

# CENTRAL TEXAS FIRE ECOLOGY

## 2015 Grow Green Series

Michelle Bertelsen—Lady Bird Johnson Wildflower Center





Bird Johnson

Wildflower Center

100 LA CROSSE AVENUE

THE UNIVERSITY OF TEXAS AT AUSTIN





# Burn Season

Summer

Winter

Fall

### Treatments

- Small plot research area
- Burn
- Control
- Mow





<https://youtu.be/Xg1zhtE69rw>

Figure 2.4 Major habitat types of the United States and Canada.



- LEGEND**
- 1.1 Tropical Moist Broadleaf Forests MHT
  - 1.2 Tropical Dry Broadleaf Forests MHT
  - 2.1 Temperate Broadleaf and Mixed Forests MHT
  - 2.2 Temperate Coniferous Forests MHT
  - 3.1 Temperate Grasslands/Savanna/Shrub MHT
  - 3.2 Flooded Grasslands MHT
  - 4.1 Mediterranean Scrub and Savanna MHT
  - 4.2 Xeric Shrublands/Deserts MHT
  - 6.1 Boreal Forest/Taiga MHT
  - 6.2 Tundra MHT



LEGEND













**Figure 2.4 Major habitat types of the United States and Canada.**



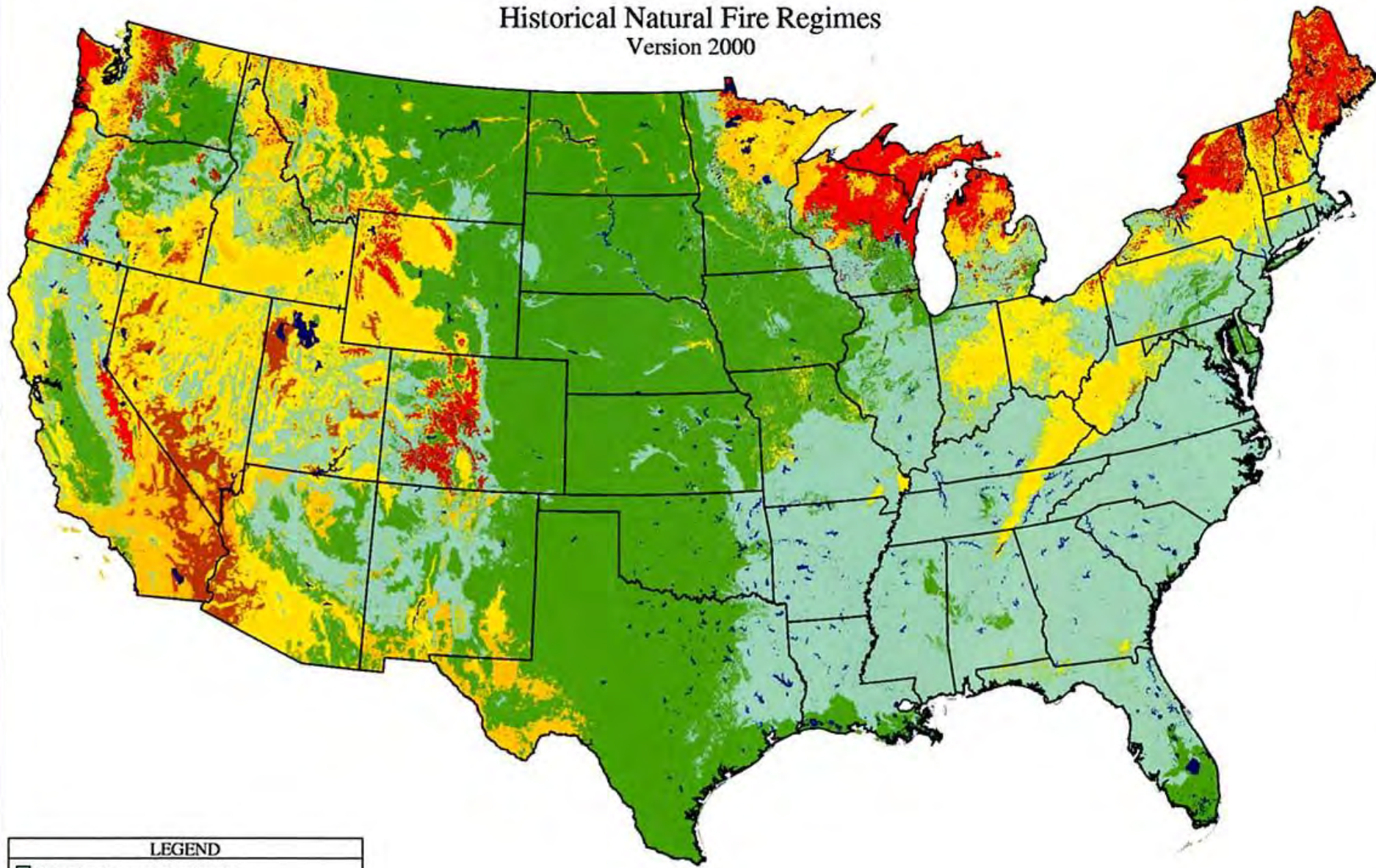
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LEGEND

# Historical Natural Fire Regimes

Version 2000

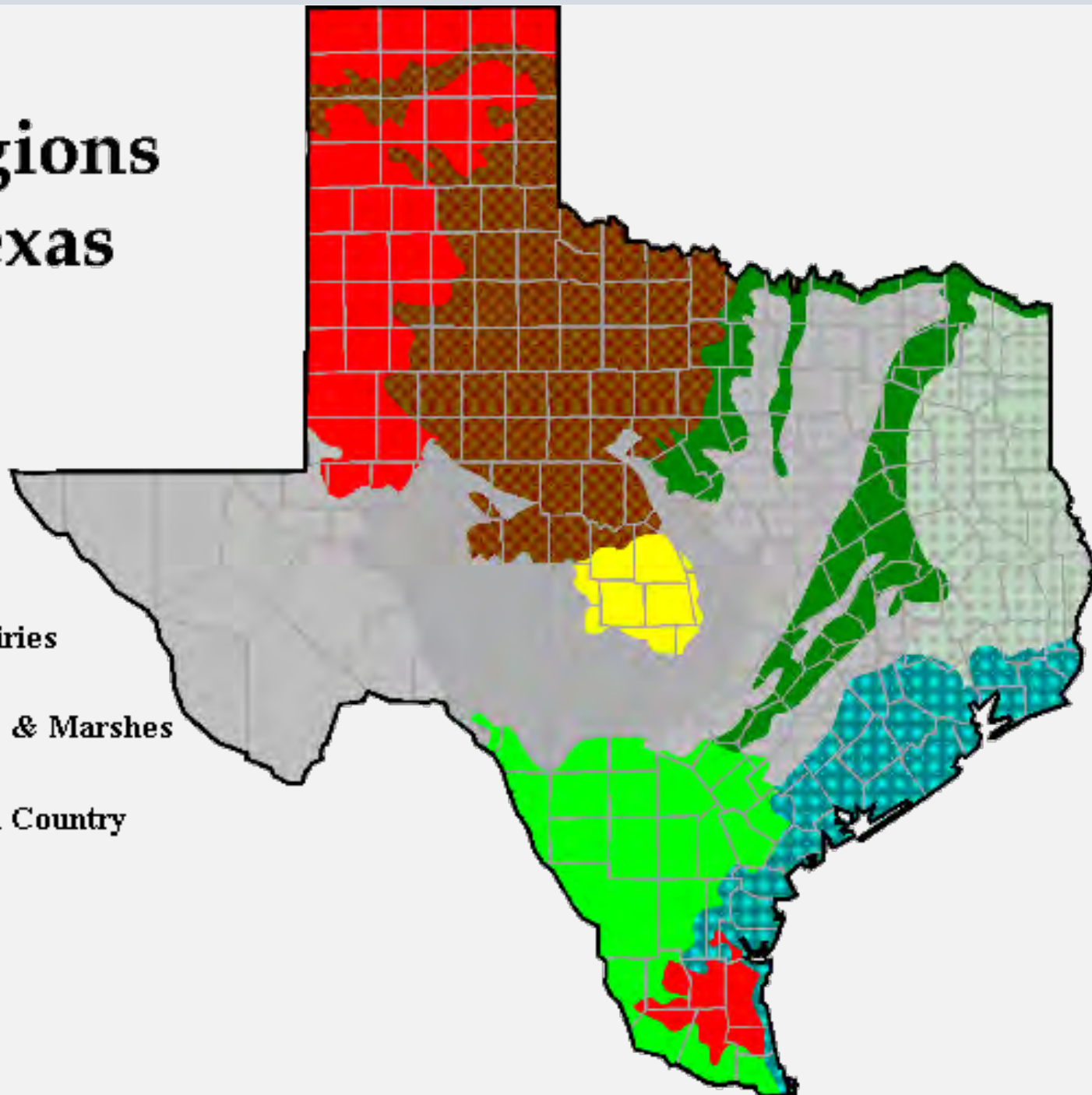


## LEGEND

- I: 0–35 yr. frequency, Low Severity
- II: 0–35 yr. frequency, Stand Replacement Severity
- III: 35–100+ yr. frequency, Mixed Severity
- IV: 35–100+ yr. frequency, Stand Replacement Severity
- V: 200+ yr. frequency, Stand Replacement Severity
- Barren
- Water

# Ecoregions of Texas

-  Piney Woods
-  Oak Woods & Prairies
-  Blackland Prairie
-  Gulf Coast Prairies & Marshes
-  Coastal Sand Plain
-  South Texas Brush Country
-  Edwards Plateau
-  Rolling Plains
-  High Plains
-  Trans Pecos
-  Llano Uplift



**SAVANNA**

NO fire or grazing

Fire and /or grazing

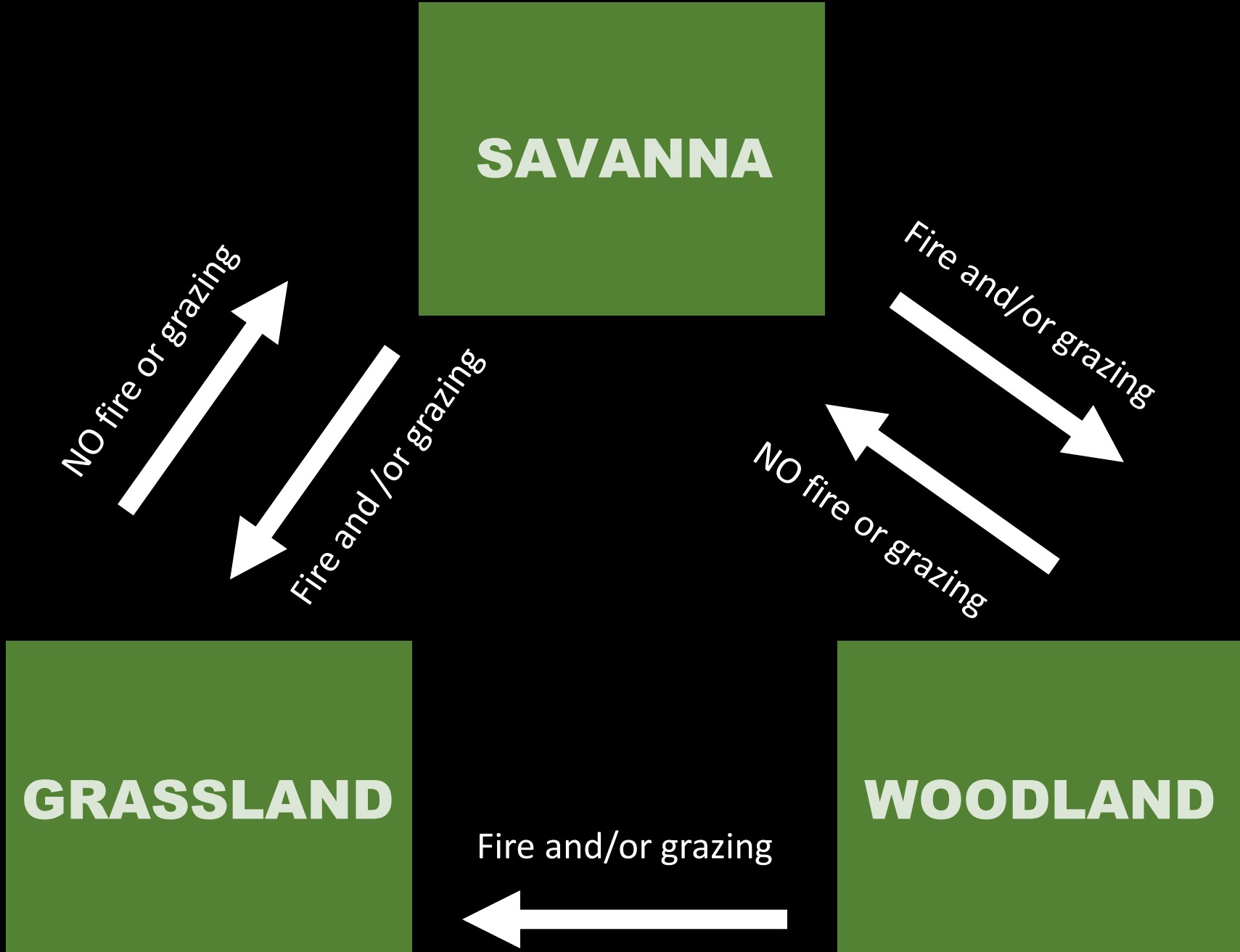
Fire and/or grazing

NO fire or grazing

**GRASSLAND**

Fire and/or grazing

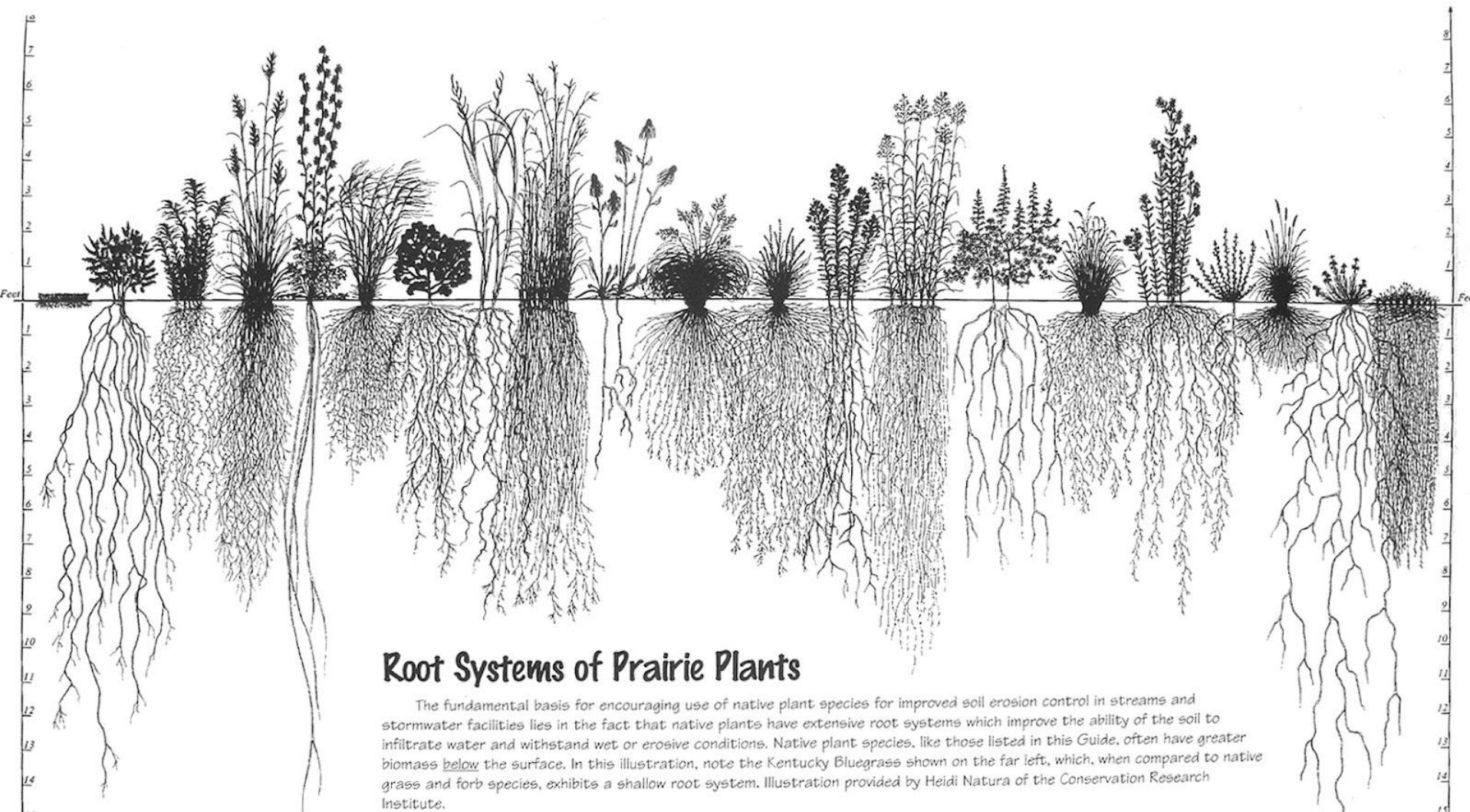
**WOODLAND**











## Root Systems of Prairie Plants

The fundamental basis for encouraging use of native plant species for improved soil erosion control in streams and stormwater facilities lies in the fact that native plants have extensive root systems which improve the ability of the soil to infiltrate water and withstand wet or erosive conditions. Native plant species, like those listed in this Guide, often have greater biomass below the surface. In this illustration, note the Kentucky Bluegrass shown on the far left, which, when compared to native grass and forb species, exhibits a shallow root system. Illustration provided by Heidi Natura of the Conservation Research Institute.

Kentucky Blue Grass <i>Poa pratensis</i>	Lead Plant <i>Amarpha canescens</i>	Missouri Goldenrod <i>Solidago missouriensis</i>	Indian Grass <i>Sorghastrum nutans</i>	Compass Plant <i>Silphium laciniatum</i>	Porcupine Grass <i>Stipa spartea</i>	Heath Aster <i>Aster ericoides</i>	Prairie Cord Grass <i>Spartina pectinata</i>	Big Blue Stem <i>Andropogon gerardi</i>	Pale Purple Coneflower <i>Echinacea pollida</i>	Prairie Dropseed <i>Sporobolus heterolepis</i>	Side Oats Gramma <i>Bouteloua curtipendula</i>	Fabe Bonaset <i>Kuhnia cyparitioides</i>	Switch Grass <i>Panicum virgatum</i>	White Wild Indigo <i>Baptisia leucantha</i>	Little Blue Stem <i>Andropogon scoparius</i>	Rosin Weed <i>Silphium perfoliatum</i>	Purple Prairie Clover <i>Petalostemum purpureum</i>	June Grass <i>Koeleria cranata</i>	Cylindric Blazing Star <i>Liatris cylindracea</i>	Buffalo Grass <i>Buchloe dactyloides</i>
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<http://www.sbs.utexas.edu/fowler/research/community.html>

02/19/15



03/11/15



03/16/15



03/25/15





03/30/15



04/06/15



04/15/15



04/20/15



05/01/15



05/18/15



















# Burn Season

Summer

Winter

Fall

A photograph of a grassy field with trees in the background under a blue sky with clouds. The field is filled with tall grasses and some wildflowers. The trees are green and form a line in the distance. The sky is bright blue with scattered white clouds.

**SUMMER**

Brush control/diversity

# SUMMER



Brush control/diversity

Ashe juniper: -100%

Live oak: -22.6%

Cedar elm: 0%



**SUMMER**

Control

Ashe juniper: +94

Live oak: +9.8

Cedar elm: +36

Brush control/diversity

Ashe juniper: -100%

Live oak: -22.6%

Cedar elm: 0%



**WINTER**

Control

Ashe juniper: +94

Live oak: +9.8

Cedar elm: +36

Brush control/grass biomass

Ashe juniper: -51.7%

Live oak: +92.8%

Cedar elm: +26.3

# Control

Ashe juniper: +94

Live oak: +9.8

Cedar elm: +36

# FALL

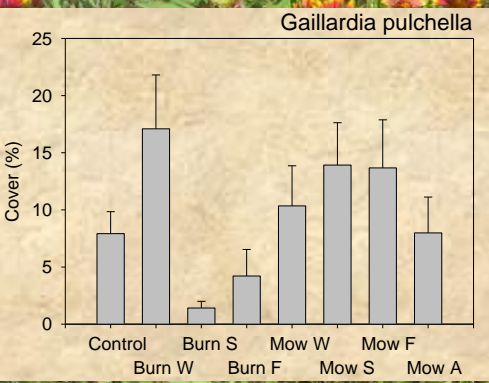
Similar to summer

Ashe juniper: -13.8%

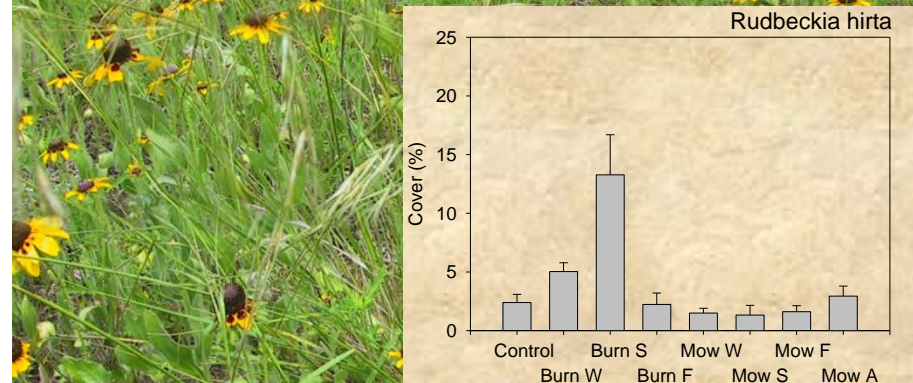
Live oak: -20.5%

Cedar elm: -7.7%

# Winter Fire



# Summer Fire



















**SAVANNA**

NO fire or grazing

Fire and /or grazing

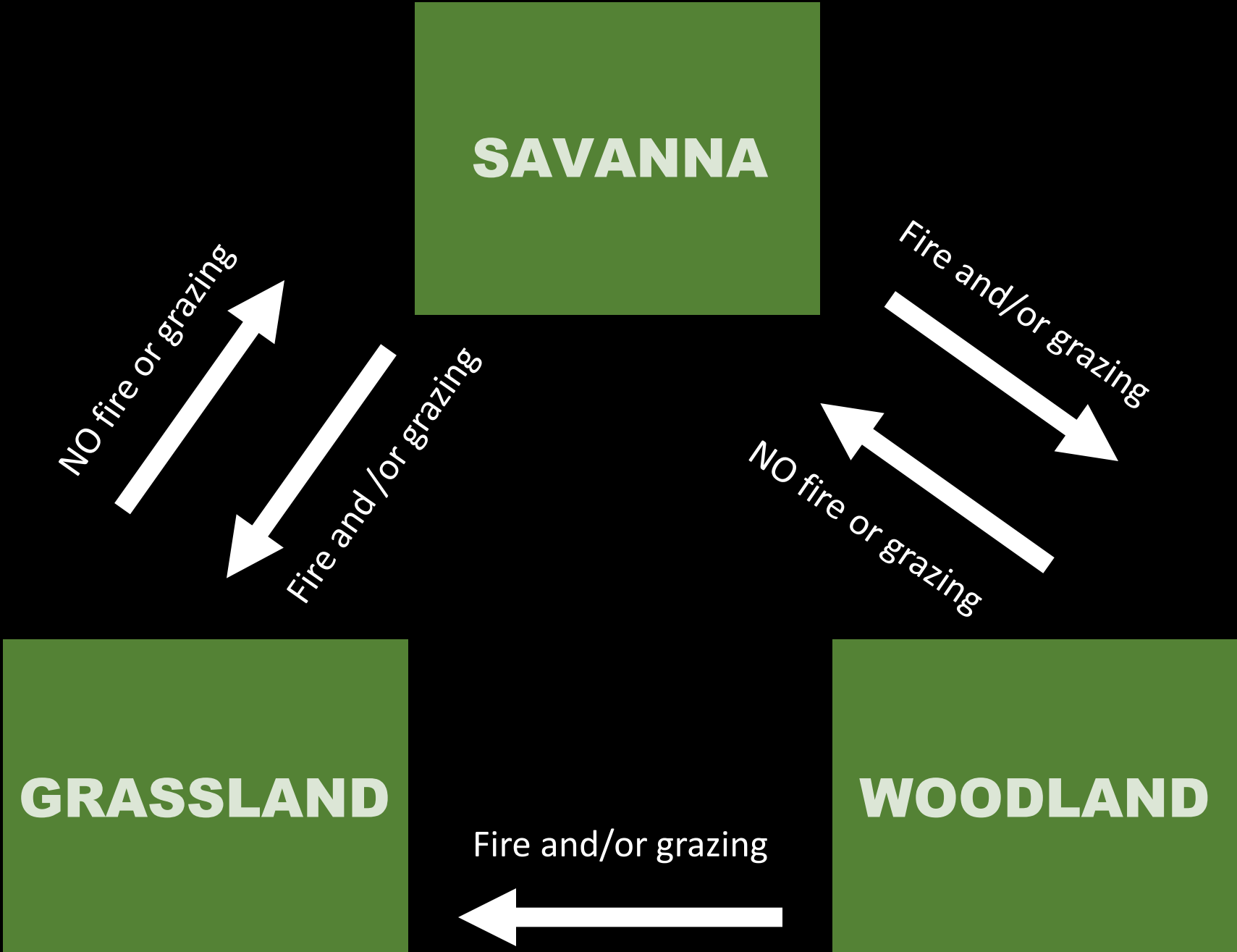
Fire and/or grazing

NO fire or grazing

**GRASSLAND**

Fire and/or grazing

**WOODLAND**



































Reduce fuel loads

Disconnect canopy

Support healthy ecology

Be careful with soils

Thin in stages

Leave different aged trees and shrubs

Encourage diversity



