

Vegetation Management, AN ECOREGIONAL APPROACH



ROADSIDE USE OF NATIVE PLANTS



Edited by BONNET HARPER-LORE MAGGIE WILSON

1999 - NATIVE 1987 wildflower requirement

Roadside Weed Baae Output Ende Ende Ende Ende Ende Ende Ende Ende Ende

2007 - INVASIVE 2005 noxious weed eligibility

VEGETATION MANAGEMENT: An Ecoregional Approach



2013 - IRVM On-the-ground HOW-TOs

FHWA-USDOT

WHY AN ECOREGIONAL APPROACH? (ONE SIZE DOES NOT FIT ALL)

1932 AASHTO sub committee:

"That in each region, existing vegetation along a highway furnishes the key to proper selection of the trees and ground cover plants to be established."

History of Economic pressures: 1930's Depression 1970's Energy Crunch 2000's Recession & Oil shortages



Ecoregions of the United States



James Omernik, EPA

Robert Bailey, FS

State Natural Heritage Programs use these vegetation maps not agricultural zone maps, when planting native species.

ECOREGION EXAMPLES FOUR CORNERS





EACH STATE DIFFERENT PLANT COMMUNITIES



PRINCIPLES ARE THE SAME

Utah & Colorado use BAILEY maps

Arizona & New Mexico, OMERNICK

GRASSLANDS FIT HIGHWAY GOALS

- HARDY, ADAPTED PLANTS
- EROSION CONTROL
- REVEGETATION/ SIMPLE SEEDING
- VISIBILITY
- SITE DISTANCE
- ERRANT VEHICLE SOFT LANDING
- WATER QUALITY
- FLOOD CONTROL
- CARBON SEQUESTRATION
- NO NOXIOUS WEEDS
- BEAUTIFICATION



COLORADO GRASSLAND

NEBRASKA MODEL - SEED MIXES



6 Species lists TO FIT:

- a. Loess hills
- b. Loess & Glacial Till
- c. Central Loess Plains
- d. Sandhills
- e. Tablelands
- f. High Plains

SEED MIX & ESTABLISHMENT



Thanks to:

Kirk Henderson University of Northern Iowa

Seed Mix design

IOWA TALLGRASS PRAIRIE

IRVM SECTION INCLUDES: BIOCONTROLS, GRAZING, REDUCED MOWING



ROADSIDES: THE FRONT YARD OF THE NATION BY J.M. BENNETT, 1936



80 YEARS LATER: WE CANNOT AFFORD MOWING

REDUCED MOWING BENEFITS

- LOWER FUEL COSTS
- **REDUCE CARBON EMISSIONS**
- **IMPROVE WORKER SAFETY**
- LESSEN SPREAD OF WEEDS
- INCREASE WILDLIFE HABITAT

ADD POLLINATOR HABITAT

WISCONSIN DOT, 1970'S





Karner Blue

MINNESOTA MOWING MODEL



MINNESOTA STATUTES 2013

160.232 MOWING DITCHES OUTSIDE CITIES.

1

(a) To provide enhanced roadside habitat for nesting birds and other small wildlife, road authorities may not mow or till the right-of-way of a highway located outside of a home rule charter or statutory city except as allowed in this section and section 160.23.

(b) On any highway, the first eight feet away from the road surface, or shoulder if one exists, may be mowed at any time.

(c) An entire right-of-way may be mowed after July 31. From August 31 to the following July 31, the entire right-of-way may only be mowed if necessary for safety reasons, but may not be mowed to a height of less than 12 inches.

(d) A right-of-way may be mowed as necessary to maintain sight distance for safety and may be mowed at other times under rules of the commissioner, or by ordinance of a local road authority not conflicting with the rules of the commissioner.

(e) A right-of-way may be mowed, burned, or tilled to prepare the right-of-way for the establishment of permanent vegetative cover or for prairie vegetation management.

(f) When feasible, road authorities are encouraged to utilize low maintenance, native vegetation that reduces the need to mow, provides wildlife habitat, and maintains public safety.

(g) The commissioner of natural resources shall cooperate with the commissioner of transportation to provide enhanced roadside habitat for nesting birds and other small wildlife.

History: 1985 c 127 s 2; 1986 c 398 art 27 s 1; 1989 c 179 s 1; 1Sp2005 c 1 art 2 s 137

RURAL MOWING ANYTIME 8' SAFETY AUGUST ALL MOW USE OF NATIVE SP.

Copyright © 2013 by the Office of the Revisor of Statutes, State of Minnesota. All Rights Reserved.

1985

SUCCESSION - WHY REDUCED MOWING WORKS



REDUCED MOWING - over time (

(Collins, Robichaud 1984)

2005 SAFETEA LU SECTION 6006.439

MAINTENANCE WORK

ELIGIBILITY FOR USE OF FEDERAL-AID FUNDING:

I. NOXIOUS WEED CONTROL

2. NATIVE PLANT ESTABLISHMENT



2015 FAST ACT SECTION 1415:

I.WILDFLOWER REQUIREMENT (STURRA, 1987 - SEC. 319)

(1) ENHANCE: POLLINATOR HABITAT
 (2) ENCOURAGE: POLLINATOR HABITAT
 DEVELOPMENT & PROTECTION
 BY WILLING STATES

A. INTEGRATED VEGETATION MANAGEMENT INCLUDING REDUCED MOWING

B. DEVELOPMENT OF NATIVE HABITAT FOR MONARCHS AND OTHER POLLINATORS, INCLUDING NATIVE MILKWEED SPECIES.

2. FEDERAL-AID FUNDING ELIGIBILITY (SAFETEA-LU, 2005 - SEC. 329)

ADDS TO LIST: POLLINATOR HABITAT



Grasslands are pollinator habitat

MONARCH HIGHWAY





6 State Partnership along I-35 demonstration funded by USFWS.

FHWA/USDOT contact is: <u>deidre.remley@dot.gov</u>



La Florida! Land of Flowers... Juan Ponce de Leon, April 2, 1513



Coreopsis Florida's State Wildflower



To me, in sum, beautification means our total concern for the physical and human quality we pass on to our children and the future.

Acts of

Highway Beautification Act Turns 50

WRITTEN BY CHRISTINA KOSTA PROCOPIOU

Eadly Bird Johnson stands in a field of midflowers deregiste a Texas state highway. The first lady inspired the Highway Besistic state Act of spice, which exhibites its onth accurations this October, Deleg vo, due soft in reference an inspired reference in indeal institutions that end this deriv

La Florida... Land of Flowers

eauty

"At the time there was pressure to get contractors to not mow the roadsides. Mrs. Johnson was not at all pushy, but had her way of voicing her opinions that wildflowers should not be mown until after they went to seed, for the benefit of wildlife and the public who enjoyed their beauty."

Marge Morton, Mrs. Johnson's Social Secretary, 1976-1990



U.S. Weekly Diesel Fuel Prices



La Florida... Land of Flowers

INVERTEBRATE CONSERVATION GUIDELINES

Pollinators and Roadsides Managing Roadsides for Bees and Butterflies

Roadsides in the U.S. cover more than 10 million acres of land.

Managing roadsides for bees and butterflies will create high quality habitat for wildlife of all types.

Pollinator habitat along roadsides supports the pollination needs of adjacent farms and natural areas.



Supporting a diverse community of wildflowers, this roadside in Iowa is an Integrated Roadside Vegetation Management site.

"We love wildflowers" Secretary Ananth Prasad, April 23, 2013

La Florida... Land of Flowers

Mother's Day 2013





Wildflowers brighten our roadsides(bit.ly/156XQ8U) and now our @My_FDOT lobby thanks to artist John Moran.





11:58 AM - 18 Jan 2015



Approved:

Department of Transportation

Effective: January 22, 2014 Office: Production Support Topic No.: 650-030-001-h

WILDFLOWER MANAGEMENT PROGRAM

A wildflower areas resolution similar to the model resolution found on the Florida Wildflower Foundation website, followed by a written request to the DWC that specifies locations and mowing schedule, extents, and width is the most effective means for municipalities and counties to request that the Department establish a WA, or modify mowing frequency or limits.

La Florida... Land of Flowers



Southern Accents Tour

La Florida... Land of Flowers





Florida Panhandle Wildflower Map

Please see the following websites for visitor information:

- Tallahassee (Leon County) VisitTallahassee.com
- · Gadsden County egadsden.com
- Wakulla County VisitWakulla.com
- Franklin County ANaturalEscape.com
- Liberty County LibertyCountyFlorida.com
- Big Bend Scenic Byway FloridaBigBendScenicByway.com



La Florida... Land of Flowers

Page 1 of 2

RESOLUTION: 12-3.2

WILDFLOWER PILOT PROGRAM

WHEREAS, the natural beauty of native wildflowers in Leon County can be enjoyed by everyone; can attract guests, and benefit commerce, environmental health, and public well-being; and

WHEREAS, enjoyment of native wildflowers is an occasion for all County and community leaders to unite for the benefit of everyone; and

WHEREAS, many naturally beautiful species of native wildflowers, including

NOW, THEREFORE, BE IT RESOLVED by the Board of County Commissioners of Leon County, Florida, that Leon County is committed to establishing a Wildflower Pilot Program and that the Board hereby instructs County staff to partner with the Florida Department of Transportation and adjoining property owners, along designated segments of roadways, to plan and implement roadside management practices that will increase the visibility and enjoyment of Florida native wildflowers.

> WHEREAS, in the spring of 1513, Juan Ponce de Leon named this beautiful place La Florida, Land of Flowers, because of the wealth of native wildflowers; and

> WHEREAS, in the year 2013, native wildflowers will be a prominent icon of Florida's and Leon County's quincentennial celebration of Spain in Florida; and

> WHEREAS, it is desirable and attainable to experience the beauty of many more native wildflowers by reducing the frequency and extent of roadside mowing; and

> WHEREAS, Leon County's state and county roadways are ideal candidates to establish pilot project corridors for management of native wildflowers;

> NOW, THEREFORE, BE IT RESOLVED by the Board of County Commissioners of Leon County, Florida, that Leon County is committed to establishing a Wildflower Pilot Program and that the Board hereby instructs County staff to partner with the Florida Department of Transportation (FDOT) and adjoining property owners, along designated segments of Leon County and FDOT maintained roadways, to plan and implement roadside management practices that will increase the visibility and enjoyment of Florida native wildflowers.

FLORIDA WILDFLOWER FOUNDATION

About Us

Home

RESOLVE to Protect Wildflowers

Rosa lexo

What's in Bloom?

Walton

Bav

Resolutions paint Florida green

Would you like to see more roadside wildflowers in your county? In 2009, a <u>model county resolution</u> was developed by Foundation members Eleanor Dietrich and Jeff Caster for just this purpose. It recognizes the historical, environmental and cultural significance of Florida wildflowers and pledges to conserve roadside wildflowers through management practices such as reduced mowing.

Learn

Grow

Wakulla County led the way by enacting a county policy to preserve roadside wildflowers. Soon afterward, various versions of the resolution were adopted by Gadsden, Leon, Lake, Marion, Brevard and Volusia counties. Now, 28 counties and two municipalities have wildflower resolutions. Click on each county's name to learn how this effort was implemented and who led it. Use this information to bring the resolution to your own county.

In January 2014, the Florida Department of Transportation adopted a new <u>Wildflower Management Program Procedure</u> that lays out guidelines for nominating natural areas of wildflowers for special management. Our map breaks out Florida Department of Transportation districts, each of which have a wildflower program coordinator. Counties should work directly with their district coordinator to request special management for wildflower areas along statemaintained roads. <u>Click here</u> for a list of coordinators.



Model resolution

Research

Grants

News

Hamilton

Live Oak-

Levv

Citrus

Hernando

Hilkboroug

Manatee

Sarasota

Key

Adopted

DOT District

Pasco

afayet

Dixie

Madison

Taylor

Blog

FLORIDA

Cei ine olais

Duval

Clay

Marion

Polk

Hardee

DeSoto

Charlotte

Lee

Seminole

Orange

Highlands

Glades

Collier

13

Hendr

Monro

Osceola

Okeechobe

Indian River

St.Lucie

Martin

Palm Beach

Broward

Miami-Dade

Putnam

Baker

Alachua

WHEREAS, the natural beauty of native wildflowers in _____ County can be enjoyed by everyone; can attract guests, and benefit commerce, environmental health, and public wellbeing; and

Wakulla

Liberty

Franklin

WHEREAS, enjoyment of native wildflowers is an occasion for all County and community leaders to unite for the benefit of everyone; and

WHEREAS, many naturally beautiful species of native wildflowers, including Coreopsis, the state wildflower, as depicted upon the State Wildflower license tag, are already prominently displayed along _____ County's state and county roadways; and

WHEREAS, increasing the visibility of native wildflowers in _____ County is consistent with the vision of the Comprehensive Plan, and goals of many individuals, businesses, and communitybased organizations; and; <u>read entire</u> model resolution.

Helpful research

Economic Impact of Ecosystem Services Provided by Ecologically
 Sustainable Roadside Right of Way Vegetation Management Practices — The



Let the Panhandle brochure be your guide



Now you can easily find the Eastern Panhandle's best wildflower sites with a new brochure available at Florida Welcome Centers, regional visitor centers, and chambers of

commerce. The pamphlet features viewing routes, a brief history of wildflowers, tips for best viewing, and

Established in 2012, the Florida Panhandle Wildflower Alliance is an informal network of regional wildflower enthusiasts that advocates for conservation of wildflowers in the state's Eastern Panhandle. Through communication, collaboration and information sharing, members support and inspire each other as they grow knowledge and awareness of native wildflowers and their value to Florida's environmental and economic health.



Got a concern or praise?

Are wildflowers being mowed down? Want to share the location of a roadside that's in bloom? Do you have praise for roadside maintenance workers? Click here to tell us about it!

Join now!

Anyone in FDOT District 3 can join the Alliance. Complete our online form or download a membership form to return, and join the Alliance listserv to stay on top of issues, events and more.

La Florida... Land of Flowers



... proceeds must be used to establish native Florida Wildflower **research** programs, wildflower **education** programs, and wildflower **grant programs** to municipal, county, and community based groups in this state. 1999

La Florida... Land of Flowers

enjoy <u>more</u> wildflowers

Florida. Land of Flowers

less mowing less energy less expense less runoff Iess litter Iess soil erosion Iess herbicide less fertilizer less noise pollution less air pollution less water pollution less invasive exotic species

more beauty more safety more natural and agricultural pollinators more jobs for Florida farmers more slope stabilization more wildlife, songbirds, and butterflies more species diversity more ecotourism more educational value more recreational value more ecological value more greenways more water quality more state and regional pride more happiness











La Florida... Land of Flowers





Browse Projects > Detailed View

Safety Effects of Roadside Mowing Practices

I. RESEARCH PROBLEM STATEMENT

Nationally, as fuel prices trend upward, roadside managers in every state and territory are seeking ways to control the cost of roadside mowing. Annually, individual states spend millions of dollars mowing roadside turf, collectively estimated to be more than \$500 million. That amount fluctuates unpredictably with the price of fuel. Proponents of mowing hypothesize that decreasing the frequency and extent of mowing will increase the number and severity of accidents. This untested hypothesis generates high frequency and extensive mowing *at any cost*. Anecdotal evidence contradicts the hypothesis, suggesting that un-mowed (or less-mowed) turf makes travel safer by slowing errant vehicles, making it easier for the driver to regain control while traversing the clear zone. In addition, many experts believe safety is improved with taller and coarser turf because it is less attractive to foraging wildlife than the short tender green sprouts encouraged by mowing. Less mowing also reduces the time that highway maintenance workers are exposed to traffic. A final area of concern involves the conspicuity of roadside object. It is unknown whether allowing roadside vegetation to obscure hazards and/or safety devices has an effect on the overall safety of the roadway. Beyond the mowing that is necessary to preserve sight distance at intersections, and to prevent vegetation from growing so large to become fixed objects in the clear zones, *what is needed is a better understanding of the safety implications of changing mowing frequency, extent, and height.*

ALERTS

By Committee

SEARCH

BROWSE

Advanced Search

By Recently Added By Subject Category

USER LOGIN (authorized users)

RESOURCES

CRC - Committee Research Coordinators Research in Progress TRID TRT - Transportation Research Thesaurus Literature Searches and "I want to make sure that the America we see from these major highways is a beautiful America.

... along the George Washington Memorial Parkway *"I saw Nature at its* purest. The dogwoods had turned red. The maple leaves were scarlet and gold Well, doctors could prescribe no better medicine for me."



Ecologically Sustainable Roadside Right-of-Way Vegetation Management Practices

BENEFITS OF REDUCED MOWING

Jeff Norcini OecoHort, LLC & Wildflower Specialist, Florida Dept. of Transportation

Benefits of Reduced Mowing

- Energy Conservation via Reduced Mowing
 - Pilot Study I-10, Madison County, Florida
 - 2009 to 2013
- Economic Value of Ecosystem Services Provided by Ecol. Sustainable ROW Veg. Mgt. Practices
 - In conjunction with Les Harrison (Univ. of Fla./IFAS)
 - 2014



I-10, Madison County, Florida

1 mile

Jefferson County border Normal mowing; rural t=10, District 2: 6-7X/yr in clear zone + full ROW in fall

TRB Webinar: The Economic and Ecological Effects of Roadside Mowing

8

Mowing

- Routine mowing limited to 10- to 15-ft strip adjacent to the paved shoulder
- Extra full median mowing added in 2012 and 2013
- Vegetation Surveys (entire ROW)
 - March before first mowing
 - October before cleanup mowing

Results

- Mowing costs reduced \$1000+; less in 2012/2013
- Aesthetics improved in the spring
- Species diversity much greater in limited mow area
- No detrimental effects on safety or erosion
- Did not affect normal highway operation during or pilot study





Results

- Mowing costs reduced \$1000+; less in 2012/2013
- Aesthetics improved in the spring
- Species diversity much greater in limited mow area
- No detrimental effects on safety or erosion
- Did not affect normal highway operation during or pilot study

Sustainable Veg. Mgt. Reduces Costs



Roadside ROW Ecosystem Services*

Roadside Vegetation is an Asset

- Pollination and other services provided by insects
- Carbon sequestration
- Improved air quality
- Resistance to infestation by invasive species
- Runoff prevention
- Aesthetics
- Sense of place

* Human benefits derived from ecosystems or their functions

\$\$\$ Value of Ecosystem Services

- Used Benefits Transfer Method
 - Values estimated by transferring existing benefit estimates from studies already completed for another location or issue
 - Estimates were calculated very conservatively

Estimated Value of Ecosystem Services



....Can Lead To More Wildflowers Aesthetic Benefits At No Cost



\$\$\$ Value of Ecosystem Benefits Pollination/Insect Services

- Conservatively est. at \$34+ million
 - Sust. VMPs + 1% acreage
 Wildflower Areas 2x value
- Native vegetation benefits pollinators and other insects
- Value could rise if honeybee colony collapse disorder remains an issue





Value of Reduced Mowing Summary

- Substantial cost savings
- Improved safety
- Ecologically beneficial
 - Substantially increases value of ecosystem services when reduced mowing is part of a sustainable vegetation management plan
 - Conserves fuel
 - Can increase habitat/resources for pollinators

Ohio DOT Research on Mowing Practices in Relation to Labor, Equipment and Materials

Scott Lucas Ohio Department of Transportation Division of Operations, Office of Maintenance Operation

Research Project Overview

- Davey Resource Group selected 8/28/2013
- Scheduled completion of 11/18/2016
- Evaluating Vegetation Management Practices for Woody and Herbaceous Vegetation Phase I & II
- Phase I
 - Literature review
 - Review current practices
 - Review ODOT guidance
 - Field observations
 - Prepare matrices of alternative practices

Research Project Overview

ODOT and Davey Resource Group reviewed the data and developed goals.

- Goals
 - Increase IVM tools
 - Select environmental sound material and procedures
 - Adopt labor and money saving equipment and materials
 - Improve safety for workers and motorist
 - Control noxious weeds on the ROW

Research Project Overview

Phase II

- Field test equipment and practices
- Test new chemical control method for vegetation
- Extend maintenance cycle for vegetation control
- Provide tech briefs and field days
- Develop guidelines for vegetation management
- Develop a flip book for noxious weed control

Creating Pollinator Habitat

In addition to researching better ways to manage vegetation, the department increasing pollinator habitat

- Reduction in mowing
- Spot spraying noxious weed
- Planting pollinator habitat



Creating Partnerships

- Pheasants Forever
- Ohio Division of Wildlife
- US Fish and Wildlife Service
- Ohio Department of Agriculture
- Dawes Arboretum
- Various Soil and Water Conservation Districts



Dark County Project

- One of the first partnerships was between ODNR, Pheasants Forever and ODOT in Darke County
- Discussion and planning began in 2011. Planting of the site started in 2013 on US 36



• The sites totaled approximately 29 acres



Ross County Project

- The project began as an OCPM project in Ross County on SR 207 by the county fairgrounds
- The project has done very well and is being reviewed as a model for future projects.







Fairfield County

- US 33 & Coonpath Rd. and I-71 & SR 13
- Partners included the Dawes
 Arboretum, Fairfield County Soil
 and Water Conservation District
 and ODOT
- Planted in Spring of 2015
- Five more counties will be included this fall.





Sun Flowers 2014 & 2015

- The project was started in partnership with the Ohio Department of Rehabilitations and Corrections
- The main focus of the planting was along the I-71 corridor from Lake Erie to the Ohio River.
- Over 30 acres of plantings in 12 counties.



Future of the Ohio Pollinator Habitat Initiative

- Expansion of partners
- Mapping sites
- Reviewing different control methods, burning
- Add additional sites
- Establishment contracts
- The group is developing a network of experts to provide guidance and advise on preparing, planting, establishing and maintaining pollinator sites.

Thank you for your time.

