Uses and Benefits of Prescribed Fire

Prescribed Fire in Wisconsin

Photo Credit: Marty Moses

SOUTHERN DRIFTLESS GRASSLANDS
BECAUSE GRASS IS GOOD

PHEASANTS FOREVER

QUAIL FOREVER

NATIONAL FISH AND WILDLIFE FOUNDATION
NFWF

DRIFTLESS AREA LAND CONSERVANCY

IOWA COUNTY WISCONSIN
LAND CONSERVATION

WISCONSIN PRESCRIBED FIRE COUNCIL

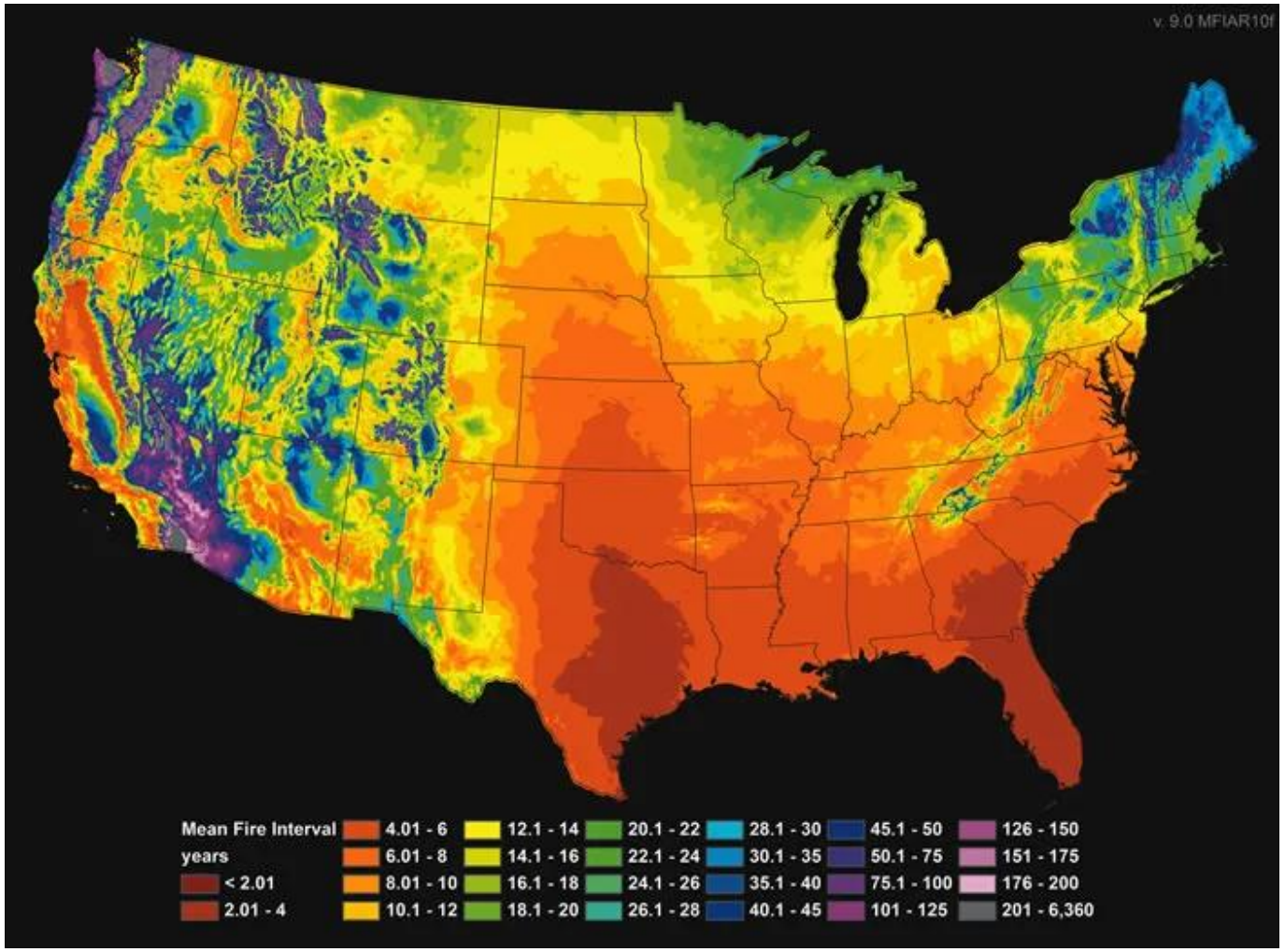
Objectives

- Fire History
- Benefits of Prescribed Fire
- Fire Use in Land Management

Photo Credit: PF Team

History of Fire

- Areas of the Great Plains burned every 1 to 10 years
- Fires were caused by:
  - Lightning Strikes
  - Native Americans
  - Early Settlers



Anthropogenic Fire

- Indigenous Peoples:
  - Attracted buffalo herds for hunting
  - Cleared areas for crops
  - Reduced vegetation
  - Prevented wildfires near permanent dwellings
  - Improved wildlife habitat

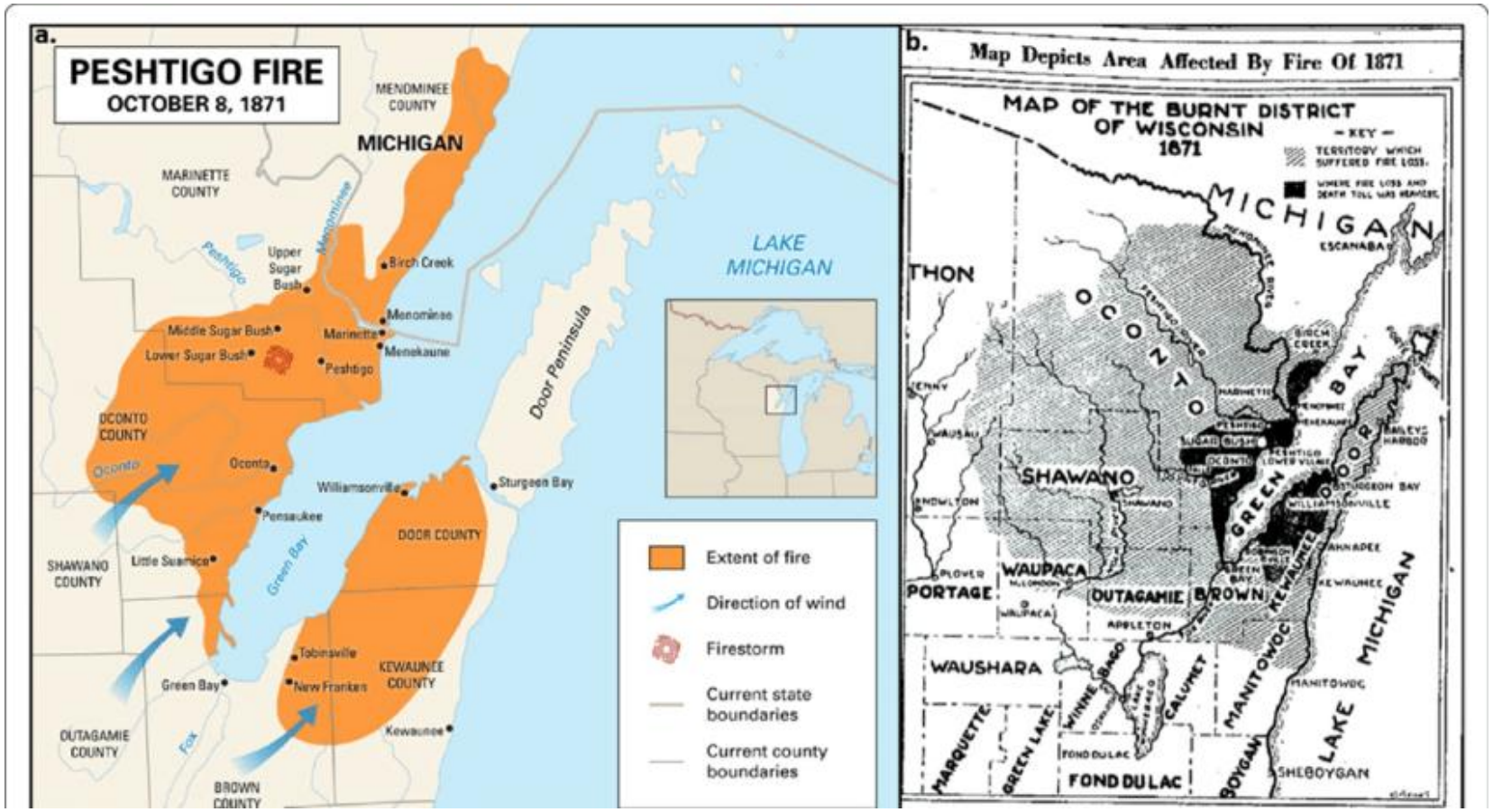
A History of Suppression

Where was the deadliest wildfire in U.S. history??

A History of Suppression

Peshtigo, WI
1871

1.2M Acres




SMOKEY SAYS—
Care will prevent
9 out of 10 woods fires!


ONLY YOU CAN PREVENT WILDFIRES
SMOKEY
SMOKEY
SMOKEY BEAR


ONLY YOU CAN
SMOKEY
PREVENT
FOREST FIRES

A History of Suppression

Why was a focus on suppression bad?

Build up of fuels = hotter, intense fires

Lack of stimulation to fire dependent communities

Less overall diversity in plant/animal communities

Fire Making a Comeback

- 1970's Fire returns to WI
- State, Federal, and Non-Profits
- Proven through science and application
- Prescribed Burn Associations (PBAs) for private lands

Where Do We Burn?

- Prairies (Bluffs, Dry, Mesic, and Wet)
- Oak Openings/Savannas
- Pine/Oak Barrens
- Wetlands
- Woodlands
- Surrogate Grasslands

Why do we burn??

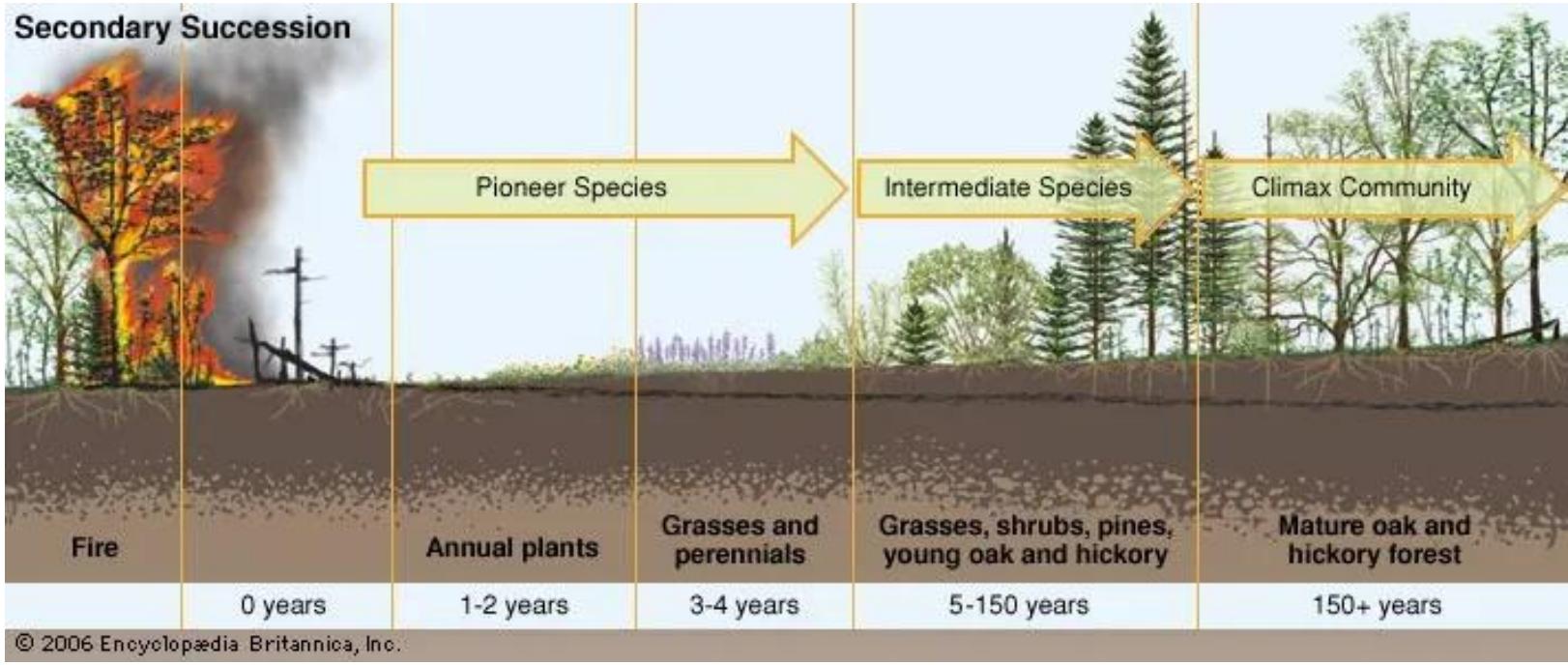
Benefits of Fire

Why is fire still important?

- Managing Succession
- Ecosystem Maintenance
- Wildlife Habitat
- Increase plant diversity
- Invasive Species Management
- Livestock Production
- Wildfire Prevention

Managing Succession/Ecosystem Maintenance

- We use fire to manipulate succession
- We do this through
  - Fire Frequency
  - Fire Timing
  - Fire Intensity
  - Fire Scale
- It is easier to maintain than restore



Wildlife and Fire

- Wildlife of the Great Plains are adapted to fire in the system
  - Fly
  - Burrow Out
  - Run
- Their habitats were created through fire

Wildlife and Fire

Removes duff layer, important for brood rearing

Encourages fruiting shrubs

Maintains diverse habitat

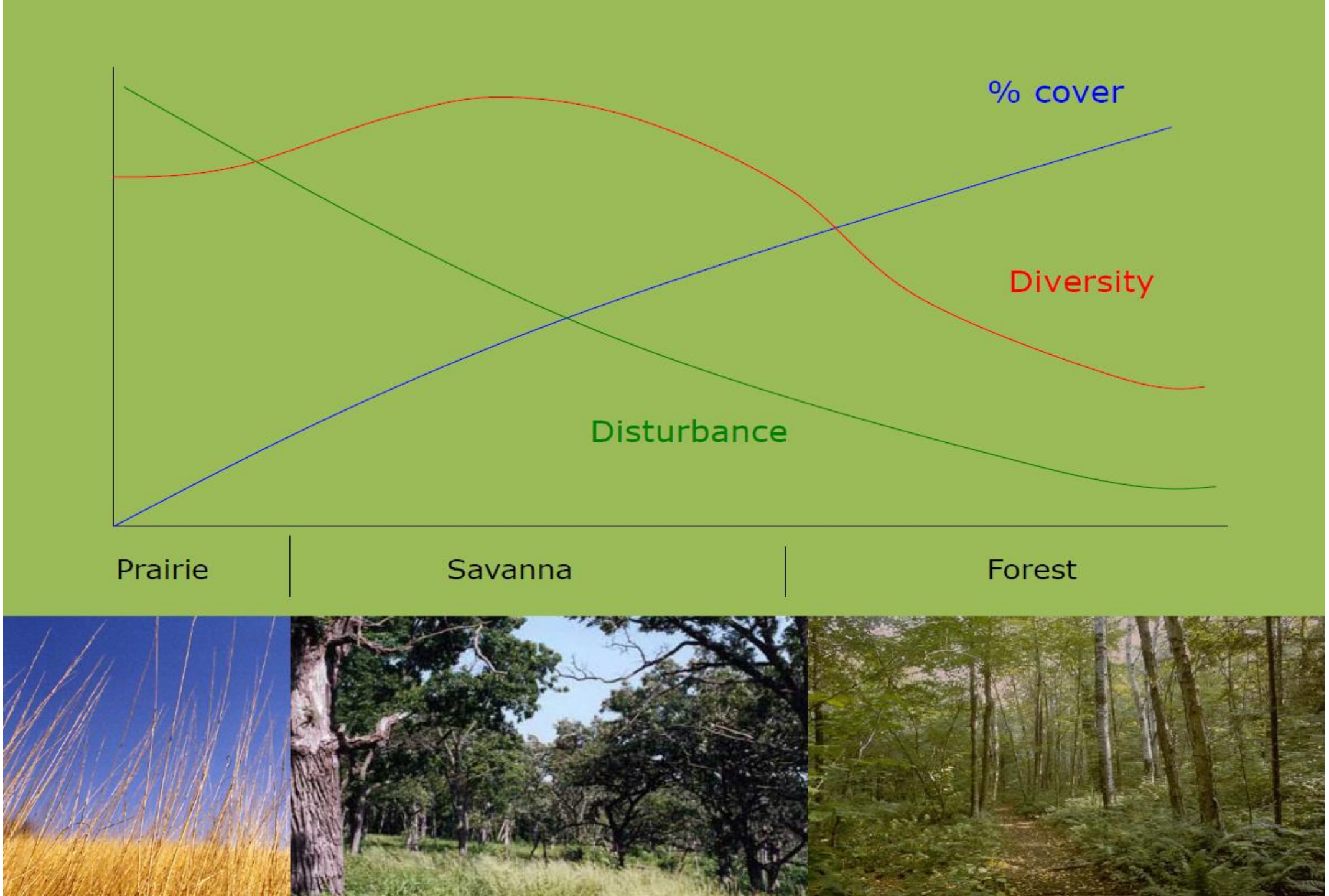
NOT burning also has consequences

Increase Plant Diversity

- Forbs and legumes make up an important part of diets of wildlife and livestock
- Maintain pollinator habitat
- Most plants species are resilient to burning in any season.

Growing season following a burn with high percent cover and flowering abundance (left) versus two seasons following a burn with lower percent cover and flowering abundance (right). Photos by Jeb Barzen


What about burning in the woods?


% cover
Diversity
Disturbance
Prairie
Savanna
Forest

Long unburned, dense litter build up, suppressed ground layer

Same site after one burn

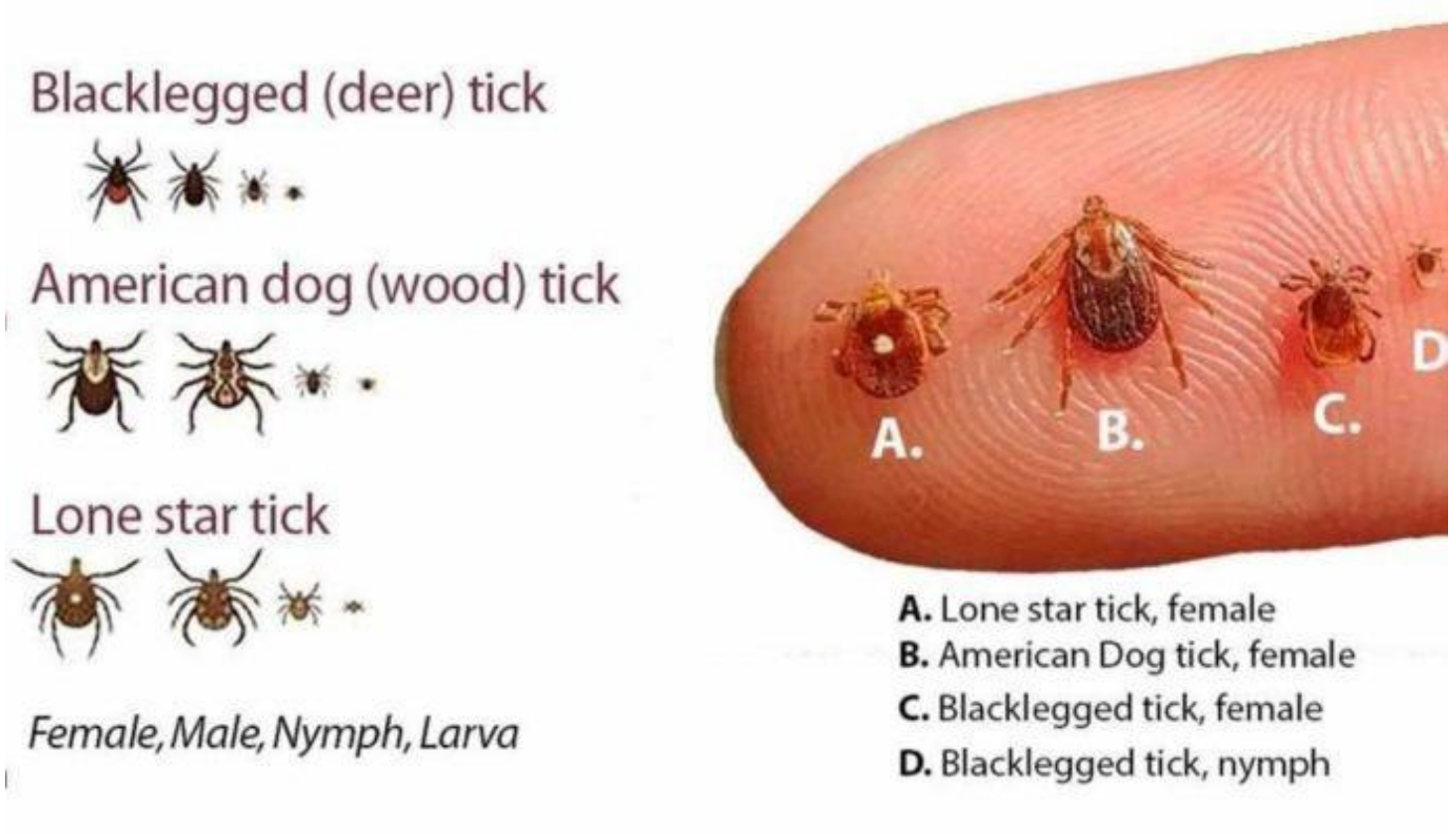

Olson Oak Woods SNA – Dane County
Unburned
Burned 4 times over 11 years
Scott Sauer

Invasive Species

- Fire can help in the management of invasive species
- Mainly through combining practices such as
  - –Herbicides
  - –Mowing
  - -Grazing

Reduction in Parasites

- Animal health accounts for 7-13% of operating cost
- Evidence that fire helps with ticks, horn flies, face flies
- Can also help disrupt internal parasites through fecal habitat and free ranging habitat



Reduce Wildfire Risk

Removing/reducing fuel loads

The “non-technical” benefit of burning…





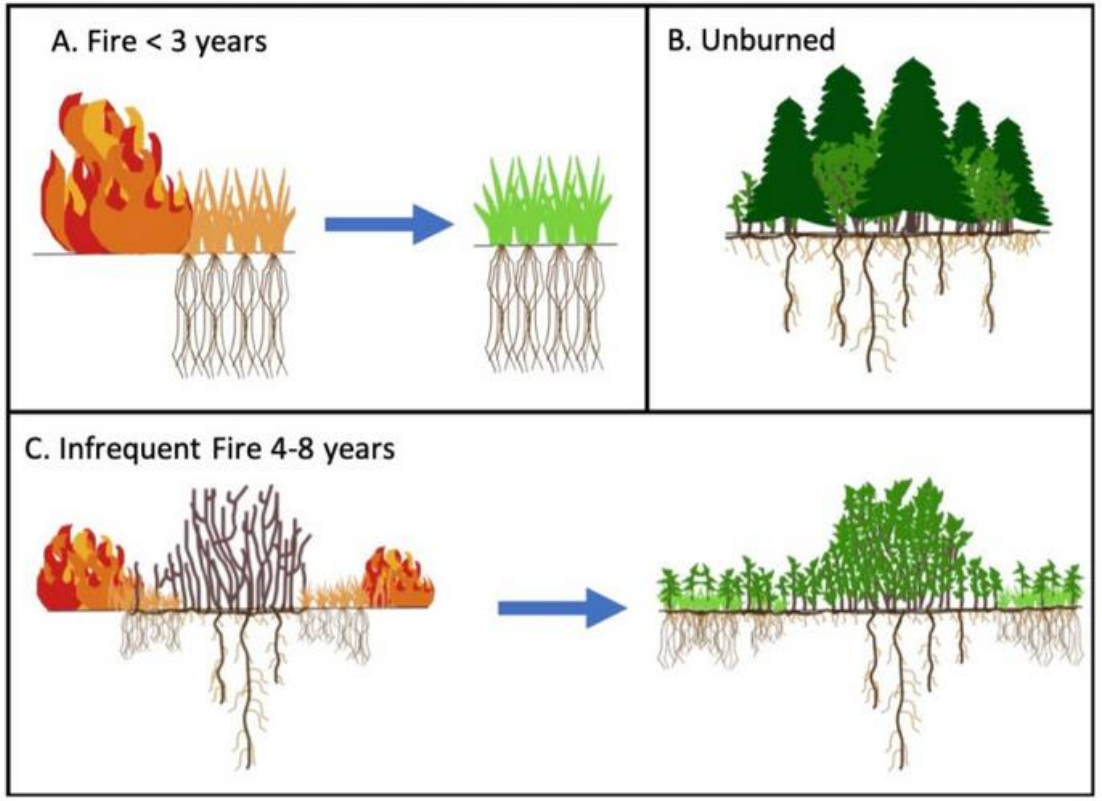


What about prescribed fire can we manipulate to achieve our management goals??

Fire Frequency

- How often fire is applied to maintain ecosystem
- Difference between historical vs. restoration
- Varying frequency is beneficial to ecology

Figure 2.1 Maintenance of grasslands and transition to alternative stable states adapted from Ratajczak et al. 2014a. A) Grasslands are maintained at a fire frequency of 3 or less years. B) Fire suppression leads to a woodland state transition. C) Infrequent fire allows shrub establishment, growth, survival, and clonal expansion leading to a shrubland state.



Wedel 2019

Fire Frequency -Grasslands

- Grasslands need frequent fire to prevent succession
- Fire return interval depends on
    - Seed Sources
    - Precipitation


1 DBF


5 DAF


20 DAF


45 DAF

Timing

- Grasslands can burn almost anytime of year

- Oak woodlands –depends on fuel types

Scale

- How big of an area is burned

Historically it could have been from relatively small to 1 million acres.

- Created heterogeneity across landscape
    - Could have a fire that was 30 miles wide by 300 miles long

Intensity

- Manipulating intensity based on objectives
- Historically it ranged from cool fires to extreme drought driven fires

Fire Effects on Other Plant Species

Canada Thistle: fire alone will not control, need multiple control methods

Wild Parsnip: fire can help if timed correctly, but will most likely need more

Native Shrubs: if well established, can encourage fruiting

The Seeds

Cutting can spread seeds, but burning can often open up the perfect seed bed.

And the invasives will come back!

Also opens the site to overseed.

In Summary…Fire is good!

- It’s been a part of our landscape for a long time.
- There are many benefits in using fire as a management tool.
- Using it correctly can give you a wide range of benefits.

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