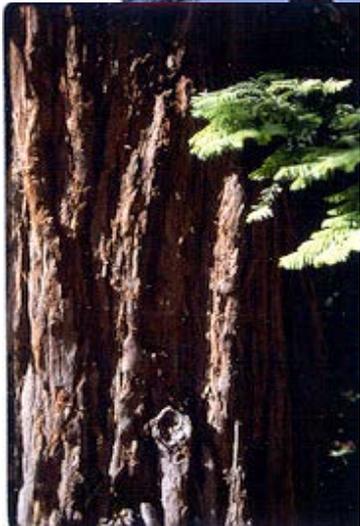


# The ISSUE is Invasive Plants!

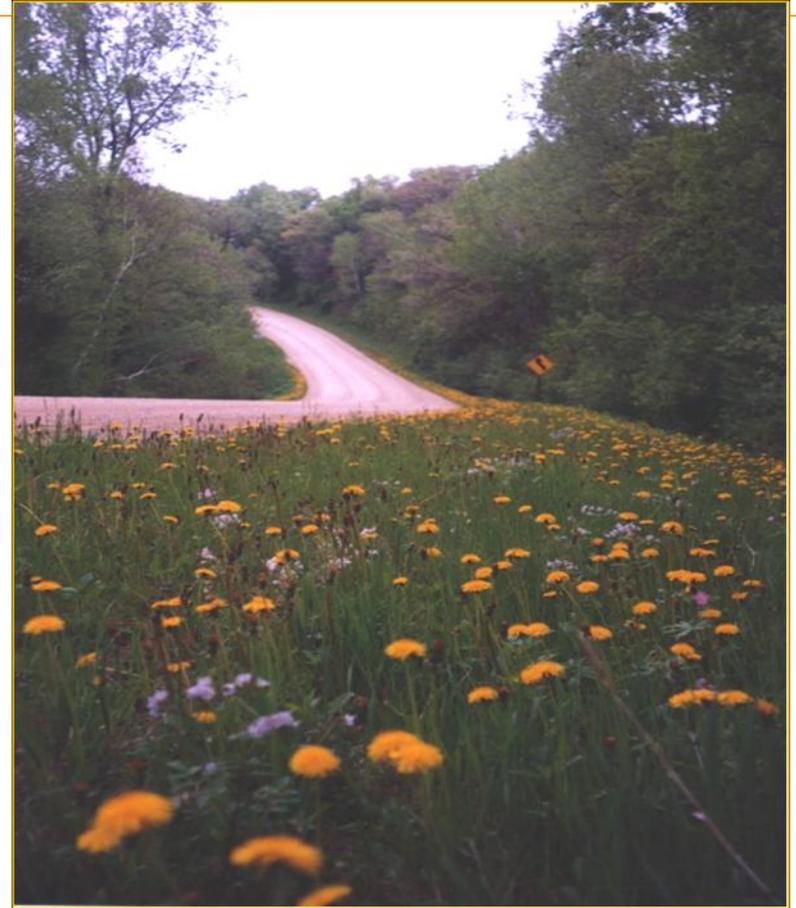


# HIGHWAYS AS VECTORS

- MAINTENANCE
- CONSTRUCTION
- MOVING VEHICLES

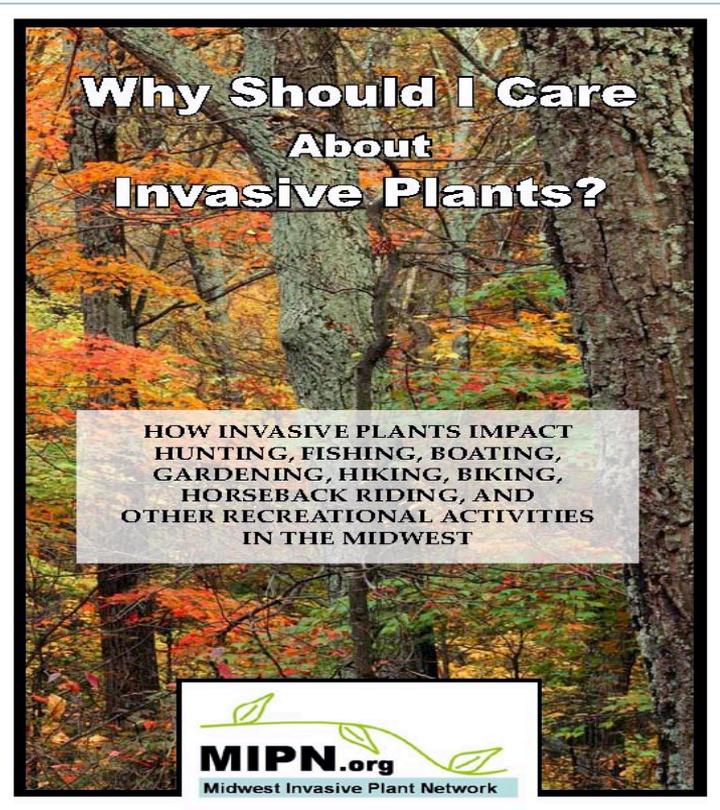
## **DOTS BLAMED**

- in many research studies,
- by neighboring lands,
- and by traveling public.



# Improve AWARENESS

**ONLY IF THE  
PEOPLE  
UNDERSTAND,  
WILL THEY  
SUPPORT YOU!**



# HIGHWAY WORLD OF VEGETATION MANAGEMENT

## ■ R E G S

- erosion control
- water quality
- T&E species
- native plants
- EO 13112
- wildflowers
- Beautification
- N E P A
- Wetlands



## ■ U S E S

- snow storage
- visibility
- recovery zone
- utility lines
- guardrails
- signage
- scenic beauty
- fiber optic lines

# WHAT IS THE DIFFERENCE?

Between a “noxious weed  
and an “invasive plant”?

Garlic mustard is BOTH.





# **TOOLS**

**YOU CAN USE!**



# California **NOXIOUS WEED LAW**

- California has 135 PEST-rated invasives!

A (45), for eradication, containment, holding

B (54), same at discretion of State Ag. Com.

C (24), holding action in nursery

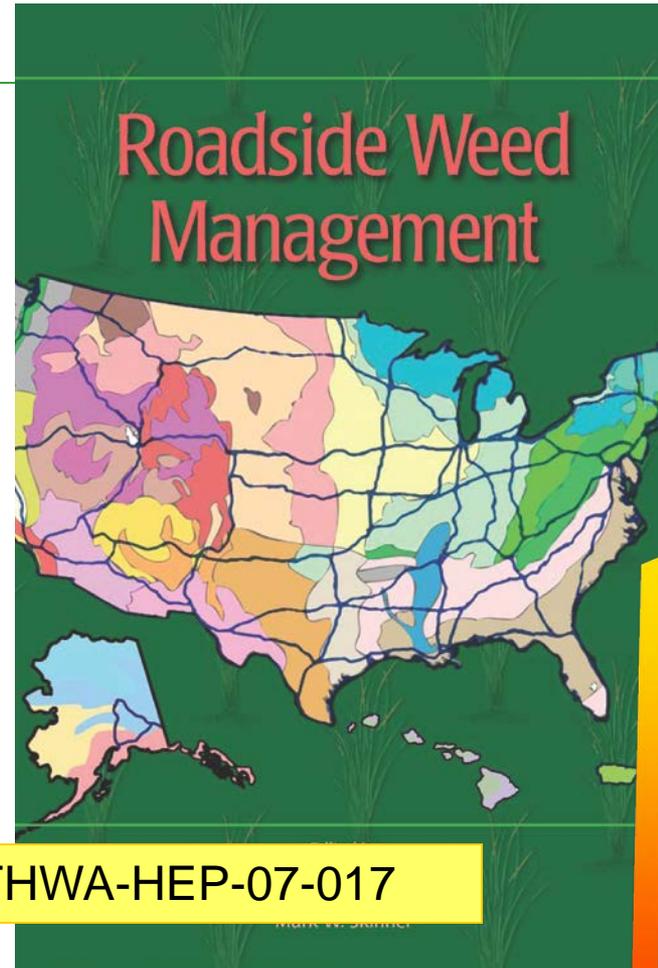
Q (12), all federal weeds outside of nurseries

**PLANTS THAT** HARM:agriculture, human health, or environment

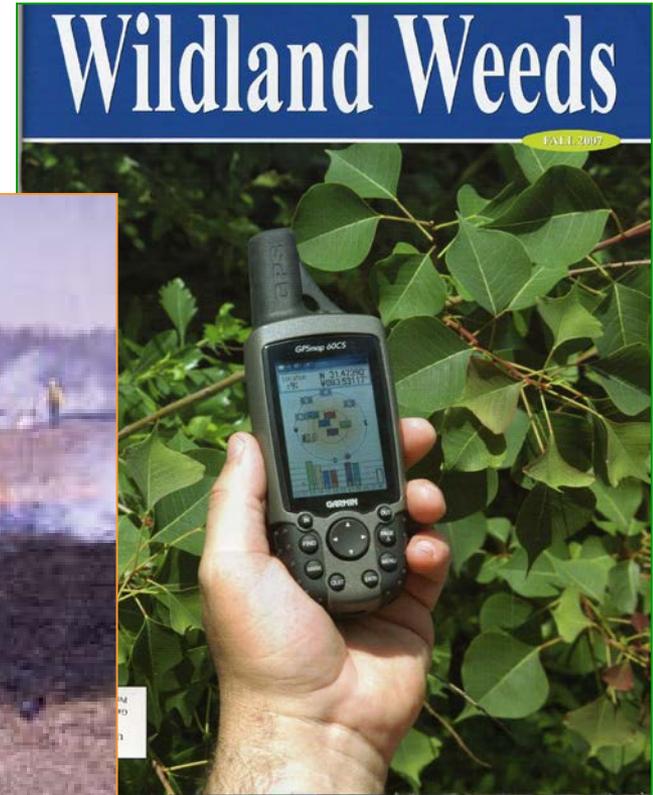
# SAFETEA-LU 6006 inside

## HOW TO ORDER

- **FAX** request
- (301)386-5394
- **Attention:**
- Johnny Booze
- **Reference:** >



# SHARE EQUIPMENT



# SAFETEA LU – New eligibility

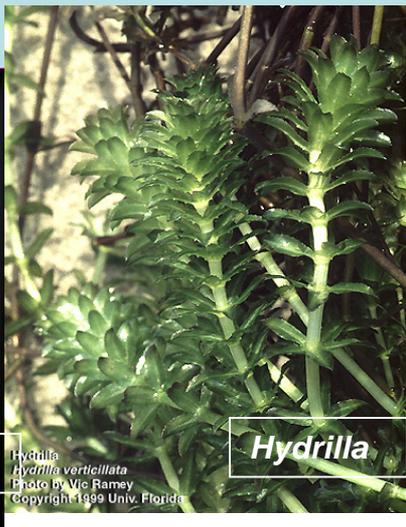
**.329**

Eligibility for control of noxious weeds and aquatic noxious weeds and establishment of native species.

# TEN AQUATIC WEEDS



Loosestrife



Hydrilla

*Hydrilla verticillata*  
Photo by Vic Ramey  
Copyright 1999 Univ. Florida



Phragmites



Salvinia

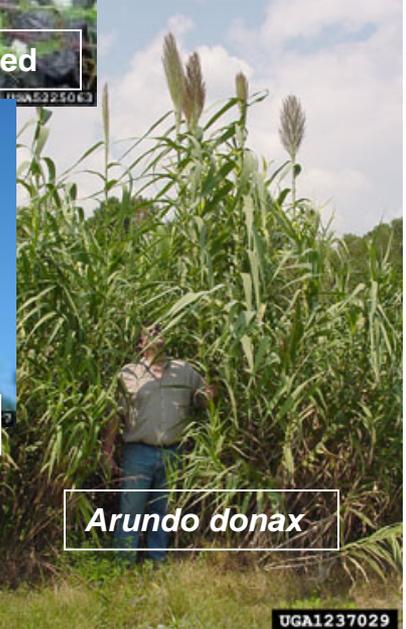


Curly pondweed

UGA5274005



Eurasian millet



Arundo donax

UGA1237029



H2O hyacinth



H2O lettuce

UGA5273017



# 5 ELIGIBLE ACTIVITIES

1. **SURVEY** Existing Vegetation
2. **CONTROL** Noxious Weeds
3. **ESTABLISH** Native Plants
4. **CREATE** Fuel Breaks
5. **TRAIN** -Crews -Contractors -  
**Public**

# HOW TO USE THE LAW???

- **EXAMPLES OF**

**PARTNERSHIPS**

# ODOT, BLM, & Malheur County

3,686,000 acres, 2000 centerline miles



**PARTNERSHIP =  
TRUCK+  
EQUIPMENT+  
DRIVER**

**Resulted in  
10 x coverage!**

# GEORGIA Statewide MOU, 2008

- **COGONGRASS**
- *Imperata cylindrica*
- **PENDING . . . . .**



# POLLINATORS, MOU

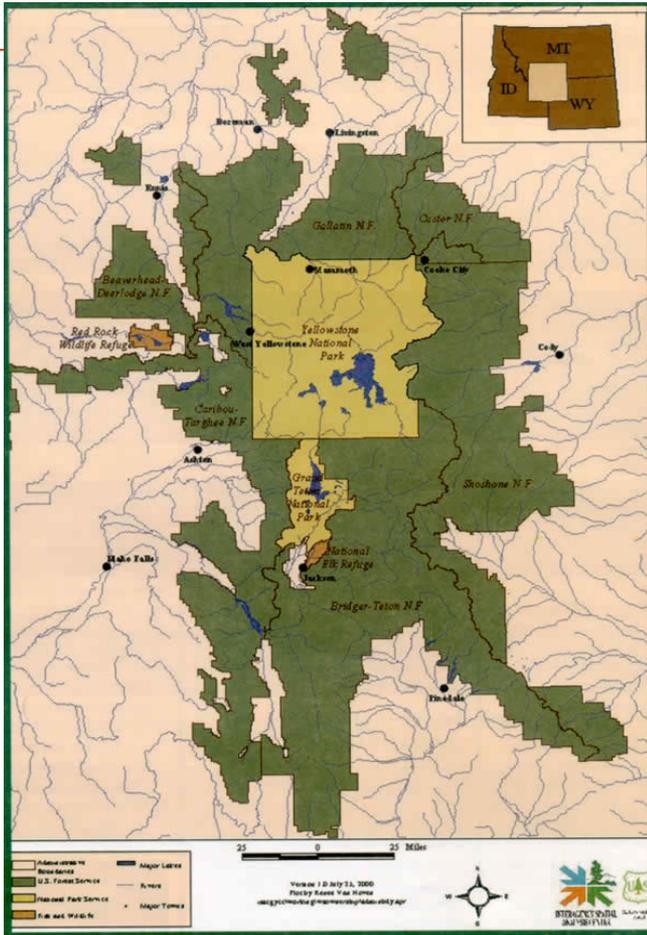


## ■ WISCONSIN DOT

- Partners with 22 groups to preserve existing lupine patches on roadsides.
- Reduced mowing on 500 miles of ROW to support this endangered butterfly's preference for lupine.



# GREATER YELLOWSTONE



## A PLAN OF ATTACK by

- Federal Agencies +
- State Agencies +
- & Local Agencies

**11,000,000 acres  
PARTNERSHIP**

# ADIRONDACK PARK INVASIVE PLANT PARTNERSHIP

[www.wadkinvasives.com](http://www.wadkinvasives.com).....

- APIPP MOU 2001
- NYSDOT, in lead
- **ERADICATION**  
**HERE IS STILL**  
**POSSIBLE!!!**



# CWMA S

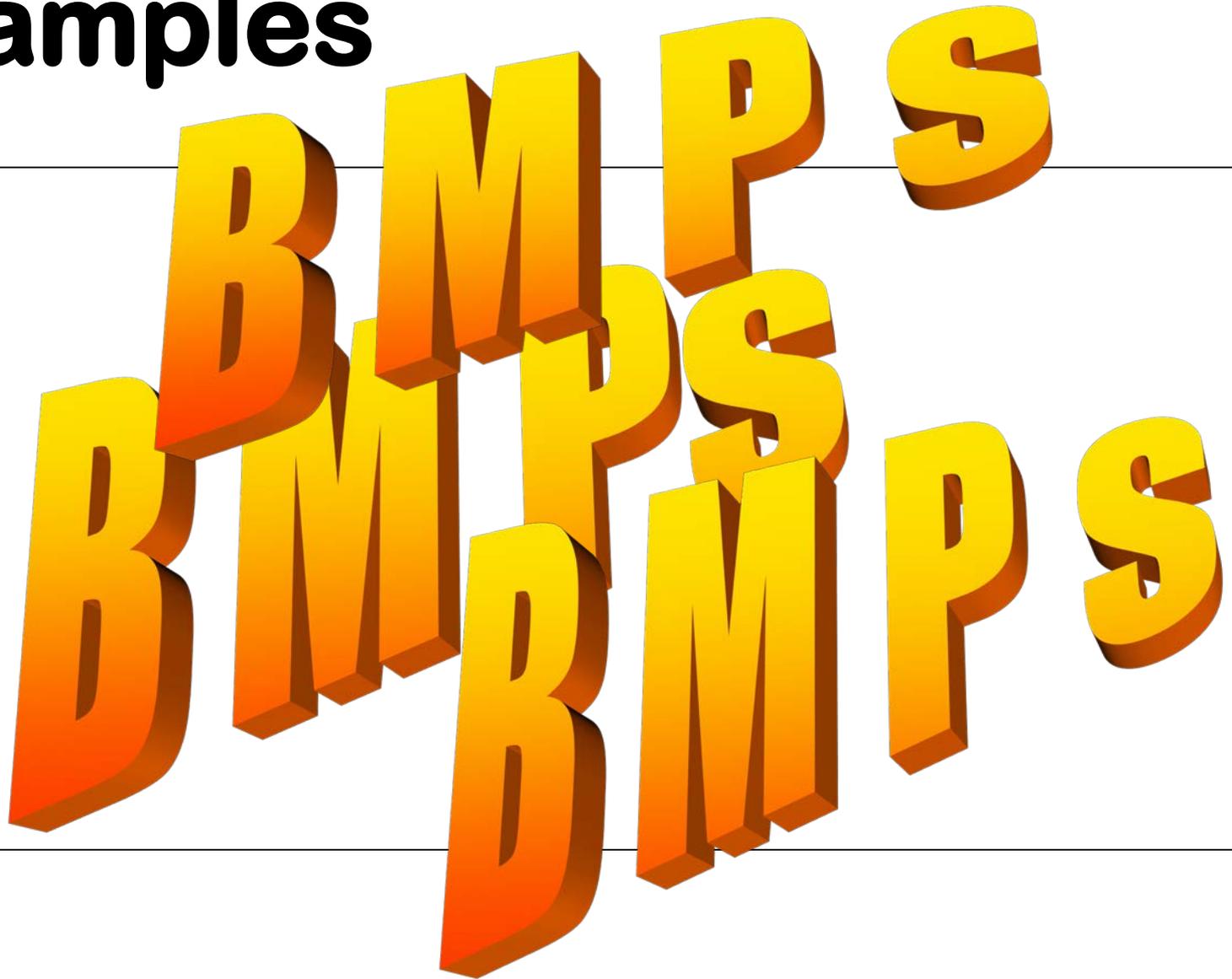
➤ A MODEL FOR PARTNERSHIPS FROM IDAHO:

## COOPERATIVE WEED MANAGEMENT AREAS



Sahara Mustard, ASDM

# Examples

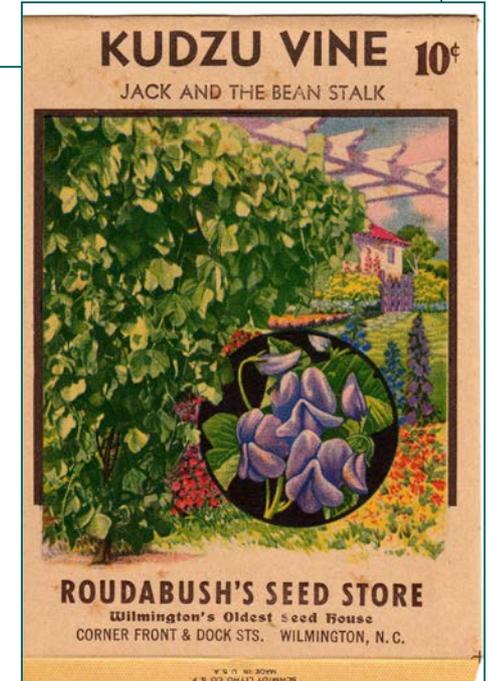


BMP S

BMP S

BMP S

# You Wouldn't Plant Kudzu...



# EARTH DAY volunteers



# LOCAL FIELD TRIPS

- Neighbors
- Teachers
- Landowners
- Legislators
- TNC, DU, TU, etc.
- Stakeholders



# Work with your Neighbors

- OREGON
- NEVADA
- ARIZONA
- BAJA
  
- **THEY CARE TOO!**



# DO NOT PLANT INVASIVES

- On Projects
- As Erosion Control
- A quick fix!!!
- Habitat Enhancement
- **O R**
- In your own yard





# PROTECT WHAT EXISTS.



Chico's vernal pools

# DO NOT FUND PLANTINGS...

## KNOWN INVASIVES:

- **Oxeye daisies,**
- **Crownvetch,**
- **Reed canarygrass**
- **Russian olive**
- **Bush honeysuckles**

**(EO 13112 guidance)**



# Certify GRAVEL PITS !



# Avoid IMPORTING TOPSOILS



- **CERTIFY SOURCE**
- **USE Existing SOILS**
- **TEST SOIL/SEED**

# SPEC “WEED-FREE”



## MULCHING of SEEDINGS

### BENEFITS:

1. less weed seed
2. farm economy
3. save future \$\$in less weed

# WASH EQUIPMENT



## APPLICATIONS:

- Construction Projects
- Maintenance
- Wildfire work
- Hunting and fishing
- BORDER Crossings

# Increase TRAINING



- CREWS
- CONTRACTORS
- THE PUBLIC

# After control...ECO Sod



- SBIR research
- Montana based
- Field tested
- PRACTICAL
- **EROSION-READY**
- **LOW COST**
- **AVAILABLE**
- **CUSTOM SPECIES**

# A New

# CLIMATE

- More turbulent
- More flooding
- More wildfires
- More Drought
- More public pressure to do more with less



(NOAA)

# Currently in ALASKA



- **ASPHALT Buckling**
- **VEGETATION Decline**
- **INVASIVES Increasing**

# Transportation Research Board

Special Report 290, 2007

## ***Potential Impacts of Climate Change on Transportation:***

- Flooding of coastal roads, railways, transit, & runways.
- Washouts of infrastructure
- Detours on alternative routes = congestion
- Increase of building and repair costs
- Buckling pavements
- Increasing Wildfires

## ***Recommendations:***

**INVENTORY, PREDICTION,  
LONG-TERM PLANNING**

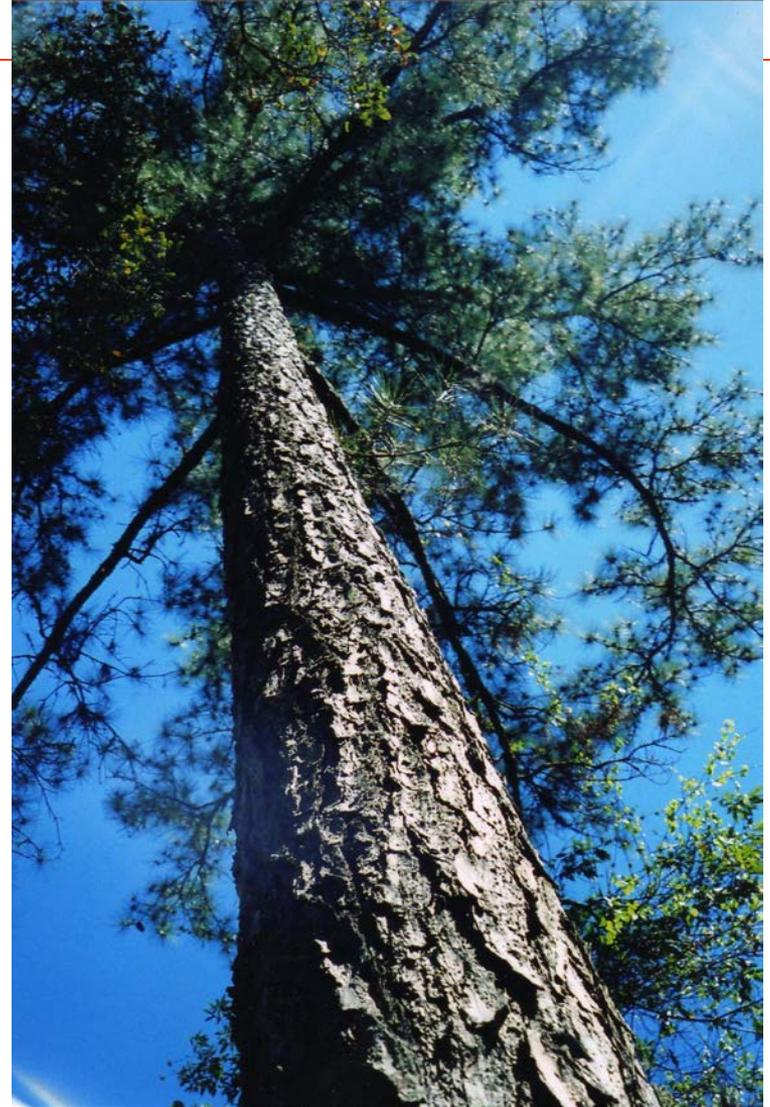


# FUTURE of ROW

- ✓ INCREASE of invasive species
- ✓ Herbicide resistance
- ✓ Vulnerable mitigation sites.
- ✓ Reduce mowing to save fuel and emissions.
- ✓ Protect REMNANTS for carbon storage!
- ✓ MAP and TRACK all vegetation.
- ✓ UNDERSTAND carbon sequestration and trading.
- ✓ PREPARE for public requests to plant trees!

# WILL WE PLANT TREES?

- SAFETY
- SAFETY
- SAFETY



# Trees no better than grasses

- ❑ *The amount of carbon stored in these soils (Konza Prairie grasslands) is equivalent to soils of tropical forests.*

Rice, C.W. 2002 "Storing Carbon in Soil: Why and How"

- ❑ *Temperate forests tend to warm the earth and contribute to the problem.*

Duke University Research Website, 2008.

# Tree Plantings (afforestation) Increases Water Use!

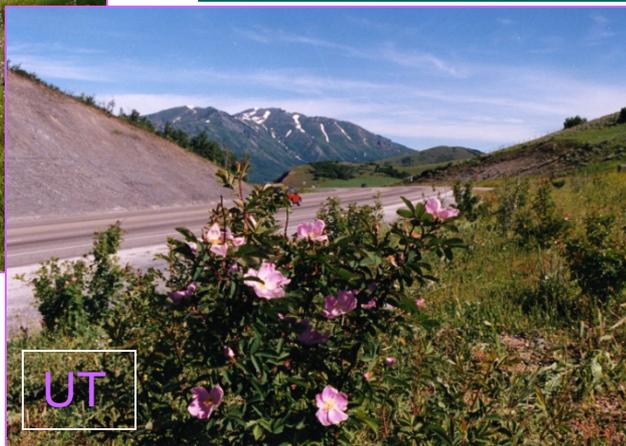
- *The possibility that afforestation could cause or intensify water shortages in many locations is a tradeoff that should be explicitly addressed in carbon sequestration programs.*
- Farley, K.A., et. al, 2005
- AND salinization of grassland soils.
- Duke University, 2004

# SAVE EXISTING TREES!

- ON NEW PROJECT CONSTRUCTION
- No MORE CLEAR-CUTTING SITES



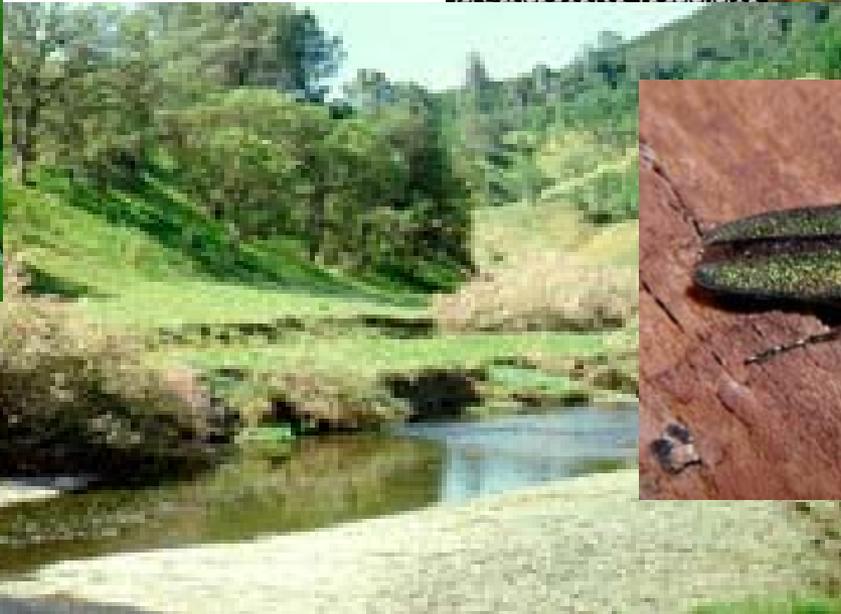
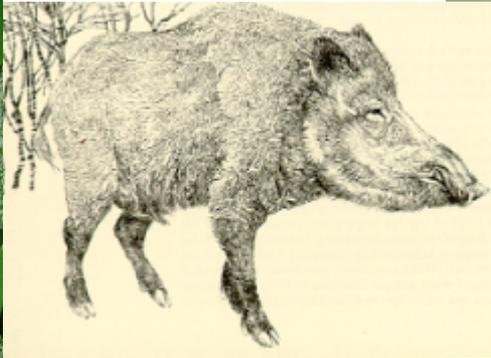
# PROTECT REMNANTS



- CHEAPEST
- BEST RESULT
- WILDLIFE BENEFIT
- NATURALHISTORY
- BENCHMARKS
- **RIGHT THING TO DO**



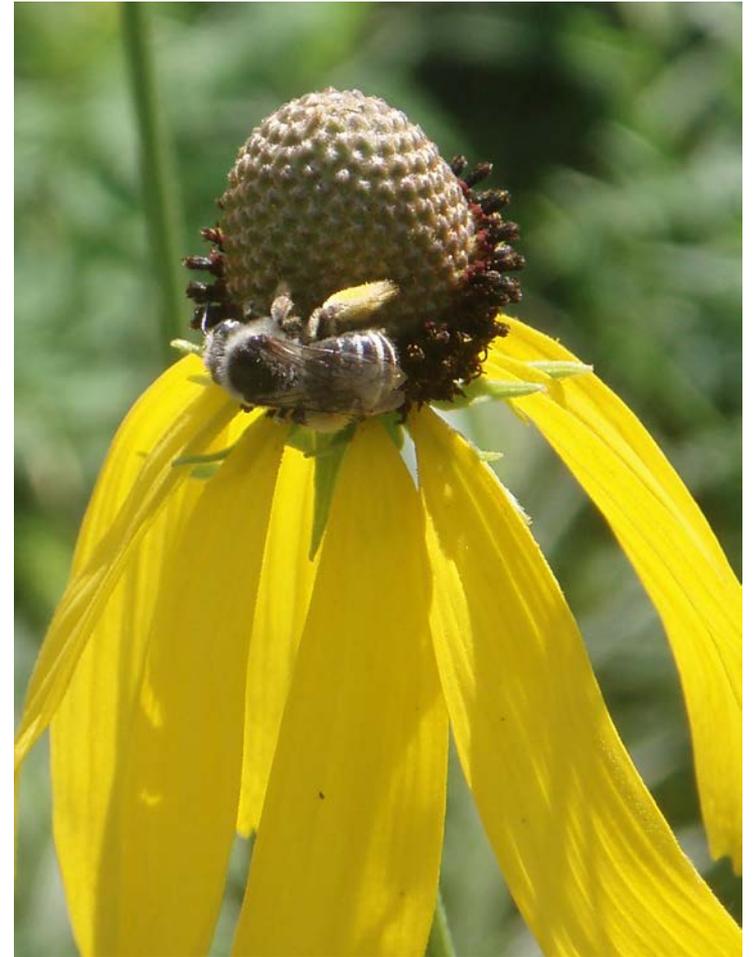
# MORE TO COME:



# Long-term ROADSIDE research: ecological benefits and climate change.



# Habitat values:



# Corridors as Carbon Sinks

- Grasslands
- Many already exist
- Possible in all States
- Fits SAFETY needs
- Mitigation use
- Stewardship goals
- Economic value



# FHWA PILOT PROJECT 2008

## Carbon Sequestration Study

**New Mexico** will support plantings and other maintenance/or conservation practices that will produce at least 1 ton of CO<sub>2</sub>/acre/year.  
To demonstrate financial potential to States.

Example: **At \$10/ton, a plot of 10,000 A would yield \$100,000 annually.**

(Steve Earsom, 2008)

# Produce trade value

- *Grassland conversion from plowed fields could exceed trade value of **\$125/ton/acre.***

*(why not roadsides???)*

- Jan Lewanrowski, et. al. USDA 2007

# ADAPTATION ...

Constance Millar (2006)

- *At ground level, the managers' domain, (solutions) do not yet exist. ...The best preparation is for managers and planners to remain informed about the emerging climate science in their region, and use that knowledge to shape effective local solutions.*

# OUR RESPONSIBILITY

- The earth's vegetation is part of a web of life in which there are intimate and essential relationships between plants and the earth, between plants and other plants, between plants and animals. Sometimes we have no choice but to disturb these relationships, but we should do so thoughtfully, with full awareness that what we do may have consequences remote in time and place.



**Western Gull**

**12,000,000** *acres of corridors are conservation opportunities*

**FIT FHWA GOALS:**

1. **mobility**
2. **safety**
3. **environmental stewardship**



