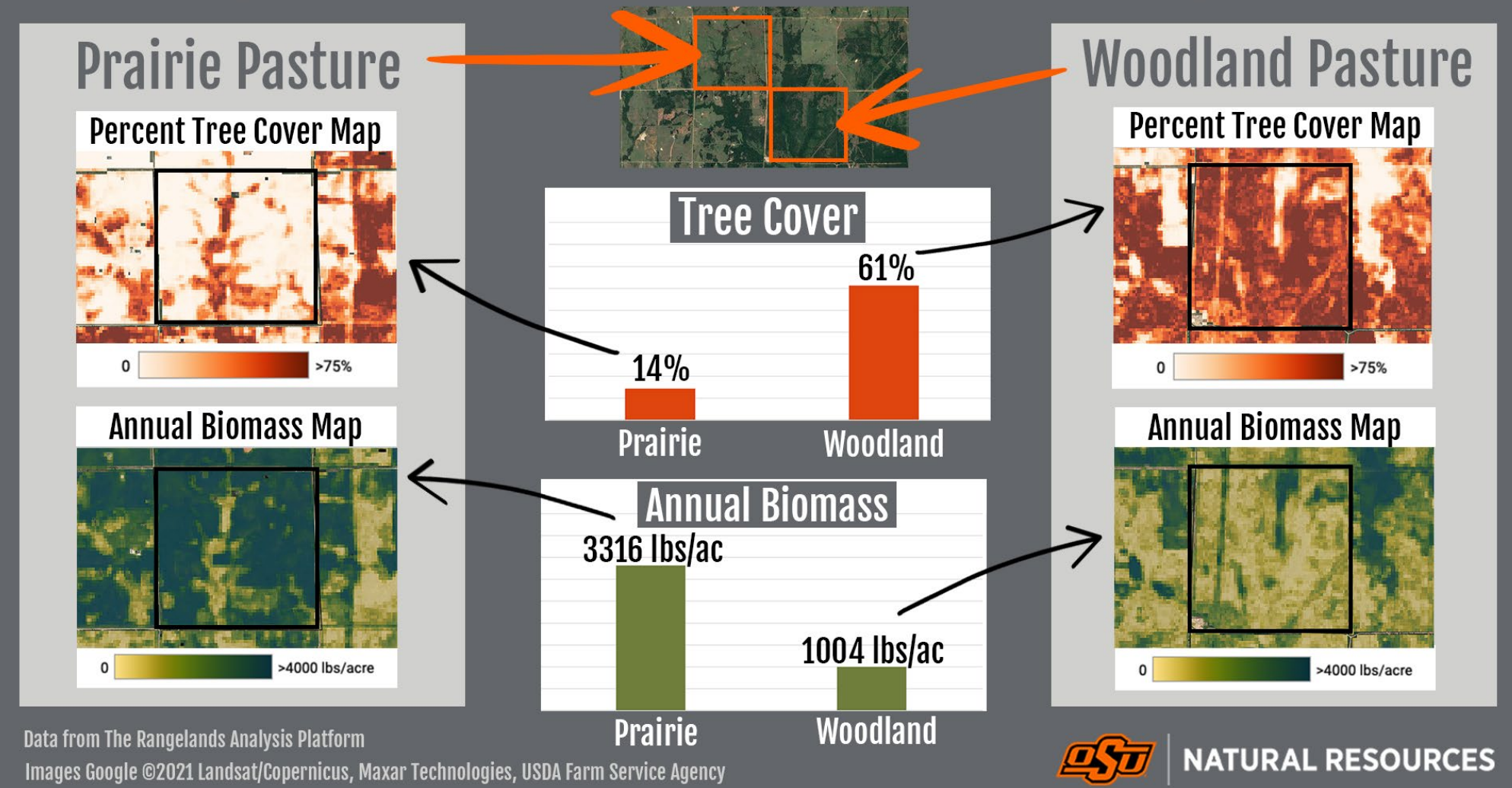
- Equivalent to 7,485,160 round bales (1,200lbs)
- Sustain 197,185 cows yearlong (1200lb.)

1990 – 2019 – 76 million tons lost



The Green Drought

Annual Rangeland Production (grasses & broadleaves) on Adjacent Pastures



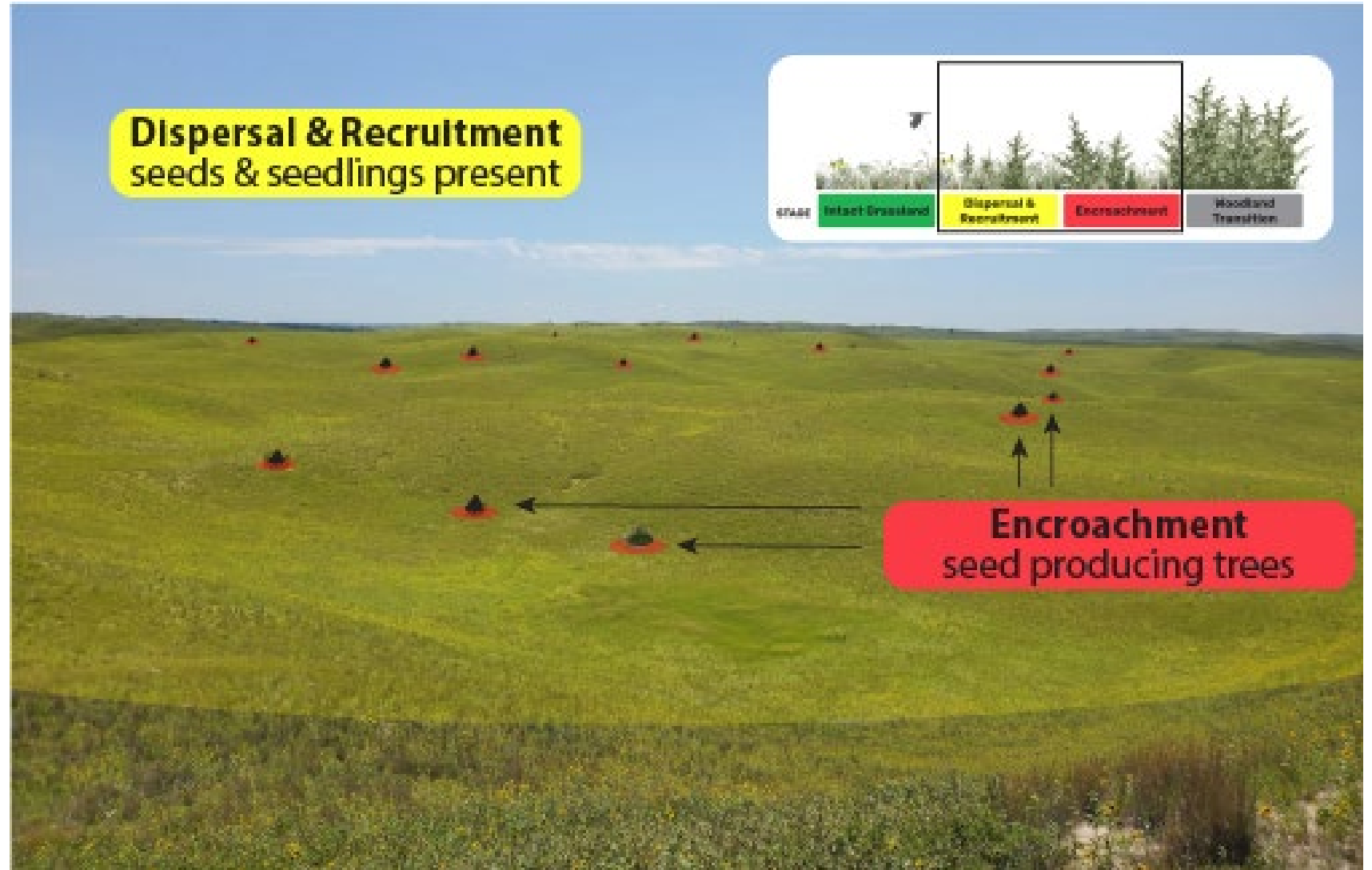
It lasts longer 1-2 years and is much more expensive to fix.

Are our pastures at risk of encroachment?

Is this pasture at risk of woody encroachment?

If yes, how much of it?

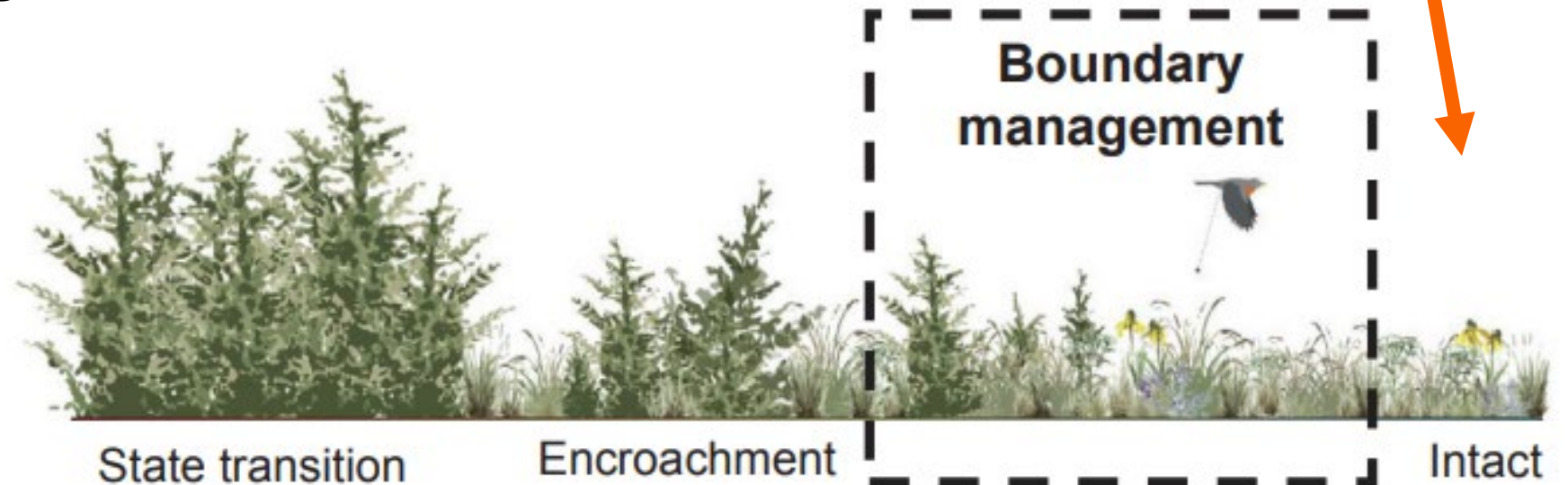
Each mature (>6yr. old) tree scatters seeds across 26 acres surrounding it.



New Strategy to STOP Encroachment

1. Establish a Core - Intact Grass Area
2. Defend a Core – No seed bearing trees allowed
3. Grow the Core
4. Partner with Neighbors

Start management here



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Socials:

- [Facebook.com/ Oklahomalands](https://www.facebook.com/Oklahomalands)
- [Twitter.com/ Oklahomalands](https://twitter.com/Oklahomalands)
- [Instagram.com/ Oklahomalands](https://www.instagram.com/Oklahomalands)

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