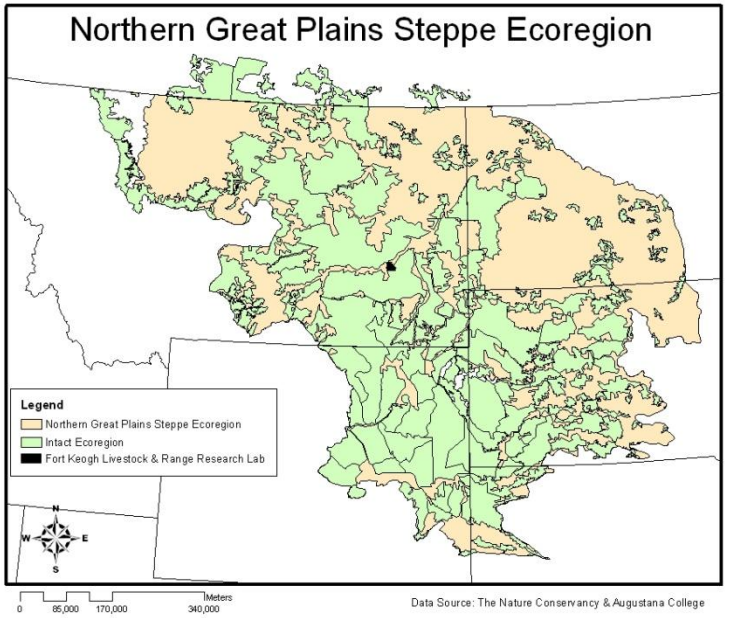
Fort Keogh welcomes customer focus group!

Is periodic rest or grazing deferment necessary following wildfires in mixed-grass prairie?



Costs of post-fire grazing management

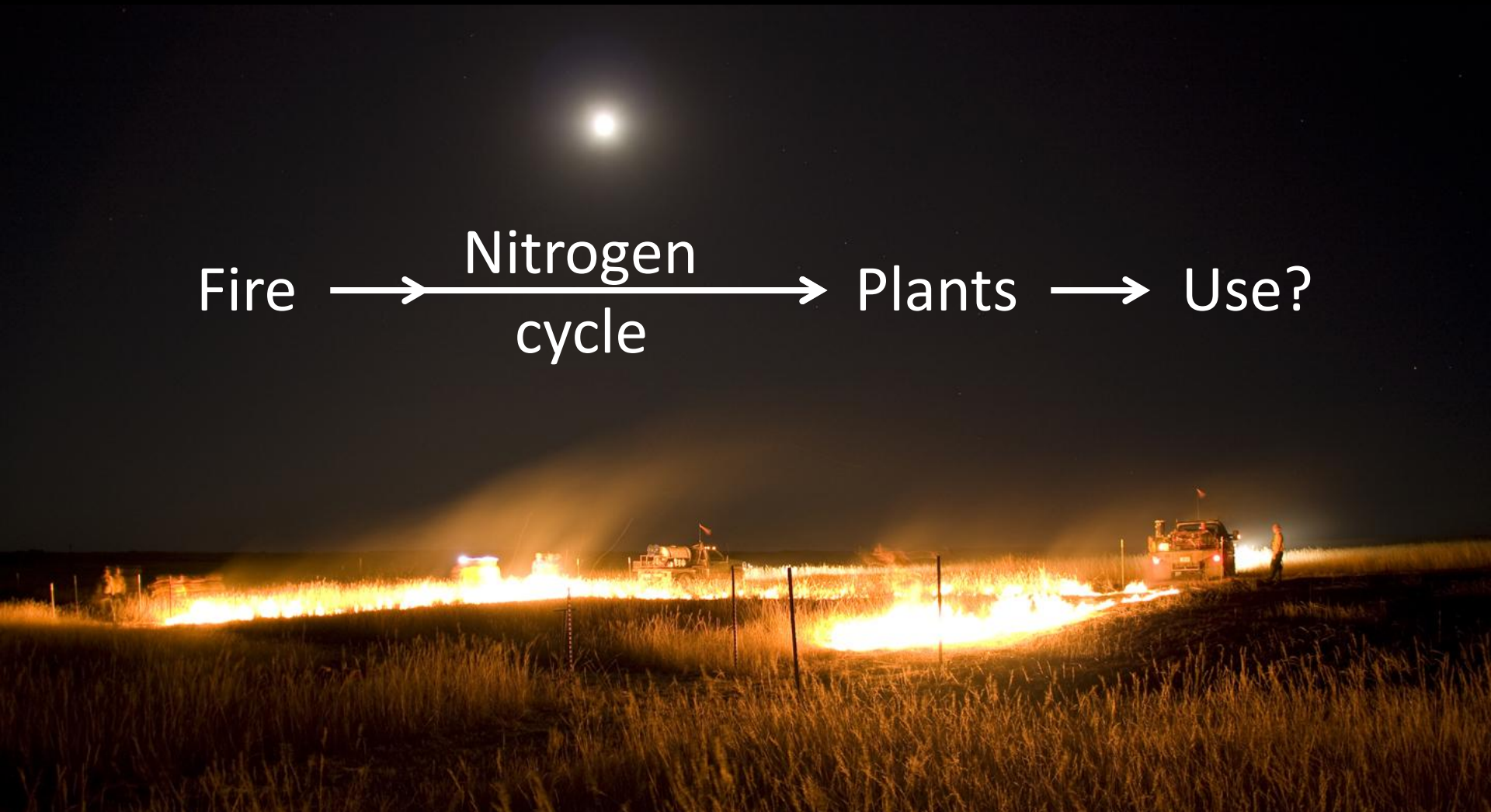
- ✓ On average, 6.8 million acres of public land burn each yr. Potentially, 13.6 million acres are excluded from grazing per yr (assuming 2 yrs of rest).
- ✓ Each year of grazing deferment costs a minimum $12.8 million for rented pasture alone in MT, WY, ND and SD

Fire Ecology at Fort Keogh

- most preferred native forage plants are resistant to fire
- tool to control some weeds, annual bromes, some sagebrush, prickly pear, & pest grasshoppers
- fire effects on forage production are often neutral to positive
  - ❖ many cool season grasses increase the 1st or 2nd year post-fire
  - ❖ 50% use in June-July after fire appears to not affect plant composition

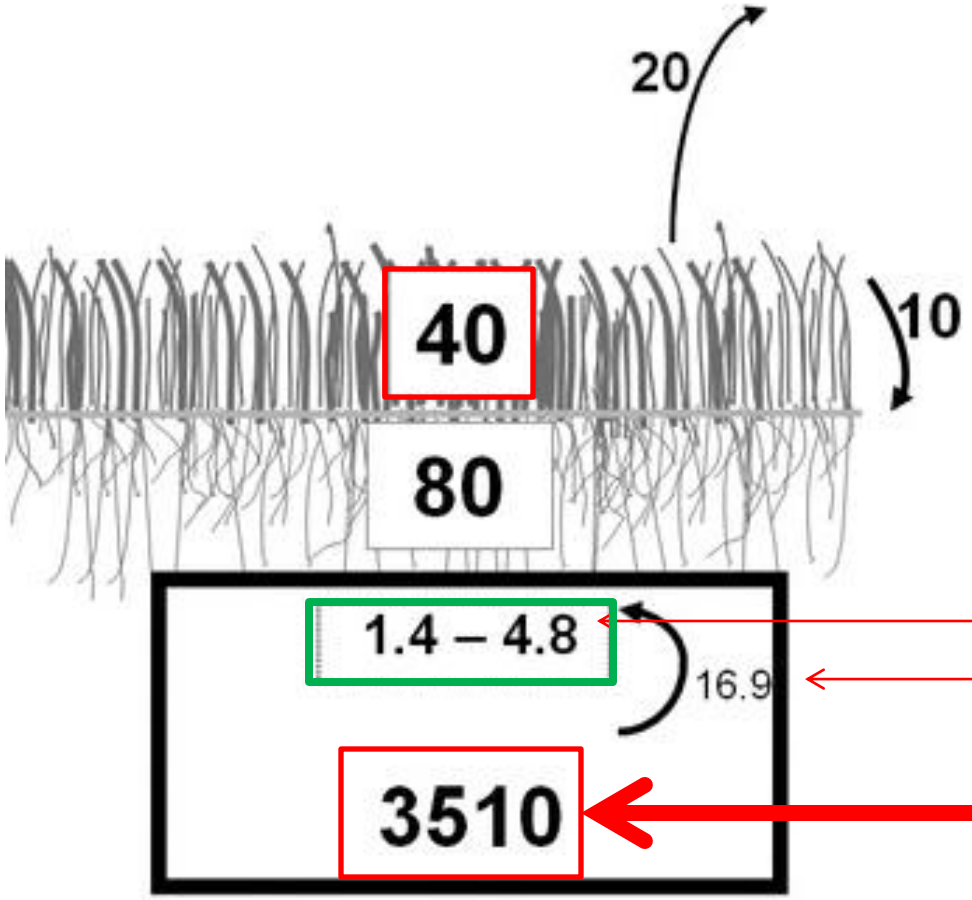
USDA-ARS Headquarters grant

"Soil microbes and the recovery of mixed-grass prairie following fire"



Major pools (kg/ha) and fluxes (kg ha^{-1} yr^{-1}) of nitrogen in a grassland

Nitrogen goes up in smoke (Knapp et al. 1998)



available N

N mineralized

Total N in soil

Norris et al. 2007 Am Midland Nat.

USDA-ARS Headquarters grant

"Soil microbes and the recovery of mixed-grass prairie following fire"

Idea- Ash **increases soil P** stimulating nitrogen fixation by bacteria.

Outcome- Bacteria **replenish N lost** and temporarily **increase available N**.

Possible outcomes

- Explain grassland response to fire
- **N replenished & deferment unnecessary**

night burn 2011