

Native Grasslands

A photograph of a native grassland landscape. The foreground is filled with tall, dry, yellowish-brown grasses and some green shrubs. In the middle ground, there is a dense line of green trees. A person in a white shirt and blue jeans is standing on the right side of the grassy field, looking towards the trees. The sky is overcast and grey.

Native Grasslands Structure and Function

Tim Siegmund
Regulatory Biologist
District 5- TPWD

Grasslands in Texas

- Texas was more than $\frac{3}{4}$ prairie or savannah
- Great Variability
 - Post Oak Savannah and Cross Timbers
 - Blackland Prairie, Coastal Prairie, Grand Prairie
 - Rolling Plains, Edwards Plateau, South Texas Plains
 - Desert Grasslands, High Plains
- Stronghold of Bobwhite Quail
- Winters large numbers of grassland dependent birds



Decline

- Overgrazing
- Suppression of Fire
- Conversion to Row Crop Agriculture
- Broad Spectrum Herbicide Use
- Introduction of “Improved” Forage Grasses
- Over-fertilization
- Urban and Road Fragmentation

Exotic “Improved” Grasses

- Johnson Grass and Ryegrass- Europe/Mediterranean
- Bermudgrass, Buffelgrass, Kleingrass and Weeping Lovegrass- Africa
- Bahia grass, Dallis grass, Vasey grass- South America
- Nitrogen fertilization favors these grasses
- Intensive Grazing favors these grasses

What is it about these native grasses
that make them beneficial??
It all boils down to STRUCTURE!!



Native Warm Season Grasses-NWSG

- Promoted for excellent cover
- Offer little as a food source- other than grazing
- ARE NOT FOOD PLOTS
- Quality cover is often more limiting than food for wildlife
- Cover Requirements
 - Vary by season within species
 - Varies between species
 - Multiple cover types can be supported in one field

Cover Types

- Fawning Cover
- Nesting Cover
- Brood Rearing Cover
- Escape Cover





Big 5 Prairie Grasses



NWSG Structure

Composition

Brood Rearing Cover

Overhead Screening Cover

- large, tall weed patches

Open at Ground Level

- grass cover <50%

Lack of Thatch

- thick litter inhibits foraging ability
- quail do not scratch like chickens
- turkeys can't scratch well until 4 months old

Nesting Cover

Large Grass Clumps for Nesting

- thick, numerous grass clumps
- decrease predation risk
- increase ability to select nest site



Importance of Legumes, Forbs, & Brush

Legumes

-Fix Nitrogen to the Soil

-Attract Pollinators

-Provide Nutritious Seeds

-partridge pea, snout bean, Illinois bundle flower, leadplant, purple prairie clover, tephrosia/goat rue, roundhead lespedeza, Desmodium spp.



Importance of Legumes, Forbs, & Brush

Forbs

- Provide Additional Screening Cover
- Attract Pollinators with Flowering
- Majority of Deer Diet in Growing Season
- Late Summer-Winter Provide Large Number of Seeds and Fruits
- Sunflowers, Croton, 3-Seeded Mercury, Ragweed, Goldenrods, Thistles, Compassplant, most wildflowers



Importance of Legumes, Forbs, & Brush

Brush

- Cover for Quail Coveys
- Additional Food Sources
- Nest Sites for birds
- Require Management
 - May become invasive
 - can alter fire behavior
- Sumac, Yaupon, Wild Plum, Persimmon, Hawthorn, Prickly Ash, Cedar, Mesquite, Huisache

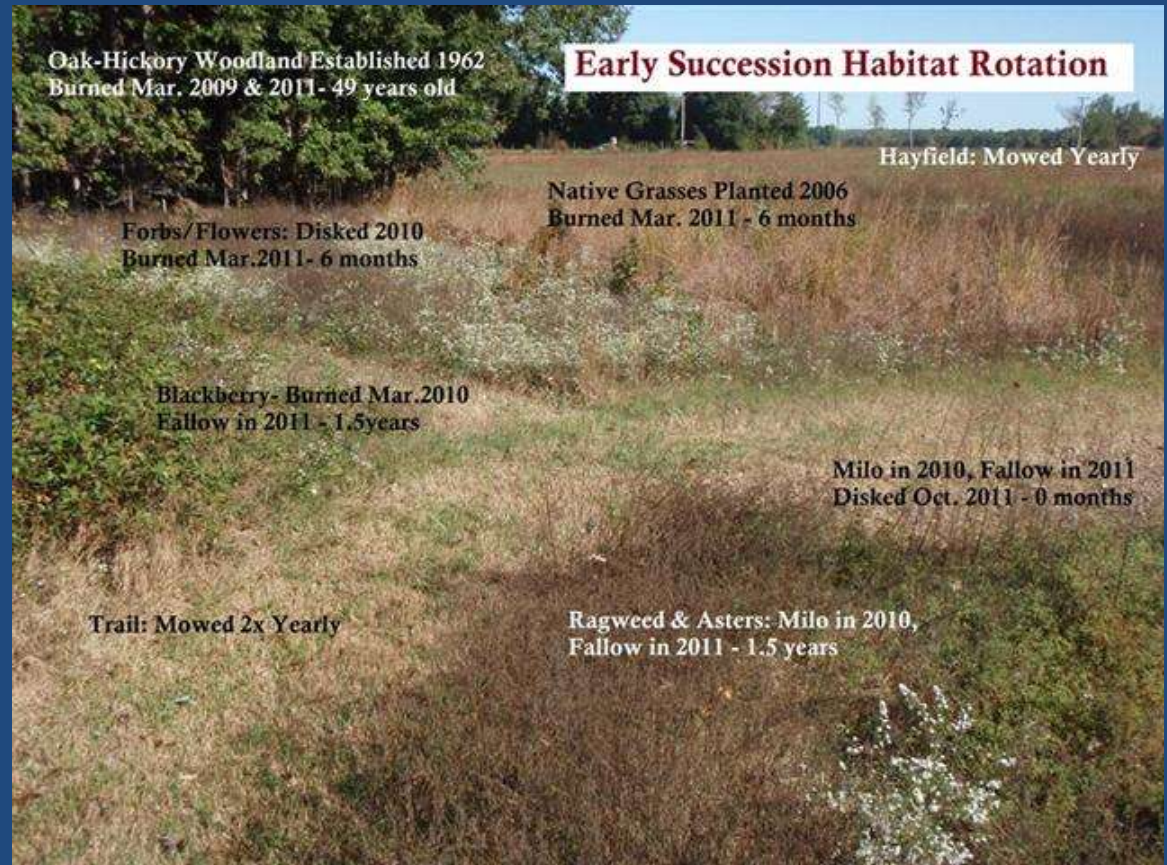


How do we maintain a balance??

- Management

- Disturbance Dependent

- Fire
 - Grazing
 - Mowing
 - Discing
 - Herbicide Applications



FIRE

Fire Effects

- Vary Greatly
- intensity
- season of burn
- frequency
- fuel moisture
- wind speed
- method of burning

Best Used by Well-Trained and Equipped Crew

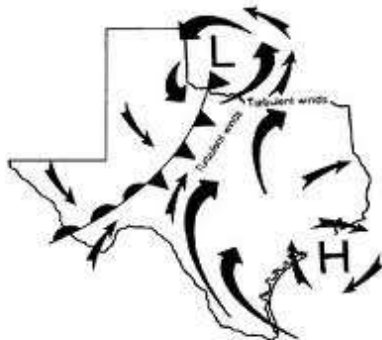
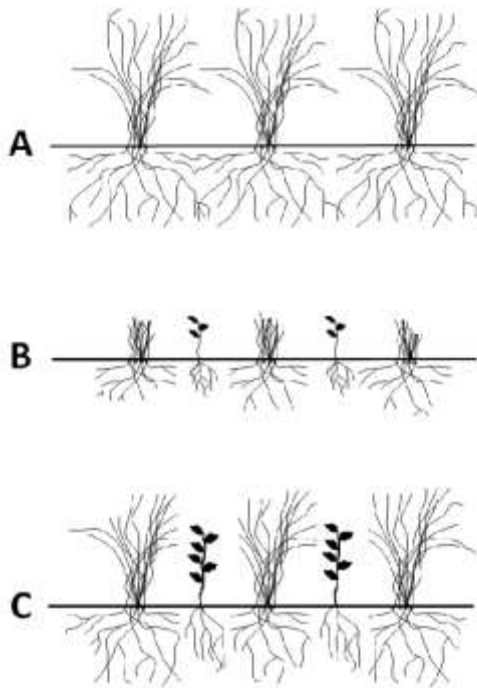


Figure 2: Prevailing wind direction depends on the location of fronts and high and low pressure cells

GRAZING

Intensity and Timing

- Rotational Grazing
- Patch-Burn Grazing
- High Intensity/ Low Duration Grazing
- Light Stocking Continuous Grazing



Burned and Grazed 2005-2007



2.5 years of Rest and a Fire Later



MOWING

- Frequency
- Timing
- Height of Cut
- Thatch



Discing

Breaking Soil with Implement
Season of Discing

- Late October-Early March

How to Disc

- 2-6 inches deep, 1-4 passes depending on soil
- Dependent on thickness of thatch



Herbicide Applications

Follow Label Instructions

Use Appropriately

Species, Application Method,
Season, Weather Conditions

Spot Spray when Possible



Size Matters

Bigger is Better

- Red-winged blackbirds, dickcissels
Will use small grassland patches less than 20 acres
- Many other species need 50 acres or more
- Don't expect Prairie Chickens and Bison on 100 acre prairie



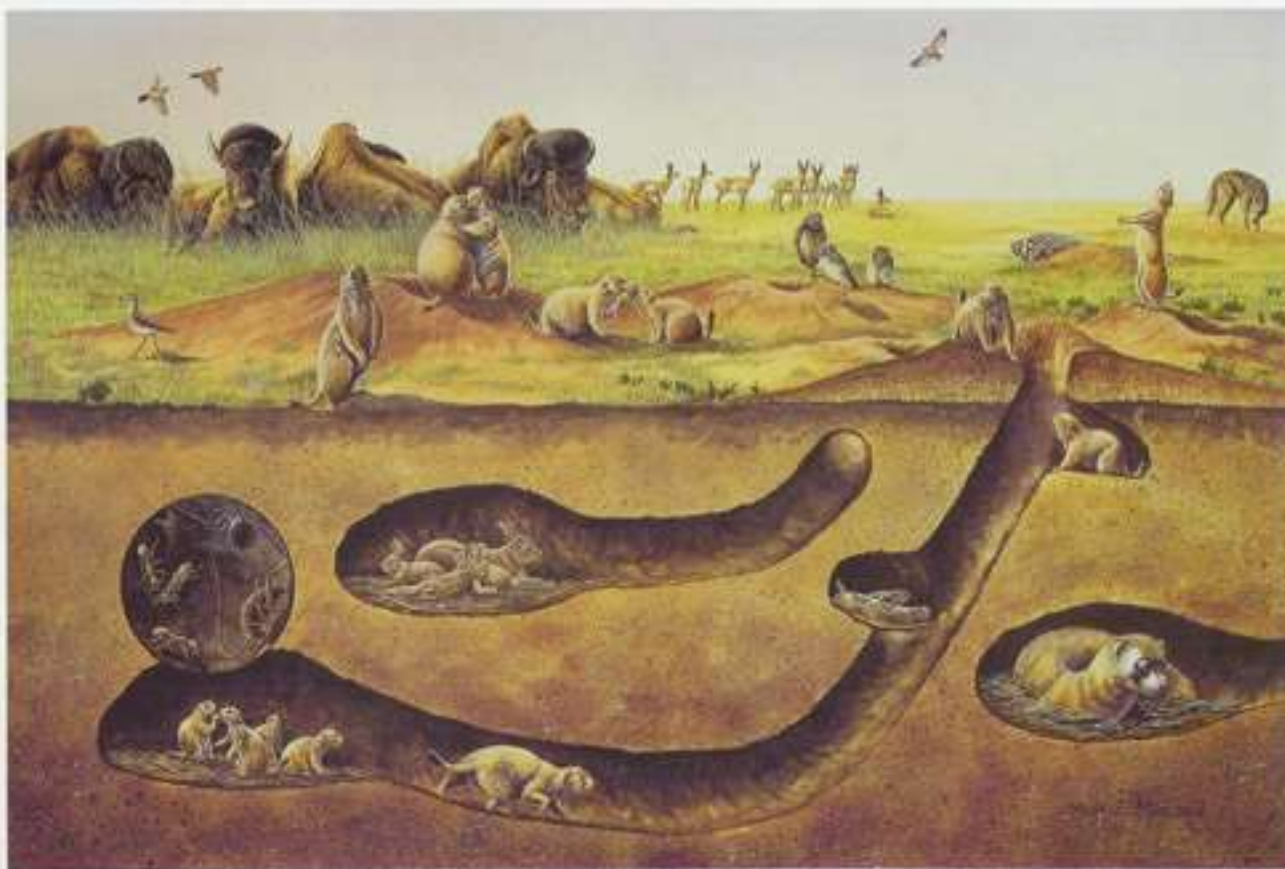
Smaller Grasslands: Problems

- Greater likelihood of local extinction
- Support less diverse plant community
- Can become isolated from other grasslands
- Management options may be limited
 - proximity to homes, roads, etc. may preclude use of fire, herbicides, or grazing
- Difficult to break into multiple management units
- Economics of management decisions become higher per unit area



Copyright Chris Helzer/The Nature Conservancy

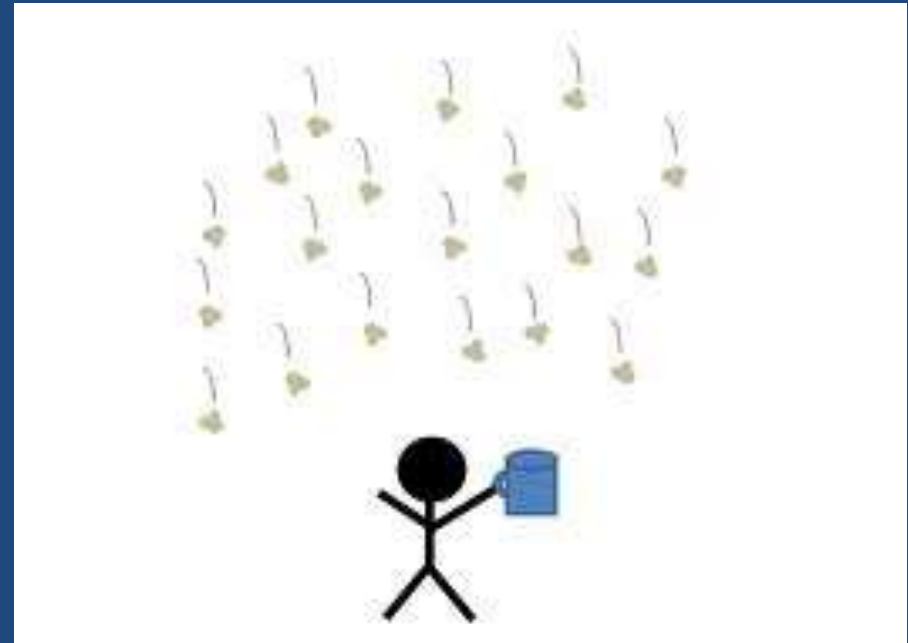
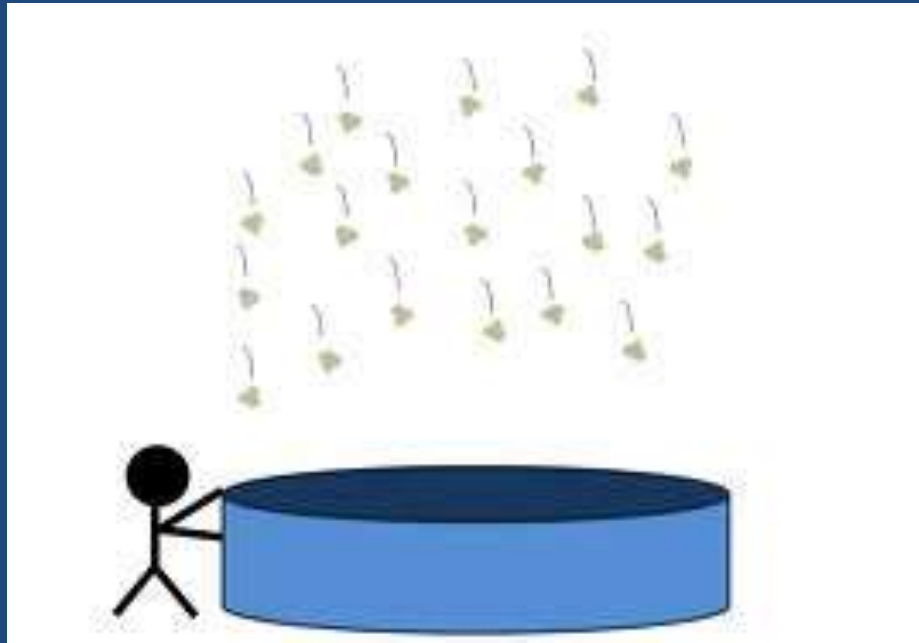
Size Matters



Cross section of a prairie dog burrow. (Drawing by Mark E. Marcuson; courtesy University of Nebraska-Lincoln, Department of Forestry, Fisheries, and Wildlife)



Size Matters



Landscape Position

- Which is more likely to have rare grassland dependant birds and butterflies??
 - 20 acre native grassland surrounded by 500 acres of cattle pasture
 - 20 acre native grassland surrounded by 500 acres of post oak woods
- Does the Grassland have Neighbors??
 - Is it isolated??
 - Are there connective corridors??

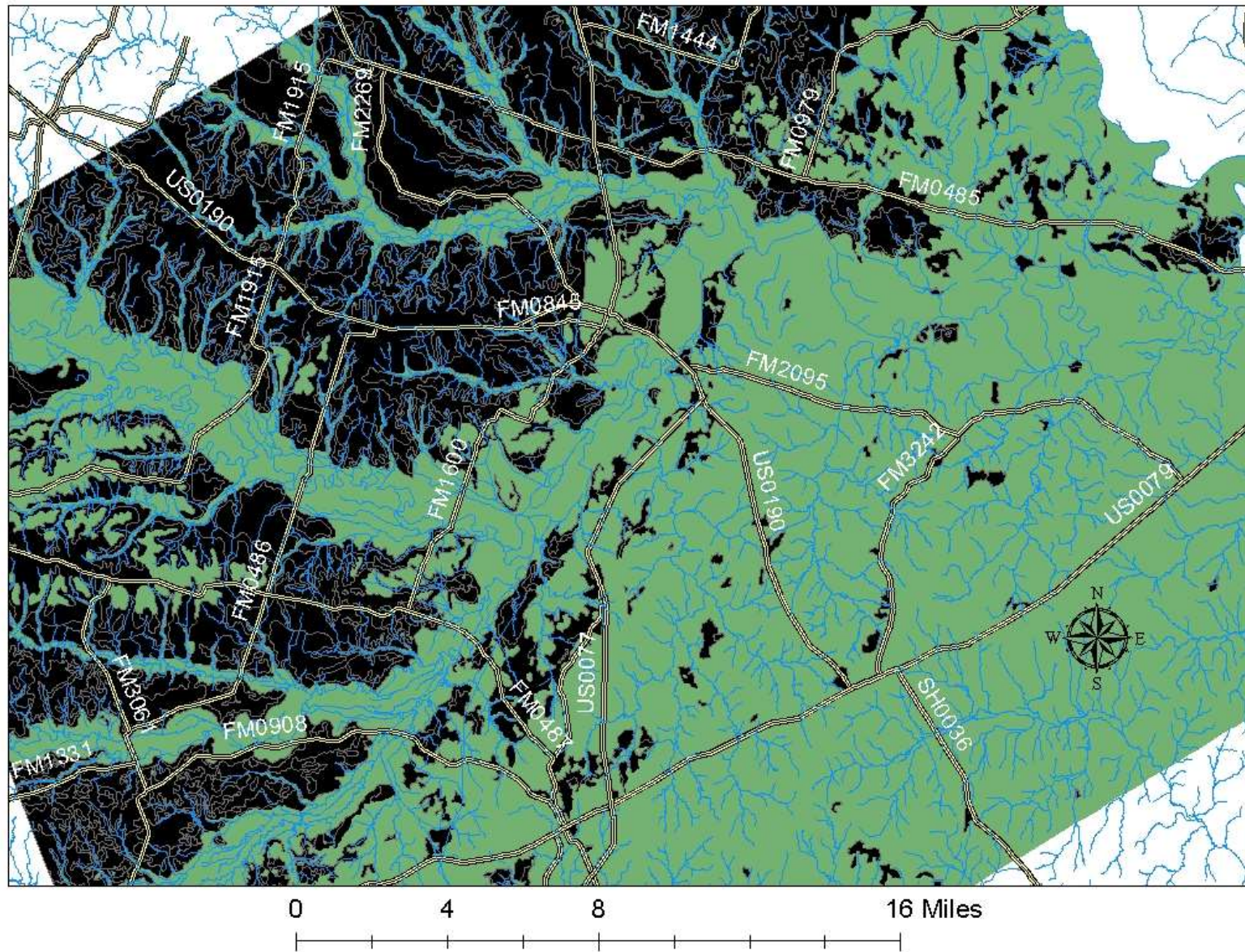
Fragmentation

- Effects entire system
- Limits genetic flow and seed dispersal
- Think on Different Levels
 - Gravel Road
 - Bird = Not a barrier, usually
 - Leaf Hopper = Big Barrier

Management Decisions

- BUDGET!!!!
- Size of Area
- Location
- Presence of Species of Concern
- Management Options Available
- Connect with other Land Managers

Let's talk about Milam County!!



Grassland Dependant Species

- Migratory Species
 - Decreased in Number
 - Still prevalent
 - Monarchs, Meadowlarks, Grassland Sparrows
- Resident Species
 - Most Large or Banner species are Gone
 - Bison, Greater Prairie Chicken, Northern Bobwhite
 - Some small mammals, insects, breeding birds still around















Johnson Grass Hay Patch



Side Oats Grama in a Sea of Johnson Grass



Prairie Gentian or Texas Bluebell







Resources

- Books:
- Prairie Time: A Blackland Portrait by Matt White
- The Tallgrass Restoration Handbook: For Prairies, Savannas, and Woodlands by Stephen Packard and Cornelia Mutel
- The Ecology and Management of Prairies in the Central United States by Chris Helzer

Websites

- Prairie Ecologist Blog, Chris Helzer, Nature Conservancy

<http://prairieecologist.com/>

- Wild Wonderings Blog, Texas Agrilife Extension Service

<http://wild-wonderings.blogspot.com/>

Tennessee Wildlife Resources Agency

<http://www.tn.gov/twra/>

Discussion

