

ROADER'S DIGEST

Vol. 1 No. 2 December 1989

Newsletter of the Iowa Integrated Roadside Vegetation Management Program

Fireline

Guest Editorial
By Scott Zager

The 1990's will be an exciting decade for Iowa. It promises to be a time where once again, Iowans will recognize the quality of life we enjoy. With this recognition comes appreciation, then understanding followed by wisdom. Because of our growing sentiment for our home state, eroded cornfields are being converted to wildlands, wetlands are being restored, timberlands are being managed as much for wildlife as profit, and the diminishing prairies have become a living symbol of our heritage.

Not only has Iowa become the recognized leader in ground water protection, but just as admirably, we are becoming the leaders of a new philosophy of Integrated Roadside Management.

Iowa's half million acres of roadsides are no longer being considered ditches, they are being recognized as a valuable natural resource and wisely managed accordingly. The impetus for the roadside movement begins with our respect for the land, our passion for wild animals, our love for beautiful native flowers, but it must culminate in our prudence. Iowans are a practical people. Integrated Roadside Management emphasizes prairie grasses to out-compete weeds, strategically planted shrubs to prevent snow-clogged roads, and native flowers to beautify highways. This means decreased mowing and herbicide spraying, better maintained winter roads, and perhaps more tourism. This translates into saving dollars, increased safety, fewer weeds, more wildlife and a lot of heart-felt pride in the Hawkeye State.

But how do we keep this momentum going? An integrated approach to roadside management is not a quick fix solution. Like all environmental issues it requires long-term planning, coordination, cooperation and the creativity to make it

work. An integrated approach means we must do many little things on a big scale. If we are going to prevent soil erosion — which causes weeds, destroys infrastructures, and blocks drainage ways — we will need the cooperation of all levels of government working with landowners for mutual benefit. Another example of advantageous cooperation is seen in the burning of roadsides. To achieve maximum benefit, the burn must be done at the right time and under the right conditions.

This can only be accomplished with the aid of landowners. Ultimately, roadside success depends upon

Iowa's greatest resource, its people.

A roadside manager will never be able to do the job on his or her own. It must be a community project because everyone has an interest in roadsides. Besides safe transportation, roadsides have many functions: they maintain the road surface; they are important drainageways for agriculture; they serve as right-of-ways for utilities; or as entrances for homes and businesses. County engineers desire vegetation for erosion control, utility foremen need right-of-ways free of costly interference from brush, and farmers require roadside vegetation that doesn't interfere with their operation. Homeowners are variable, their interests range from immaculately mowed roadsides to rough havens for songbirds. Left on their own each of these individuals will manage the roadsides as they see fit, regardless of the interests of others. Engineers will clean out ditches without reseeded, leaving bare soil, which is subject to invasion by weeds. Foreman will apply soil sterilents to kill brush creating bare earth subject to erosion. Homeowners may mow tall-grasses too short, killing them in the process. As a group, farmers often have differing objectives for roadsides adjacent to different parts of their property. In short, a roadside manager will have to solicit the

aid of these people and work with them for better roadside management. All the short-term interests must be coordinated into one long-range plan. To accomplish this will require accurate record keeping, creative use of budgets and flexibility in dealing with people. Communication is the key. A roadside manager will have to listen to the needs of others yet provide information persuasively.

The potential return on efforts to incorporate landowners in the long-term management of adjacent roadsides is enormous. Before a stable vegetation cover is established it is necessary to reduce disturbances from neighbors.

Not only has Iowa become the recognized leader in ground water protection, but just as admirably, we are becoming the leaders of a new philosophy of Integrated Roadside Management.

Roadside plans will have to be developed with landowners' interests in mind. Wildlife habitat can not be planted where a farmer wants bluegrass lawns to show off his seed corn. However, if that farmer can be encouraged to maintain the ditch himself using appropriate lawn care, then the manager will receive the benefit of a weed free roadside at no expense to the budget. Meanwhile that same farmer will appreciate a quick reseeded of prairie grasses in a graded, isolated section of road. Working with landowners for better roadside management is a give and take situation. It is mutually beneficial to meet landowners half way to work out a solution together. A manager's efforts will be maximized if landowners are included in the planning process. A working relationship with landowners can provide a network whereby problems can be solved before they get out of hand. Farmers can be encouraged to capture erosion sediments by leaving several rows of corn as snow fences or using set-a-side ground along roadsides as a weed free buffer strip. Or better yet, combine efforts with the Soil Conservation Service to develop an overall farm management plan which includes the roadside as well. This will prevent weeds while protecting the infrastructure of the road. An implemented

Continued on page 2

Wildflowers Coloring Interstates

We are not alone.

The more people involved in the movement the more credibility the movement gains. The following is an article Doug Sheeley, roadside biologist for Hardin County, found in "Rights-Of-Way," the newsletter for American Cyanamid Company for Vegetation Control Experts. Apparently there are other states where people think going native in the roadsides is a good idea.

After 25 years, Ladybird Johnson's dream of beautifying interstate highways through the Highway Beautification Act of 1965 is finally blooming.

Texas and Ohio, among other states, have established wildflower programs. Delaware has worked to protect natural, native stands. And now, the Pennsylvania Department of Transportation (PennDOT) is experimenting with wildflower plots along its highway system.

Joe Lesley, rights-of-way development administrator for the Delaware DOT, says a wildflower program was started "at the insistence of the Delaware Federation of Garden Clubs, in 1982." Success of the program, though, rests directly with highway crews who maintain identified native wildflower areas.

The tawny daylily, bluebells, wild daisies and other native plants in such areas have raised the consciousness of crews who, Lesley jokes, "had absolutely

no feel for things other than hot mix, concrete and guard rail. Those attitudes have changed."

One step towards changing those old attitudes is a friendly contest waged between crews in the 12 different maintenance areas in the state. Selected wildflower sites are judged by an independent team. Winning supervisors, awarded a prize from the Federation, usually treat their crew to a barbecue or crab feast.

"This certainly creates interest in wildflowers," Lesley says. He cites instances where crews hesitated to mow "because they didn't want to cut down wildflowers."

PennDOT started its program in 1988 after Frank Gansz, roadside development specialist, saw slides of the successful Ohio program. He then met with the Garden Club Federation of Pennsylvania and other groups to discuss his idea of starting a similar program in Pennsylvania. As a measure of its support and enthusiasm, the Federation sponsored a contest to choose a sign to identify wildflower plots around the state.

Inspired by the massive response to the signage contest, Brian O'Neill from Weeds, Inc., Yeadon, PA, volunteered- at no cost to the state Highway Department- to seed the plots.

O'Neill says he saw the public relations

benefits for PennDOT in providing more scenic roadways. Other potential benefits he sees include reduced mowing and herbicide use, and "the beautification efforts will show that we're trying (to improve our highways)," he says.

Wildflowers are planted in a seeding mix containing a groundcover grass, such as hard fescue, which prevent erosion. The low height of wildflowers reduces site-clearance hazards caused by out-of-control weed growth.

If these plantings prove successful, the program is expected to be expanded in the future. "The worst thing we could do is jump the gun, do massive plantings and watch them fail," Lesley says. "Then we'd have a situation where you'd have 100 acres of brown weeds, which makes no one happy."

Lesley says it's encouraging to see more emphasis on wildflower plantings, although they were not officially named in the beautification act "other than as a provision for set-aside acreage along scenic overlooks and preservation sites."

Ironically, wildflowers were initially chosen for roadside planting for practical reasons—to reduce mowing and undesirable vegetation. But their visual appeal is, of course, why wildflower programs are becoming popular. Ladybird's dream is, indeed, blooming.

Dollars for IRVM?

The following is an article from "The Guardian," the newsletter of the Iowa Soil and Water District Commissioners Association.

Leopold Center Seeks Grant Applications

On November 1, 1989, the Leopold Center for Sustainable Agriculture will be releasing a request for proposals for the 1990-1991 funding cycle. The Center is seeking interdisciplinary research and

education proposals from researchers at all Iowa colleges and universities, and private nonprofit organizations and foundations.

The Center is interested in projects that identify the negative environmental impacts of current agricultural practices, assist in the development of emerging alternative practices, and the transfer of these technologies.

The final deadline for proposal submission is January 15, 1990 and awards will be made by

April 15, 1990. Additional information and proposal format instructions are available from the Leopold Center at Ames.

Integrated Roadside Vegetation Management is certainly a program that deals with negative impacts of current agricultural practices and is involved in developing alternative practices. This sounds worth looking into to find out if funding would be available for a research project at UNI that would benefit the IRVM program.

Fireline...

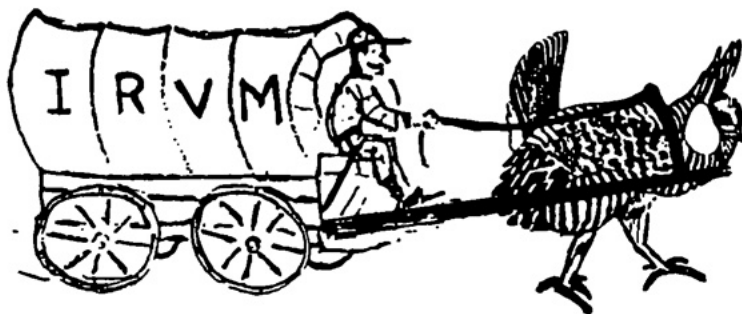
Continued from page 1
conservation plan will keep the soil where it belongs — in the field. Farmers can help cut costs of roadside operations. Once brush is cut and roadsides reseeded, landowners could provide follow up burns to prevent brush from returning to the ditch. In essence, a manager's job will be to teach landowners to be better vegetation managers themselves. A

successful integrated roadside program will encourage people to do the right thing at the right time.

Like any other program depending on public support, Integrated Roadside Management has a greater chance of success if Iowans feel they have some input into the program, that they derive some personal benefit, and they feel better about themselves for supporting the

program. With the idea being that people are not just part of the problem, they are also the solution, a sense of community will be obtained through active participation. Therefore, Integrated Roadside Management is an idea that all Iowans can be proud of.

(Scott Zager is a former roadside biologist with Black Hawk county who



IRVM Comes to State Roads

On Thursday, October 19, three representatives from Iowa DOT came to the IRVM office at UNI for a meeting with Al Ehley and Daryl Smith. The state of Iowa is in the process of implementing its own IRVM program and is very interested in how IRVM operates at the county level. The people from DOT responded very positively to what they heard about this program.

Steve Holland is the new State Roadside Coordinator. He is located in the Office of Local Systems in Ames under Lowell Richardson. A 13-member advisory committee has been selected for the State IRVM program. Their first meeting was held November 13. Daryl Smith attended as a representative for the county IRVM interests. The meeting was primarily an organizational and brainstorming session.

Taking the Show on the Road

The coordinator for the Integrated Roadside Vegetation Management program is Al Ehley. Lately a large part of Al's time has been spent traveling. Whenever there is a conference, workshop or seminar that attracts people with influence over county programs or individuals interested in environmental issues Al is ready to go and deliver his message on the importance of IRVM. To supplement his presentation Al brings with him IRVM's state-of-the-art display booth.

On Sunday, October 8, Al traveled to Springbrook State Park to participate in Iowa Conservation Education's fall workshop. This is a program to help educators stay abreast of current issues, many of which are environmental in nature. The session Al conducted was attended by fifteen of the educators. They heard a talk on IRVM and were taken on a field trip. The field trip included a visit to a nearby roadside. The roadside had been seeded and burned in the last few years and now sported a real good stand of big bluestem, Indiangrass, and Switchgrass. The group discussed the potential of roadsides as outdoor classrooms where students can learn about Iowa heritage, vegetation, human impact on the environment and other general biology topics such as the roll of decomposers and producers.

Through efforts like this more and more counties see IRVM as the wave of the future.

Al was in Des Moines October 12, for the Fall School put on by the Iowa State Association of Counties. This was the busiest day of the three day event which featured numerous booths and meetings. Al was able to spend most of the day talking with people who stopped to look at the materials in the IRVM display. In talking with these people, most of whom were county employees from all over the

state, Al encountered a high degree of interest and took advantage of this chance to promote the seminars.

Between October 31 and November 9 Al conducted six seminars with Paul Coates of the Iowa State Association of Counties. Seminars were held in Storm Lake, Charles City, Cedar Rapids, Ames, Atlantic and Ottumwa. Several IRVM counties provided personnel whose participation guaranteed the success of the seminars. These included: Kurt Baker of Cerro Gordo county, Steve

Through efforts like this more and more counties see IRVM as the wave of the future.

Lekwa of Story county, Milt Owen of Mitchell county; Jon Steege of Fayette county, Steve Finnegan and Russ Prichard of Black Hawk county, Jane Halliburton of Story county, Doug Sheeley of Hardin county, Mike Wallace and Mike Webb of Guthrie county, Bob Burchette of Lee county, and Chris Bass of Muscatine county.

The purpose of the seminars was to assist counties in developing a county roadside plan. They were well attended and included a lot of good discussion.

Natives Seeded on Headlands

Now that the 1985 Food Security Act (FSA) requires seeding of all headlands with a slope greater than five percent, it may be worth while for roadside managers to work with the soil conservation office to promote the use of natives for this purpose. It would be especially beneficial to plant the taller natives such as Big Bluestem and Indiangrass. They might serve as a snow fence minimizing drifting on to the road. This practice would provide a buffer strip between cropland and roadsides reducing deposition of soil in the roadsides.

Once planted the headlands would become a seed source. The fact that baling machinery can be operated on this land makes them very desirable as seed sources. The baled material can be spread onto the roadside accomplishing both seeding and mulching at once.



BIG BLUE STEM

Road Apples

The roadside office here at UNI will soon have a new computer and printer. The old one belongs to SCS and they want it back. So look forward to improved print in future communiques.

Any seeds you have gathered should be spread out to dry for a couple weeks to prevent rotting in the bag over winter.

We are considering hiring a prairie propagation expert to give a seminar this winter.

A slick prairie poster calendar for 1990 is in the making. As many as 500 copies are to be printed.

IRVM is receiving national attention...

An Upcoming USDA newsletter will include a news release on the county roadside program in Iowa.

Bargain Books

"Weeds of the North Central States"
Publication No. 281, \$3.00 made out to
University of Illinois

Send to:

Office of Agricultural Communication
and Education

University of Illinois
69 Mumford
1301 W. Gregory
Urbana, IL 61801

"Collecting, Processing and Germinating Seeds of Western Wildland Plants" ISSN-0913-3760 ARM-W-3
Available upon request from:
Science and Education Administration
Renewable Resource Center
920 Valley Road
Reno, NV 89512

Members of the Roadside Community

Each newsletter will feature a different member of the roadside community. Hopefully we will provide at least a little information that everyone does not already know off the top of their head.

This issue's featured community member is Big Bluestem, a prominent structure in the skyline of the tallgrass prairie and inspiration for the warm nostalgic rush so craved by prairie addicts. In the words of John Madson:

"This is one of the great dominants of true prairie, the most universal of the prairie's tall grasses and a marvel to the early settlers who plunged into it and left accounts of big bluestem so tall that it could be tied in knots across the pommel of a saddle.

Although it is generally a lowland grass, big bluestem avoids the moist, heavy, poorly aerated soils in which cord grass thrives. Big bluestem wants plenty of moisture, but occupies a middle ground between the wet and dry, between the hydric and xeric. It is mesic in its moisture needs—an ecological analog to domestic corn. The finest corn habitat today is that in which big bluestem reigned yesterday."

This choice of habitat makes big bluestem an excellent candidate for encouragement in roadsides. Its height adds an aspect of verticality to landscapes very appealing to wildlife. It stays erect through the winter thus providing good early nesting cover. And its tendency to grow in bunches adds to the desired mosaic appearance while creating natural paths for critter movement. Big bluestem is a fair source of food with small mammals eating the plant and prairie chickens and some songbirds eating the seeds.

The seed of big bluestem can be

harvested October to November. For propagation, only cold stratification is necessary. Sow unstratified seed in the fall and stratified seed in June.



Description: A warm season grass 3 to 8 feet tall blooming August to early September and acquiring an attractive reddish cast after frost. The lower sheaths and leaves usually are fuzzy and very hairy. The seed heads usually come out in a three spike-like inflorescence resembling a turkey foot. The ligule extends across the leaf collar.

* From "Where the Sky Began" by John Madson

If you would like to receive future issues of this newsletter, simply complete and mail in the attached form.

Name _____

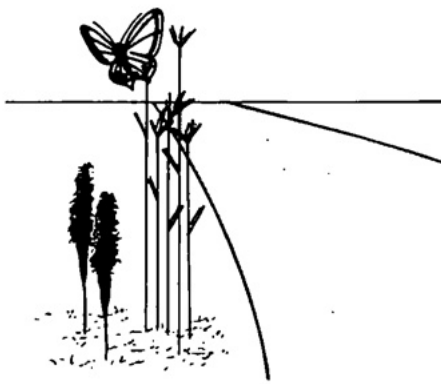
Mail to:

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Roader's Digest
1268 McCollum Science Hall
c/o Biology Department
University of Northern Iowa
Cedar Falls, IA 50614

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ROADERS' DIGEST

Vol. 2 No. 1 March 1990

Newsletter of the Integrated Roadside Vegetation Management Program at the University of Northern Iowa

Four More Counties Implement Roadside Program!

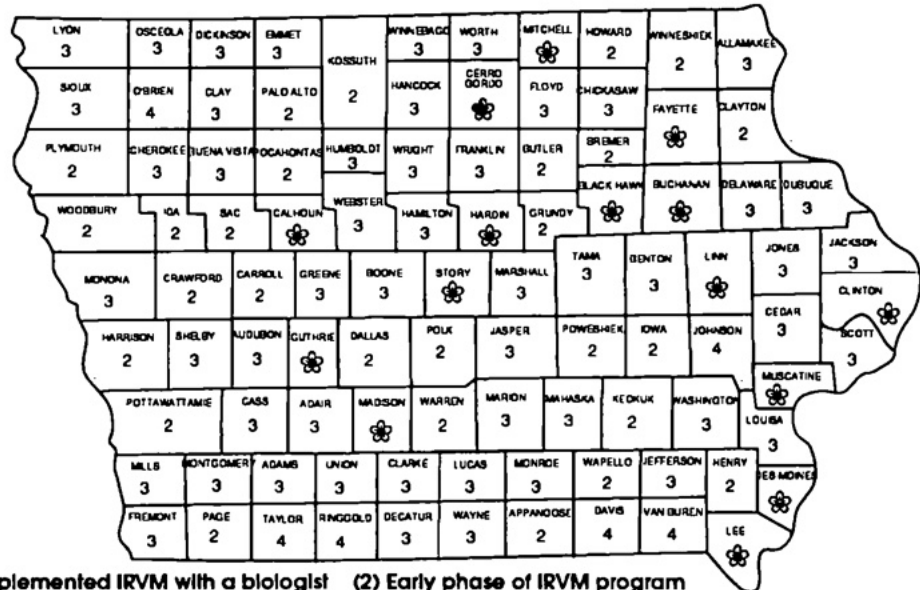
Great news for this program! Great news for the residents of Calhoun, Clinton, Des Moines and Linn counties. This makes 15 counties that have adopted the Integrated Roadside Vegetation Management program.

As a county adopts the IRVM program it means the people of that county

responsible for maintaining the roadsides have embarked on a project that will enable them to break from the endless cycle of pouring thousands of dollars worth of chemicals into their roadsides each year only to have the same weeds reappear in the same spots the following year. Instead they will begin to actively manage their roadsides in ways consistent with current views and philosophies regarding weeds, chemicals, groundwater, erosion, wildlife and native vegetation.

It means that from now on money spent on roadsides in these counties will go directly towards putting roadsides to higher and better use. This demonstrates an awareness that we no longer have land we can afford to abuse or neglect. This is especially true in a state whose soil is as rich as ours and where so few natural areas remain.

Iowa's roadsides cover 600,000 acres, more land than all of our federal, state and



Key:

- ☼ Implemented IRVM with a biologist
- (2) Early phase of IRVM program
- (3) Considering IRVM
- (4) Traditional roadside program

county parks combined. This constitutes a significant resource worthy of our best effort.

This means taking care of the land the way many small, crowded countries have done for centuries to get the very most out of this finite resource. Use chemicals sparingly, spot-spraying only where weeds constitute a threat. Reseed with native warm-season grasses that evolved specifically to thrive here. Perform

maintenance, such as mowing and burning, to the best advantage of vegetation and wildlife. Work with landowners to encourage practices which keep the top soil out of the roadsides.

In this way Integrated Roadside Vegetation Management embraces practices which allow us to live in harmony with the environment and work towards leaving this land in better condition than which it was found.

Study Examines Effect of Roadside Management on Small Animals

Roadside vegetation managers (RVM) in Cerro Gordo, Guthrie and Hardin counties, in cooperation with the Iowa State University Department of Animal Ecology, are conducting a study comparing small mammal fauna of ditches dominated by native vegetation versus introduced (cool-season) vegetation.

Cerro Gordo roadside biologist Kurt Baker – assisted by Robert Schwartz, director of CCB activities in Winnebago County – formulated the idea for a study and proposed it to Mike Webb (Guthrie

county RVM) and Doug Sheeley (Hardin county RVM) because he knew of their interest in wildlife management. He also contacted Drs. Lou Best and Jim Pease at Iowa State to secure their cooperation. The roadside managers and professors met last May to design the study. Trapping was conducted in August, September and October.

Information gained from the study will give roadside biologists an idea of what species of mammals reside in roadsides and their abundance relative to other

species. It should also provide information on habitat preferences of these species and how roadside management activities may be expected to affect the small mammal fauna.

Currently, the results of the study have been sent to Iowa State for analysis. The researchers are hoping to publish the results as soon as possible.

This article was submitted by Doug Sheeley, roadside biologist for Hardin County.

Local Prairie Seed – A Conservation Issue



Guest Editorial

By Cindy Hildebrand

As Iowans become more enthused about the many advantages of prairie roadsides, roadside vegetation managers face new opportunities and challenges. Along some roadsides, prairie grasses and flowers still grow, and will increase with proper management. But along other roadsides, prairie plants have been eradicated, and new seeding is desirable. Where is the seed to come from?

For past prairie plantings, the answer has often been "anywhere seed is available and affordable" — understandable, given the difficulty in obtaining prairie seed. But now we know that varieties developed for forage often don't work well in mixed roadside plantings. There is also new awareness of the importance of protecting the genetic integrity of local prairie remnants, and valid concern about genetic contamination if "distant" seeds or pollen are introduced. What does this mean for Iowa's roadside programs?

Local seed is adapted to local conditions, looks (and is) natural in mixed plantings, poses no genetic threat to local prairie remnants, and is an important means of protecting and expanding what little remains of Iowa's original prairies.

On the other hand, local seed is usually more costly in terms of time and money, can be difficult to obtain, and sometimes has low germination rates.

As the ecological restoration movement grows, some conservation agencies, such as the National Park Service, are starting to require the use of local seed for restoration projects. The potential of prairie genes for agriculture, as discussed in the cover article of *The Atlantic* (Nov. '89), adds new

importance to the protection and conservation of local prairie genes.

But many Iowa roadside managers feel they must compromise by using some non-local seed. The guidelines below will make such compromise better for prairie conservation.

1. Protect existing prairie remnants by keeping non-local prairie seed away from them. If a ditch runs next to a remnant and needs reseeding, it is better to plant non-invasive, non-native species than to genetically contaminate the remnant with non-local prairie seed. Genetic contamination is not reversible, and may contribute to the extinction of local varieties. It also causes prairie remnants to lose value for scientific research and seed collecting.

2. Keep local and non-local seed separate, and use local seed where it has the most value, such as near existing remnants. Keep permanent, retrievable records of where local and non-local seed were used. This will help managers evaluate seeding results and will help future research on prairie remnants and roadsides.

3. Include the importance of prairie conservation, including genetic conservation, in public education programs. This will not only point out the conservation value of managing roadsides to increase existing prairie plants, but will also help prevent well-meaning people from adding non-local prairie seed to local prairie remnants, digging up prairie plants, collecting seed unwisely, etc.

4. Keep local seed a priority within the roadside program. There are a few commercial sources of Iowa seed, and some roadside programs use staff and volunteers to collect seed from local remnants. Some Iowa counties are establishing their own local seed nurseries.

5. Plan a roadside program that includes a thorough initial inventory, and

locate existing remnants before any non-local seeding is done. Public education can help Iowans understand that reestablishing prairie roadsides is a long-term process with long-term benefits, rather than a quick and temporary fix.

6. Emphasize fire management over new seeding on roadsides with some remaining prairie plants. Such sites often respond to well-timed fires with a dramatic increase of prairie grasses and flowers.

7. Consider the guidelines suggested by many botanists when collecting "local" seed. Local seed for a given site is preferably collected within five to fifteen miles of that site, but up to fifty miles is acceptable, especially if the fifty mile limit is east or west of the site, rather than north or south. It also helps to collect from plants growing on the same soil type.

8. Educate commercial nurseries, public officials, and interested landowners about the growing need for local prairie seed. Roadside vegetation managers in some states can get local seed from both public and private nurseries. Wisconsin is planting a 400-acre nursery with Wisconsin prairie seed, and Ohio has started an Ohio seed nursery. Iowa governments could address the need for Iowa prairie seed in a variety of ways, if encouraged to do so.

If readers would like to contribute or receive more information on this subject, please contact the author. Also, see "Road Apples" in this newsletter.

While prairie seed source problems may continue for Iowa roadside vegetation managers (and other prairie restorationists) into the near future, we can all work together for long-term solutions that will both improve Iowa roadsides and protect and expand Iowa's existing prairie remnants.

Cindy Hildebrand is a conservation activist who is working on a local-seed prairie reconstruction. Her address is R.R. 2, Ames, IA 50010, 515-232-3807.

Ohio Native Seed Nursery Established

The following article was reprinted from the Summer 1989 issue of "Restoration and Management Notes," a publication of The University of Wisconsin Press.

David Nolin, Land Stewardship Specialist, Park District of Dayton-Montgomery County, 1375 E. Siebenthaler Ave., Dayton, Ohio 45414 (513) 278-8231

Many public agencies in Ohio are interested in planting native prairie vegetation for wildlife habitat and for aesthetic and interpretive purposes.

However, unless one wishes to buy high-priced seeds from out of state, there is no commercial source of seeds.

The Ohio Department of Transportation wishes to plant hardy native perennials along roadsides to increase beauty and decrease maintenance. The park district needs large amounts of seeds as part of our Land Stewardship program. To solve the seed shortage problem, the Ohio Department of Transportation approved a five-year grant proposal by the Park District to establish a seed nursery. An old

farm recently acquired by the Park District is being converted to a nursery site. Volunteers and Park District staff collected seeds of fifteen forbs from prairie remnants in western Ohio during the summer and fall of 1987 and planted them in beds at the new nursery site.

Although it will take several years to produce large amounts of seed, we are optimistic that the project will succeed and will allow us to beautify our parks and roadways with native vegetation.

Members of the Roadside Community

This issue of the newsletter focuses not on a prairie plant, but rather on an animal species commonly found in prairie and open areas, such as roadsides. This is the meadow vole, "Microtus pennsylvanicus," often referred to as the field mouse.

Like grasses, voles are low to the ground, get walked on, over-looked, and in general receive very little respect. This is a grave injustice. Voles, exist in great abundance, yet spend their lives in quiet anonymity. They are content to comprise a small but vital link in the food chain of the roadside community — never complaining — never seeking glory. This makes the vole a true working class hero.

Voles do well in the roadside because they like low moist areas, are good swimmers, and feed on grasses, seeds, grain, bark and perhaps even some insects. Unfortunately they possess one major character flaw. Voles like brome grass better than they like native prairie grasses. It is not known whether this is due entirely to bad upbringing or if it has something to do with the vole's practice of tunneling through the grass to avoid detection by predators while hunting for food. In either case it is tragic that so upstanding a

member of the community could be influenced by the fact that brome's sod provides a more continuous blanket to crawl through than does the patchy network of bunch grasses.

Of course the vole's exposure between



clumps of switchgrass is much appreciated by the red-tailed hawk watching from the power line. And getting eaten by a hawk seems like fair punishment for a brome grass lover anyway. (So much for the working class hero.) Clearly, establishing native grasses in the roadside serves the purposes of a wider range of constituents. This makes native grasses the preferred vegetation in a utilitarian society that will not cater to the interests of one selfish faction.

Research for this article was done by Pat Hunziker, a graduate student at UNI.



The Road Warrior

The ongoing effort to spread the word about IRVM, what it is and how to get a program started, keeps Al on the move. Since the last newsletter he has made presentations in Washington County, Wright County, Crawford County, Calhoun County, Henry County and Marshall County, set up a display booth at the Soil and Water Conservation's annual short course for district commissioners and participated in a panel discussion with Mike Webb, Jon Steege, and Chris Bass (Roadside Biologists of Guthrie Co., Fayette Co. and Muscatine Co.) at the annual Engineers Conference in Ames.

On February 7, a party of IRVM people took off on a roadtrip to the U.S.D.A. Plant Materials Center in Elsberry, MO. The trip included a tour of that facility, a visit to Forest Keeling Nursery and a stop in Ames for a meeting with Steve Holland, coordinator for the State IRVM program.

The first Upper Midwest Roadside Conference was held on March 1, in Madison, WI. Department of Transportation representatives were invited from Iowa, Minnesota, Wisconsin, Michigan and Illinois. All of these states have roadside programs so there is great potential for sharing information.

Some Feedback

The following article was found in the **Ackley World-Journal** and sent in by **Doug Sheeley**, roadside biologist for **Hardin county**.

Farmers Say Improvements Needed in Ditches

Ditches along Iowa's county road system are generally in good shape, but there are numerous little problems that need attention, according to farmers polled by Iowa State University researchers.

Excessive weed growth was the problem mentioned most frequently by farmers who responded to the Iowa Farm and Rural Life Poll, conducted by Paul Lasley, ISU extension sociologist. Fourteen percent said weed populations were a large problem, and another 58 percent said they were a small problem.

A closely related issue, excessive brush and trees in ditches, was viewed as a large problem by 18 percent and a small problem by another 48 percent. Also ranking high on farmers' lists of complaints was sediment and silt in ditches, mentioned as a small problem by 56 percent of the respondents and as a large problem by another 13 percent.

Other ditch-related issues viewed as problems by more than half of the respondents were dumping of trash and junk (63 percent), poor drainage in ditches and culverts (62 percent), and erosion of roadside slopes and ditches (58 percent). Farmers describing each of those issues as a "small problem" outnumbered by about 4 to 1 farmers who thought they were a "large problem."

"We do not seem to be able to control people from urban areas coming to the rural roadside and dumping used appliances, brush, tires, auto parts, garbage bags, etc." Wrote a Story County farmer who said he also had trouble with four-wheel drive pickups damaging ditches after rains.

In contrast, several other ditch issues were viewed as "not a problem" by a majority of farmers responding to the poll. Sixty-nine percent said recreational use of ditches by three-wheelers and snowmobiles was not a problem. Sixty-six percent said unauthorized burning of roadsides is not a problem, and 63 percent said damage to roadside vegetation from herbicide application is not a problem.

The issue of traffic safety related to road ditches was viewed as no problem by 61 percent of the respondents, but another 36 percent said safety was a small problem.

Although ditches are a part of the public domain, there are some problems with that concept, according to a Lyon County farmer. "It makes me real mad that as I drive along the road, more and more farmers are working more of the land that is for ditches," he wrote.

Bargain Books

Wetland Plants and Plant Communities of Minnesota and Wisconsin

\$5.50 plus \$1.00 shipping and handling
made out to: SAO, U.S. Army, St. Paul
District, COE

Mail to: Dept. of the Army
St. Paul District, Corp of Engineers
Attn: CENCS-LM/Sales Agent
1421 U.S. Post Office & Custom House
St. Paul, MN 55101-1479

How to Manage Small Prairie Fires by
Wayne R. Pauly

\$3.50 made out to: Prairie Moon Nursery

Mail to: Prairie Moon Nursery
Allan Wade
Route 3 Box 163
Winona, MN 55987

"Landscaping for Wildlife" by Carrol L.
Henderson \$7.50

Available from Prairie Moon Nursery.

Road Apples

A special symposium on Integrated Roadside Vegetation Management will be held at the Twelfth North American Prairie Conference. The programs of various states will be featured. For more information contact Daryl Smith, Director North American Prairie Conference Biology Dept. University of Northern Iowa Cedar Falls, IA 50614.

Counties interested in hiring summer employees may send position descriptions to this office for distribution in the College of Natural Science at UNI. We have many qualified students interested in summer employment with the field of Natural Resources.

Prairie restoration will be featured at the Chicago conference of the Society for Ecological Restoration (S.E.R.), which runs from April 29 to May 3, 1990, at the O'Hare Sheraton. Field trips to several types of prairie restoration will be included, as well as symposia with

national prairie experts. Several Iowans plan to attend. For more information, call the S.E.R. office at 608-262-9547 (1207 Seminole Hwy, Madison, WI, 53711). Registration is open now.

Integrated Roadside Vegetation Management is certainly in tune with the ideals being celebrated on "Earth Day." Keep an eye out for opportunities afforded by "Earth Day" activities to promote this program.

We are gearing up for an issue of Roder's Digest focused primarily on solutions to problems with roadside seeding. The office has received a few ideas regarding this subject and invites more.

Nine hundred of the Prairie Poster/Calendars were distributed to State, County and Local conservation agencies and other interested individuals. There are still a few remaining.

Seed Swap

The following list represents seeds available from Doug Sheeley in Hardin County. 515-858-3461. He would prefer trading over selling. A list of seeds he is looking for is included below.

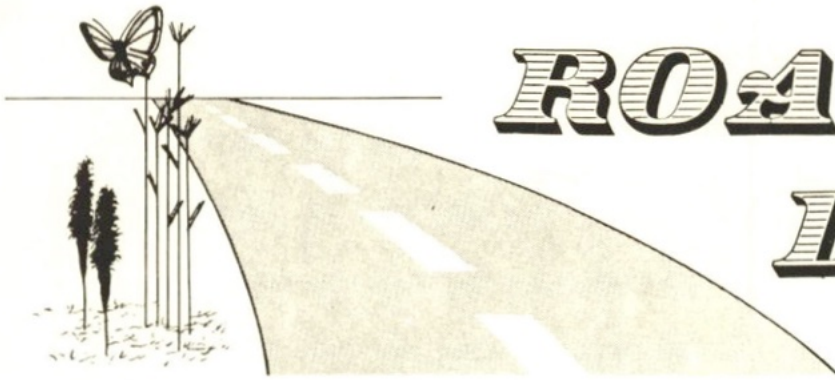
Type of seed	PLS	Clean	Quant	Price	Misc.
Purple Prairie Clover	No	Yes	2#	\$9./oz.	Native
Gray-headed Coneflower	No	Yes	3#	\$5./oz.	Non-na
Dame's Rocket	No	Yes	4.5#	\$15./lb.	Non-na
False Gromwell	No	Yes	1.5#	\$12.50/oz.	Rare
Prairie Blazingstar	No	Yes	1#	\$5./oz.	Native

Seed Wanted - White Prairie Clover, Butterfly Milkweed, Larkspur, Wild Indigos, Round-headed Bushclover

The following is a list of seeds available through Pete Engman in Madison County. He thinks the prices shown are locked in. But recommended a phone call to make sure. 515-462-3536.

Type of seed	PLS	Clean	Quant	Price	Misc.
Switchgrass	Yes	Yes		\$3.30/lb.	
Big Bluestem	Yes	Yes		\$7.00/lb.	

Roder's Digest
1268 McCollum Science Hall
c/o Biology Department
University of Northern Iowa
Cedar Falls, IA 50614



ROADER'S DIGEST

Vol. 2 No. 2 June 1990

Newsletter of the Integrated Roadside Vegetation Management Program at the University of Northern Iowa

Greening Up Your Roadsides with Living Roadway Trust Funds

There is still a lot of money available through the Living Roadway Trust Fund. The money is there to help counties and towns pay for roadside inventories, demonstration

projects, research projects and roadside equipment. For more information contact this office or:
Steve Holland, Roadside Coordinator
Local Systems

Iowa Department of Transportation
800 Lincoln Way
Ames, IA 50010
515-239-1768

Spring Means Heavy Duty Action for Roadside Workers

If you try calling or contacting roadside managers or crews during the months of April, May, or June, you'll probably get a lesson in patience. This time of year roadside workers are busy beyond the daylight schedule. Three major roadside activities are conducted during the spring, roadside burning, seeding open areas, and conducting the first round of chemical application on noxious weeds. Each of these three events is a significant program in itself.

Burning

Usually the first outdoor activity for the roadside manager is preparing for the burn season. Equipment must be checked and tested and crews lined-up to conduct the burns.

The proper time for burning a roadside is when the native vegetation is just starting to grow. Most years the roadside manager has about 3 to 4 weeks to burn as much roadside vegetation as possible. Most counties can burn several miles of roadside during that time span. Beyond mid-May the roadside is generally too green to conduct a successful burn.

Seeding

Roadside seeding with native grasses and flowers is best completed during April, May, and June. Seed mixes need to be prepared for individual sites. Equipment must be clean and checked. Seeding may be done on a bare roadside site or on a roadside that was temporarily seeded the previous year. Most counties can barely keep up with roadwork done by the county engineer and secondary road crews. Interseeding into established brome and/or fescue stands is being conducted on only a few sites state-wide. We need sufficient ground moisture for seed germination and plant growth. This may be a problem during mid to late June and into July.

Spot Spraying

Applying herbicides must be conducted when the weed is most vulnerable to chemical damage. Weed growth must be monitored to determine when the proper application time arrives. Some counties will flag and record weed sites prior to application and monitor herbicide effects during the growing season. Generally the first application is during May or June followed by a second application a month later. A final application may be needed during the fall when plants are establishing their root reserves. Timing must be precise with accurate application for successful roadside weed control.

As you can see, the spring season is loaded with activity for the roadside manager. Projects must be coordinated with available equipment, manpower and materials, along with appropriate site conditions. Planning is an integral part of a successful roadside program. Inclement weather may send a roadside program into a tail spin for the whole year!

If you are interested in viewing a specific roadside vegetation management technique, just call the roadside office of a county near you. Most roadside managers are willing to explain or demonstrate their program as they work in a county roadside.



An Update on Iowa DOT's IRVM Program

ireline

**Guest Editorial
By Steve Holland**

Hello from the Iowa Department of Transportation. I was pleased when asked to provide a short article on what is happening in the Department relative to integrated roadside vegetation management (IRVM) and the Living Roadway Trust Fund (LRTF).

The Department's IRVM program is a consolidation and expansion of many programs that have been ongoing for several years. The establishment of the Roadside Coordinator's Office in the Department and prospects for adding a staff of six more people to make the program more effective are encouraging signs.

We will be able to increase our vegetation management safety training and continuing education programs to assist county and city vegetation managers, along with our state crews. Our yearly meetings for DOT maintenance crews have included alternative methods to herbicides for weed control, wildflower identification, laws and restrictions, safety concerns, and timing necessary for effective herbicide use and plant growth.

Our plans include developing training videos, and preparing a roadside management guide and informational brochures on differing aspects of vegetation management

and plant identification. With added staff we will be able to devote more time to meet the needs for public education and information meetings on roadside vegetation, and we will be able to respond quickly to inquiries.

We will be building on established programs such as native grass plantings, tree and shrub plantings (both of these programs have been ongoing since the early 1960s), wildflower plantings (this program has been steadily increasing since 1984), as well as public participation programs such as Adopt-A-Highway and the newest program which involves the Living Roadway Trust Fund.

The LRTF was established by the legislature as a new source of financial support expressly for improving the environment of the roadsides through responsible vegetation management. It is funded from the General Fund, 3% of REAP monies, and eventually fees generated by utility occupancy of interstate and freeway rights of way.

The monies from this fund are to be used for anything that will help to improve vegetation management along Iowa's roadsides. This includes, but is not limited to, such things as roadside inventories, beautification plantings (especially with plants native to Iowa), erosion control, training programs,

educational and promotional projects, research and specialized equipment.

Application blanks for funding requests have been sent to each county engineer and informational letters on where to request these forms have been sent to each of Iowa's city governments. Counties

All things considered, roadside management is going through a very exciting, very promising and very important time.

and cities must have an integrated roadside vegetation management plan approved and on file in the coordinator's office in Ames before funding can be considered. These plans can be patterned after the Department's plan which is also available on request.

All things considered, roadside management is going through a very exciting, very promising and very important time. We at the Iowa Department of Transportation are working hard to make our program a very positive statement for Iowa's future.

Steve Holland is the Roadside Coordinator for Iowa Department of Transportation.

Stop and Think Before Eradicating Plants

Paul Gruchow, the keynote speaker for Earth Day on the UNI campus, suggests that asking "Why?" before proceeding with many of our accepted practices would lead to the elimination of many environmental problems.

Doug Sheeley, roadside biologist for Hardin County, submits the following as something that would have similar results.

Evaluate each noxious plant

species before attempting to eradicate with herbicides. Here's a checklist:

1. Based on the plant community they're in, will their plant population be expected to increase or decrease?
2. Are they a threat to agricultural production or pasture maintenance?
3. Are they promoted by an ongoing disturbance that can be fixed?

4. Will prescribed burning or timely mowing eliminate them?

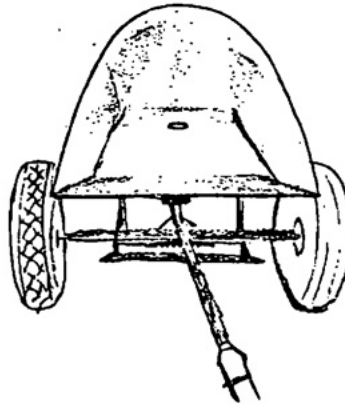
5. What herbicides are they susceptible to and when are they most susceptible?

6. Do the negative effects of the herbicide outweigh any benefits gained?

Seeding Solutions Sought

Of all the jobs for which the roadside manager is responsible, perhaps none is so challenging as roadside seeding. Most ditches are too narrow and steep to be seeded safely or effectively with a standard seed drill. Until the perfect solution is found, creativity and compromise are often called for.

Here is a sketch of a broadcast seeder sent in by Doug Sheeley, roadside biologist for Hardin County. It was designed by Leo Bruch for seeding terraces. It features a five bushel hopper, a seeder powered by a small hydraulic motor and it hooks to a three-point hitch.

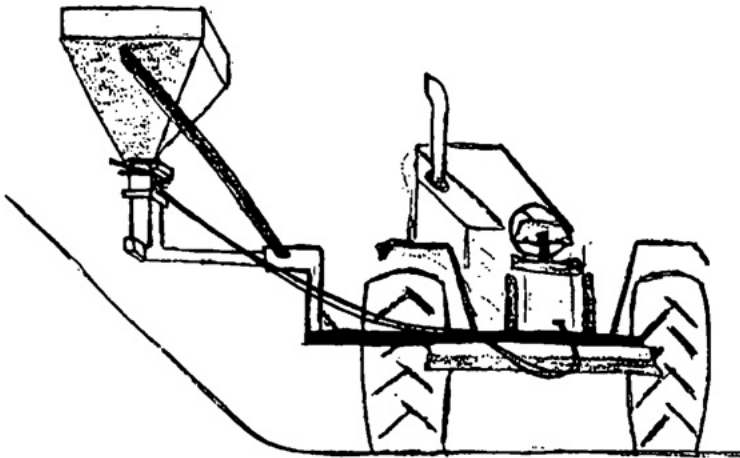


Brad Woodson, Roadside biologist for Lee County, found this old broadcast seeder. It has proven effective on prairie reconstructions. He hopes it will work in roadsides as well. It is less than four feet wide, has a low center of gravity and holds 3 1/2 bushels of seed.

Paul Ohlenbusch, extension specialist with Kansas State University, described attaching a seed drill to the side of a large tractor. It enabled them to seed a slope while driving on level ground.

As an alternative to expensive machinery, it would be interesting to see how effective a crew of high school students might be. Working through the month of June, sowing and raking the seed by hand might get the job done, involve the community and provide jobs all at the same time.

Seeding techniques will be a featured topic at this year's Annual Roadside Conference in September. Innovations and creative solutions are being sought.



The Road Warrior

Kurt Baker puts a wildlife emphasis in the roadside program of Cerro Gordo County. It is logical to expect each county's roadside program to reflect the personality and interests of

the roadside biologist in charge. Kurt's background includes a B.S. degree from the University of Wisconsin at Stevens Point in 1984 with

graduate work from 1984 to 1986, work with the DNR's of both Minnesota and Indiana, the U.S. Fish and Wildlife Service and the Iowa Conservation Commission.

As a wildlife biologist Kurt sees tremendous potential for wildlife where cover can be provided near Iowa's cropland. He appreciates the roadside program for providing the

opportunity to pursue a career and improve roadside habitat at the same time.

According to Kurt, "Cerro Gordo county's Roadside Management Program is strongly geared toward establishing high quality roadside grassland habitat for wildlife production. With safety as the primary

focus, we feel that plant diversity and grass stand vigor not only provide the best competition against invading plants, they provide optimal habitat conditions for nongame and game bird and mammal production. With proper management, roadsides can produce surplus young to repopulate adjacent habitats whose populations are shrinking."



So far increasing native vegetation has not been easy. Kurt points out that the roadside program's existence in Cerro Gordo County coincides exactly with the recent drought. He looks forward to doing some planting when rainfall gives the seed a fighting chance.

Cerro Gordo County participated in a DNR study evaluating pheasant nesting in Northcentral Iowa roadsides. Kurt says, "The number of nests found in these linear grasslands left a very positive impression of roadside value to nesting pheasants, hungarian partridge and a wide variety of nongame species. Up until now the value of roadsides has been recognized by only a handful of people. With the help of the roadside program that handful is growing at a tremendous rate as more people are realizing the environmental importance of roadsides."

Bargain Books

"The Terrestrial Natural Communities of Missouri" by Paul W. Nelson
Send \$4.00 to:
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102

"Fragile Giants: A Natural History of the Loess Hills" by Comelia F. Mutel. Discount price of \$13.55 available through June 30. Iowa residents add 4% sales tax plus \$2.25 shipping and handling.

Mail to:
University of Iowa Press
Publications Order Dept., OH
University of Iowa
Iowa City, Iowa 52242

Road Apples

June 1-3, Loess Hills Seminar. For information call: 712-274-6082.

July 20-21, Iowa Operation Wildflower Workshop. Marshalltown, IA. For information call: 712-262-1180 or 712-262-3548.

August 5-9, Twelfth North American Prairie Conference. University of Northern Iowa, Cedar Falls, IA. For information contact: Daryl Smith, Director 319-273-2238.

September 21, Annual Roadside Conference. Cedar Falls, IA. For information call: Al Ehley, Roadside Coordinator 319-273-2813

For sale: 1949 Allis Chalmers 60 pull type combine. Works well on native grass seed. \$200.00. Contact: Ray Apel 319-234-7072

Roaders Digest
1268 McCollum Science Hall
c/o Biology Department
University of Northern Iowa
Cedar Falls, IA 50614

Members of the Roadside Community

Robert Frost's poem, "The Tuft of Flowers," tells of a small patch of flowers left standing in a freshly mowed meadow. The narrator finds reassurance in the assumption that the flowers were intentionally spared the scythe out of appreciation for their beauty. At that moment a butterfly finds the flowers and becomes another beneficiary of the mower's thoughtfulness.

Viewing roadsides with this message in mind could bring into question past practices of maintaining roadsides as though the goal were to provide a monotonous landscape composed of one species of grass thus creating that country club effect of endless lawns once equated with prosperity and enlightened society. Allowing for natural diversity in roadsides has many benefits. One of these is providing habitat for butterfly populations in an agricultural region dominated by a few major crops.

In his book, *The Monarch Butterfly: International Traveler*, Fred Urquhart says, "The milkweed plant controls the distribution of monarch butterfly populations and regulates their density in any given area. And it is the milkweed plant that is primarily

responsible for the amazing long-distance migration. Milkweed plants are considered weeds by many agriculturalists. In some parts of the country indiscriminant spraying of herbicides has destroyed thousands of acres of milkweed along roadways.

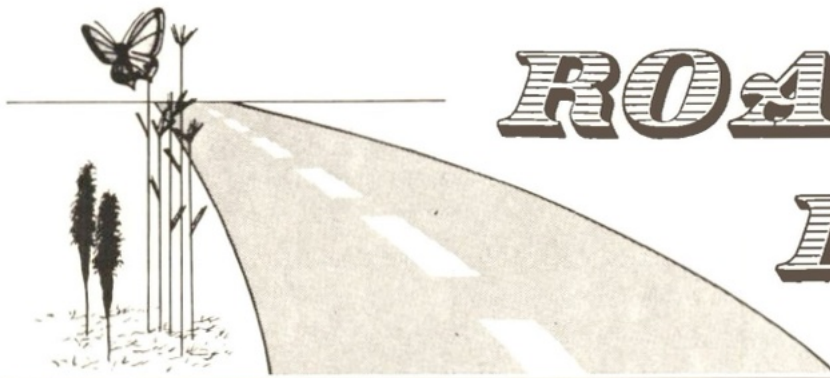
This destruction of milkweed plants in local breeding areas of the monarch butterfly will undoubtedly have a disastrous effect on monarch populations in the near future."

For many of us watching the life stages of the monarch butterfly provided our first lesson in biology. With its bright orange colors it seems to be

begging for attention. The early settlers gave it the name monarch after King William prince of Orange, State holder of Holland and later King of England.

Predators also notice the bright orange insect. Eating milkweed makes this butterfly toxic to birds. Once a bird has thrown up on this meal, it tends not to go back for seconds. Here is sort of an agreement entered into by a bird, an insect and a plant that achieves an inspiring degree of cooperation.





ROADER'S DIGEST

Vol. 2 No. 3 July 1990

Newsletter of the Integrated Roadside Vegetation Management Program at the University of Northern Iowa

Prairie Conference scheduled Aug. 5-9 at UNI

The Twelfth North American Prairie Conference will be held at the University of Northern Iowa, Cedar Falls, August 5-9, 1990. Roadside enthusiasts attending the conference will benefit from the variety of activities, exhibits, and presentations.

The biennial conference was established in 1968 to provide a forum on all aspects of prairie. The establishment of native vegetation in roadsides is a relatively new aspect of prairie embodiment. Roadside managers and enthusiasts will have the opportunity to learn more about the techniques of prairie reconstruction and restoration and their applications to roadsides. Roaders will gain a broader perspective of their role in "Recapturing a Vanishing Heritage," the theme of this year's conference.

Invited speakers, contributed papers, workshops, and symposia will

provide a wealth of information about recognition and establishment of native ecotypes. Roadside managers may also wish to visit exhibits by native seed suppliers to compare quality and prices.

Of paramount interest to anyone involved in roadside management will be the all-day Roadside Prairies Field Trip on Tuesday, August 7. The bus tour will include stops at reconstructed and remnant roadside prairies, demonstrations of management techniques, examples of equipment, and a visit to Minnesota's first Wildflower Route near LeRoy, MN.

Conference Chair Daryl Smith of the University of Northern Iowa asserts that all of the above events, combined with numerous social gatherings, will give participants a "Chance to exchange ideas with people working in similar areas and with similar interests."

Hope to see you there!



Schedule of Events

- | | |
|-------------------|---|
| Sunday, August 5 | <ul style="list-style-type: none">• Registration and check-in, all day• Displays and Exhibits, all day• Social Gathering, evening |
| Monday, August 6 | <ul style="list-style-type: none">• Plenary Session, morning• Contributed papers, afternoon• Iowa's Lost Landscape, 8:00 pm |
| Tuesday, August 7 | <ul style="list-style-type: none">• Field trips, all day |
| Wednesday, Aug. 8 | <ul style="list-style-type: none">• Contributed papers, all day• Banquet, 6:45 - 10:00 pm |
| Thursday, Aug. 9 | <ul style="list-style-type: none">• Contributed papers and Roadside Symposium |

For a more complete schedule or more information contact:
Daryl Smith, Conference Chair
Department of Biology
University of Northern Iowa
Cedar Falls, IA 50614
(319) 273-2238

Minnesota Roadside Wildflower Program



"The chance to find a pasqueflower is a right as inalienable as free speech." Aldo Leopold, 1949

**Guest Editorial
By Bonnie Harper-Lore**

At the same time that a pasqueflower becomes more difficult to find, wildflowers have become more popular. Less than 1% of Minnesota's original prairie vegetation remains. Much of the remainder exists on highway/railroad right-of-way. The timing was right, if not overdue, for preservation and restoration efforts of our roadsides. At a meeting in July 1987, Lieutenant governor Marlene Johnson listened to representatives of the State Departments of Natural Resources (Mn/DNR) and Transportation (Mn/DOT) as they explained the need for preservation and restoration efforts. Within six days she asked the Commissioner of DNR, DOT, and Tourism to attend a second meeting. She called for a public-private sector task force to define roadside wildflower policy in Minnesota. A year later the task force report was presented to Governor Rudy Perpich. By May of 1989, based on that report, it was announced that "Mn/DOT is launching an accelerated program of preserving and establishing native grasses and wildflowers on roadsides."

Weed Alert

Two weeds to watch out for are Leafy Spurge and Purple Loosestrife. Leafy Spurge is spreading rapidly in Iowa and is a threat to native stands of vegetation. The weed is expanding its range in Iowa at a rate of 25% a year, and invades even virgin undisturbed prairie easily.

Purple Loosestrife, an escaped ornamental, invades native wetland vegetation. The species is spreading

Since then, the program has taken a strong stand preserving and planting Minnesota's native vegetation. In our first year, we planted 300 acres and preserved about 100 acres of right-of-way. Public support has been strong; many community organizations and businesses have called to offer help.

We are providing public awareness tools like brochures, posters, state fair display, and workshops. Further public participation is occurring with cooperative planting projects with several cities.

Interagency cooperation has been critical. The Minnesota DNR has helped locate segments to be preserved. They also have helped train Mn/DOT personnel to use burn management of our first corridor designated as a Wildflower Route. We are also cooperating with railroads and the Nature Conservancy in protecting the future of these Wildflower Routes. Cooperation is also crossing state lines to Iowa, Wisconsin, Illinois, and the Dakotas. By sharing experiences in a midwest roadside conference we can avoid duplicating mistakes, and move more quickly to repair our losses and to preserve valuable remnants.

Continued success depends on a network of Mn/DNR, University of Minnesota, Department of Agriculture, Minnesota Beautiful, the Native Plant Society, the Minnesota Landscape Arboretum, the Nature Conservancy,

rapidly in northern Iowa and has been found as far south as Page county.

Both of these weeds may threaten roadside programs. Eradication appears impossible, but once identified in native vegetation, action should be taken immediately to stop their expansion. Contact your county roadside manager or county weed commissioner if you spot either weed in your area.

the Federated Garden Clubs, the Horticulture Society, native seed growers, the National Wildflower Research Center, conservation groups and communities. Success for all states will depend on sharing information, and thereby not reinventing the wheel. Let's keep the

Success for all states will depend on sharing information, and thereby not reinventing the wheel.

native grasses and forb network alive. We want to hear about your successes and failures, too.

For a copy of the Wildflower Task Force report, write:

Mn/DOT Materials and Research Lab
1400 Gervais Avenue
Maplewood, MN 55109
(612) 779-5605

Bonnie Harper-Lore is currently a natural resource specialist/restorationist at the Mn/DOT, and an associate professor at Univ. of Minnesota teaching ecological approaches to landscape design.



IRVM Vol. 2, No. 3
July 1990

Al Ehley,
State Roadside Specialist

Barbara Harvey,
Editor

Roadside Digest is a bimonthly newsletter reporting the activities of and providing information for the Iowa counties implementing the Integrated Roadside Vegetation Management Program.

Roadside Digest is cooperatively funded and supported by the Iowa Department of Transportation Living Roadway Trust Fund, The University of Northern Iowa, and USDA Soil Conservation Service.

For a free subscription and additional information, contact:

Barbara Harvey
1268 McCollum Science Hall
Department of Biology
University of Northern Iowa
Cedar Falls, IA 50614



22 Counties Now Have Roadside Programs

Seven additional Iowa counties have implemented the Integrated Roadside Vegetation Management Program since our last update. We extend a hearty welcome to Clayton, Butler, Johnson, Jasper, Warren, Crawford, and Sac counties. The roadside managers or directors of these new programs are busy establishing priorities and developing long-range plans. Some of their immediate day-to-day activities include contacting landowners in their county to establish rapport, responding to reports of noxious weeds, and some spot spraying and seeding.

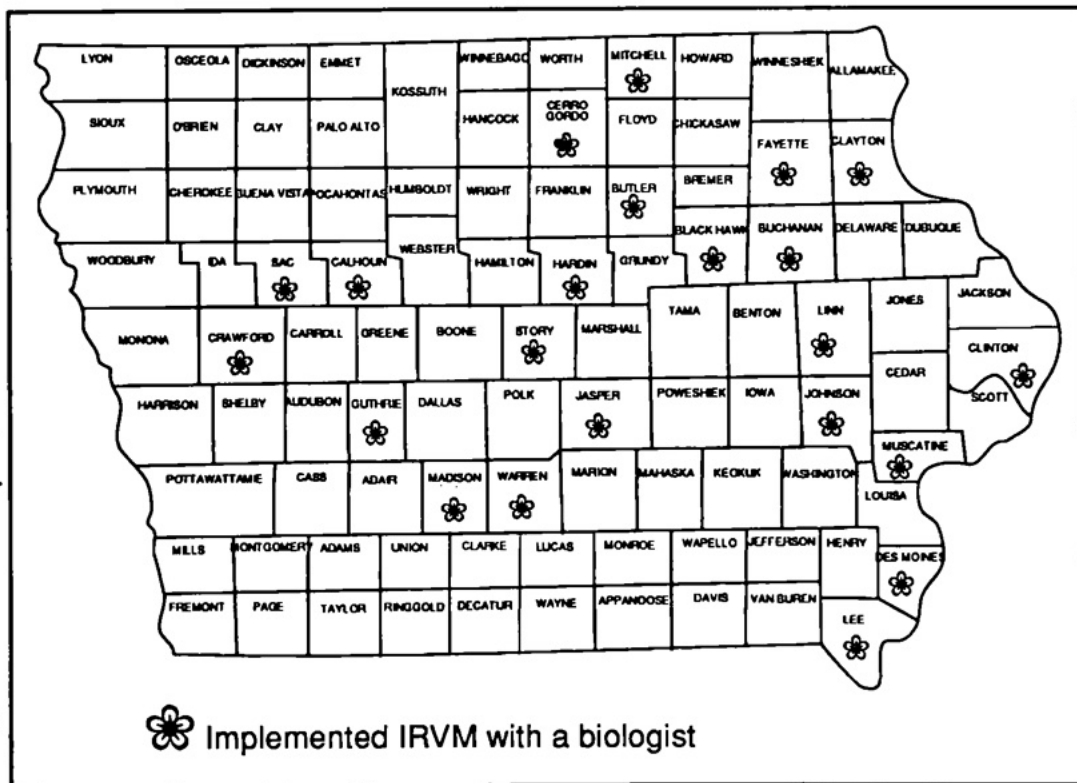
Meanwhile, counties with more established programs are in the midst of summer management practices. June is "spray month," and the main target right now is Canada Thistle. Canada Thistle is typically controlled by spot spraying, something all IRVM counties are involved with to some degree. For example, Jon Steege, roadside manager in Fayette County reports that their county currently has 10 part timers armed with backpack sprayers stalking the prickly weed.

Counties would like to be seeding this time of year, but most locations have had too much rain to complete the job. Cerro Gordo Co. recently purchased an interseeder, says

roadside manager Kurt Baker. They are trying to enhance the quality of right-of-way on paved roads, and add warm season grasses to low production areas. Unfortunately, it's been too wet to use it much! Dave Weber in Story County reports a shift to broadcast seeding because it is too wet to drill. On the other hand, some counties in the southern portion of the state, such as Lee County, were able to take advantage of warm weather early in the season and are now

finished seeding.

Ongoing and long-range roadside projects include working with landowners to combat roadside encroachment and roadside dumping. Also, most managers with well-established programs are looking ahead to seed collection. Of course, with the heavy thunderstorms lately, brush clearing is an ongoing project for all counties!



 Implemented IRVM with a biologist

The Road Warrior

Diversity in the natural environment is important to Mike Webb. Webb, Roadside Biologist for the Guthrie County Conservation Board, emphasizes the need for diversity of native vegetation in county roadsides as a means to increase wildlife and reduce maintenance.

Born in Roland, Iowa, Webb graduated from Iowa State University in 1985 with a degree in Fisheries and Wildlife Biology. After working in wildlife management for the Iowa



Department of Natural Resources, Webb joined the Guthrie County Conservation Board in 1987 as a roadside biologist.

Mike enjoys diversity in his personal activities, too. Hunting and fishing have always been pastimes, and he enjoys spending time outdoors with his wife looking for wildflowers and bird watching.

Mike feels that the Integrated Roadside Vegetation Management Program is valuable in many aspects; as he says, he is proud to be "Restoring a part of history of Iowa ... and giving people a chance to see what plant diversity was originally in Iowa." Good luck, Mike - we're all backing your crusade!

Bargain Books

Key to the Native Perennial Grasses - Midwest Region East of the Great Plains

U.S.D.A. Soil Conservation Service
For a free copy write:
Roadside Management Office
1268 McCollum Science Hall
Biology Department
University of Northern Iowa
Cedar Falls, IA 50614

A Guide to Urban Wildlife Management,
Send \$3.00 in check or money order
and

Wildlife Reserves and Corridors in the Urban Environment: A Guide to Ecological Landscape Planning and Resource Conservation,

\$7.00 in check or money order
Send for both to:

National Institute for Urban Wildlife
10921 Trotting Ridge Way
Columbia, MD 21044

Road Apples

July 20-21, Iowa Operation
Wildflower Workshop. Marshalltown, IA.
For information call: 712-262-1180 or
712-262-3548.

August 5-9, Twelfth North American
Prairie Conference, University of
Northern Iowa, Cedar Falls, IA. For
information contact: Daryl Smith,
Conference Chair 319-273-2238.

September 21, Annual Roadside
Conference, Cedar Falls, IA. For
information contact: Al Ehley, Roadside
Coordinator 319-273-2813.

August 15-26, Iowa State Fair.
There will be a roadside display in the
DNR building. Iowa State Fair
Grounds, Des Moines, IA. For informa-
tion contact: Al Ehley 319-273-2813.

Roaders Digest
1268 McCollum Science Hall
c/o Biology Department
University of Northern Iowa
Cedar Falls, IA 50614

Members of the Roadside Community

Most lowans no doubt have driven leisurely with the windows down on a country road some sunny summer day and heard fragments of the liquid, melodious song of the Western Meadowlark, *Sturnella neglecta*, trickle into the car at even intervals, much like acoustic mile-markers. The squat, yellow-breasted songster is often touted in field guides as a "prairie bird," but Western Meadowlarks are intricately bound to roadsides.

A. C. Bent, in one of his life history monographs, described his first encounter with the species in 1901: "I saw the plump bird perched on a telegraph pole, facing the sun, his yellow breast and black cravat gleaming in the clear prairie sunlight. ...it seems to be the very spirit of the boundless prairie."

But the prairie is no longer boundless, and even Bent's observation nearly a century ago was made from a roadside.

Western Meadowlarks are integral, beneficial members of the roadside community. Their diet consists of

about two-thirds animal matter and one-third seeds. Many of the insects they consume are harmful pests, such as cutworms and alfalfa weevils. The probing and digging with their beaks while searching the soil for larvae and eggs of invertebrates helps aerate the

soil, which, in turn, increases the productivity of the vegetation. In addition to its community role as a predator, the Western Meadowlark serves as prey for other birds and mammals which frequent roadsides.

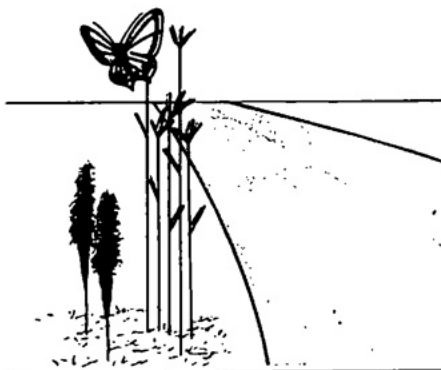
Native vegetation provides excellent nesting material and habitat for Meadowlarks. The nest, built on the ground, typically in a depression, consists of coarse grass and forbs woven into a domed canopy lined with fine, dry grass. A varied vegetational composition provides concealment for the

eggs and nestlings.

Thus, Western Meadowlarks are a link in the continuous biological chain which unites roadside communities. While their spirit may be rooted in the "boundless prairie," certainly their flesh is manifested in the roadside.



Jane Hey
Department of Biology
Morningside College
Sioux City, IA 51106



ROADERS' DIGEST

Vol. 2 No. 4 September 1990

Newsletter of the Integrated Roadside Vegetation Management Program at the University of Northern Iowa

Roadside Conference Scheduled Sept. 21

This year's conference will focus on vegetation establishment and using the appropriate plant material and management techniques for the specific county roadside sites.

The morning session will feature guest speakers and a panel discussion on the use of native prairie grasses and forbs as a primary vegetative cover in rural county roadsides. The guest speakers are: Paul Christiansen, "Seeding Establishment of Native Grasses and Flowers in Roadsides;" Daryl Kothenbuettel, "Purchasing, Handling, Storage and Use of Native Grasses and Flowers in County Roadsides;" Steve Holland, "Iowa Department of Transportation's Integrated Roadside

Vegetation Management Program;" Daryl Smith, "Iowa Ecotypes and the Plant Material Center Roadside Project;" and the panel topic will be "Proper Seed Mixes and Management Techniques in County Roadsides."

Following a buffet lunch, the afternoon will feature an equipment display promoting roadside seeding equipment, roadside spray rigs, fire equipment, mowers, seed combines, and roadside warning signs.

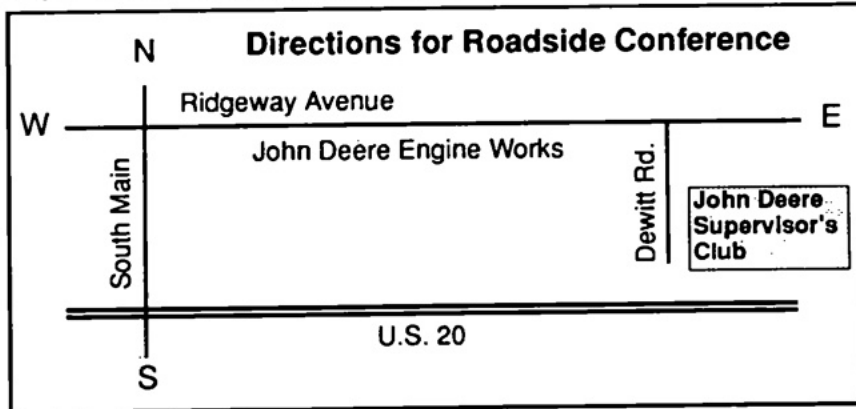


S. speciosa
See page 4

Registration materials will be mailed soon. If you don't receive a brochure and are interested in attending, please send \$25 pre-registration by September 14 to:

University of Northern Iowa
Continuing Education & Special Programs
NON-CREDIT PROGRAMS
Cedar Falls, IA 50614-0223
(on-site registration is \$30)

For more information, call: (319) 273-2813



Prairie Conference Successful, Insightful

The Twelfth North American Prairie Conference, held at the University of Northern Iowa August 5-9, gave roadside enthusiasts an opportunity to share ideas and program plans, gain valuable information about the latest research on prairie vegetation, and meet nearly 500 other people with similar interests from many areas of the United States and Canada.

Approximately 70 people joined the Roadside Prairies Field Trip on Tuesday, August 7. The cruise bus and two vans, staffed with representatives of the IA DOT, IRVM office, and County roadside programs,

carried the participants along 239 miles of state and county roads to observe native seed plantings, native prairie remnants, roadside equipment demonstration, and a stretch of the Minnesota Wildflower Route. The trip was highlighted with a stop at Hayden Prairie in Howard Co., Iowa.

An entire morning symposium at the conference was devoted to roadside programs and research. Attendees learned about state roadside management programs in Iowa, Indiana, and Minnesota; Al Ehley presented a paper about Iowa's county program. Recent research

related to roadsides was also presented at the symposium.

Rob Bouta, former roadside manager for Lee County, IA, presented results of an analysis of roadside vegetation based on their county roadside inventory. His analysis showed that adjacent land use significantly impacts the amount and types of native prairie grasses found in the roadside.

The next North American Prairie Conference will be held in 1992 in Windsor, Ontario, Canada.

Kestrels and Roadside Management



Guest Editorial
By Jim Hansen

Roadside vegetation management, in addition to providing more attractive roadsides and preserving native prairie remnants, can provide habitat for many types of wildlife, both game and nongame. One species that seems to benefit from roadside vegetation management is the American Kestrel, formerly known as the "sparrow hawk."

The roadside vegetation management programs across the state can be helpful to the welfare of the Kestrels because the less mowing and spraying required, the more the Kestrels will succeed.

The American Kestrel is the only species of falcon that currently nests in Iowa.

Kestrels feed on mice and voles, insects, small snakes, small birds, and young ground squirrels. They nested historically in holes in trees made by

woodpeckers, but they adapt readily to manmade structures such as nest boxes, silos, and buildings. Given an adequate food supply and a suitable nesting cavity, Kestrels will usually be able to nest successfully.

A few years ago, Ron Andrews, Furbearer Resource Specialist with the Iowa Department of Natural Resources at Clear Lake, recognized that Interstate-35 served as a natural migration corridor through Iowa and that the roadside vegetation should provide cover for prey species for them. The birds even perched on the interstate signs, but they had no suitable nesting cavities along roadsides. Ron worked with an Eagle Scout candidate and the

Iowa Department of Transportation to erect 20 Kestrel boxes on the backs of signs in Cerro Gordo County. This effort met with instant success as 8 of 20

boxes were used by Kestrels the first year.

The Kestrel nest box program has since expanded to include several cooperators around the state. The I-35 corridor was completed this spring with boxes in every county from Minnesota

to Missouri. The program now involves around 300 Kestrel boxes along road rights-of-way, with around 45 percent use by Kestrels statewide.

The roadside vegetation management programs across the state can be helpful to the welfare of the Kestrels because the less mowing and spraying required, the more the Kestrels will succeed. However, it is unlikely that roadside vegetation management would have a significant positive or negative impact on kestrels by its effect on their food supply. They seem to be quite adaptable and have a varied diet. If controlled burning is to be done, I think that in the vicinity of Kestrel boxes it would be advisable to burn roadsides in alternating strips, rather than a long, continuous stretch, so that some feeding habitat is maintained.

For roadside kestrels it seems that an adequate food supply is generally available and that the "limiting factor" is a shortage of nesting cavities. Through the use of artificial nest boxes to complement food supply, the American Kestrel should become a more common sight along Iowa's roadsides.

Jim Hansen is a Nongame Wildlife Biologist with the Iowa Department of Natural Resources.

IRVM Task Force Expanded

The IRVM task force has been expanded recently. The expansion provides a broader base on which the State Roadside Specialist can rely for guidance and advice. The task force further provides a link between individuals and agencies with roadside concerns and experts in different fields contributing to roadside management.

The task force is composed of representatives from varying private and public interests. The members are Del Jespersen, county engineer; Betty McCarthy, county supervisor; Robert Dayton, conservation agronomist and plant materials specialist; Dorothy Baringer, prairie seed grower; Bob Burchett, county conservation board director; Dr. Daryl Smith, prairie biologist; Dennis Black, House member of the Iowa legislature and county conservation board director; James

Pease, ISU extension service wildlife specialist; Jane Shuttleworth, environmental specialist; Russ Prichard, county roadside manager; and Dr. Paul Christiansen, state roadside advisory committee member and prairie biologist. The diversity of backgrounds of the members will enable the task force to combine their individual skills to effectively generate new ideas, solve problems, and oversee all aspects of integrated roadside vegetation management.

At the recent task force meeting, current projects of IRVM were examined and discussed, including the new IRVM brochure, roadside inventories, maintenance signs, and state fair displays. Future projects considered included next year's calendar, plant I.D. cards, training videos, a roadside manual, and roadside encroachment legislation.



IRVM Vol. 2, No. 4
September
1990

Al Ehley,
State Roadside Specialist
Barbara Harvey,
Editor

Roadside Digest is a bimonthly newsletter reporting the activities of and providing information for the Iowa counties implementing the Integrated Roadside Vegetation Management Program.

Roadside Digest is cooperatively funded and supported by the Iowa Department of Transportation Living Roadway Trust Fund, The University of Northern Iowa, and USDA Soil Conservation Service.

For a free subscription and additional information, contact:

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1268 McCollum Science Hall
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University of Northern Iowa
Cedar Falls, IA 50614

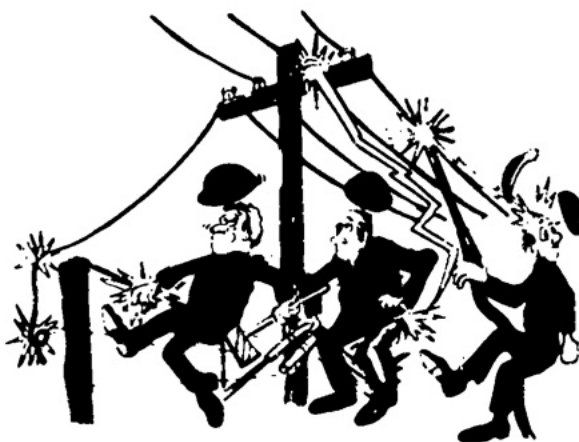


(printed on recycled paper)

Story County Holds Safety Clinic for IRVM staff

Earlier this summer a safety clinic was held for Story County's roadside management employees. The clinic was conducted because IRVM is relatively new, and staff are exposed to hazardous equipment and situations in the course of managing roadside vegetation. Additionally, seasonal employees, who may lack previous training, are hired for summer maintenance.

Included in the safety clinic were slide presentations from local university personnel on farm equipment accidents, tips on avoiding accidents by "thinking before doing," basic first aid procedures, and cautions of potential machinery, fire, and electrical hazards. An important demonstration of reaction times



was given. Examples were given of how long it takes the human brain to react to the speed of a power take-off rotation, or, as Dave Webber, Story Co. roadside manager, puts it, "How long it takes to wrap you up several times."

Following the demonstrations, equipment safety training sessions were held. Seasonal employees were shown the proper operating procedure for the various types of equipment they must operate. Each employee was evaluated on their test operation of tools and equipment for proper techniques, and the

evaluation was recorded on an employee safety sheet.

Safety in our county roadsides should be the first priority of any roadside manager. If other counties have conducted similar programs, we'd like to hear about it.

The Road Warrior

This issue's article should appropriately be titled "Road Warriors," because we are featuring two dedicated roaders this time. Ron Green and Bill Crandall of Clayton County, both science teachers with Central Community Schools, decided to combine their issues-based classroom techniques with an alternate roadside management project to be conducted by high school students.

Six high school students supervised by Green and Crandall will participate in a roadside inventory personnel training workshop. The students developed the idea after learning of a complaint of broadcast spraying in county roadsides. They will help survey roadsides in the county. The completed inventory will

help the county roadside manager assess the roadside conditions in order to further implement the county plan. Green and Crandall will also work with the Clayton County Engineer, and Louie Eberhardt, Roadside Manager, to fine-tune the project. Noted Green, the project "could have an impact on the entire county."

Green, a native of rural Oelwein, has been teaching high school science for nine years. He and his wife Sue have two children, Leslee, 10, and Natalie, 8.

Crandall, originally from Oelwein, lives in Volga with his wife Judi. They have two daughters, Erika, 20, and Gretchen, 16. Crandall is currently the



junior high science teacher at Central Community Schools. He has been teaching 22 years.

Both Green and Crandall are avid outdoorsmen, with particular interest in hunting and fishing, and both are actively involved in local conservation organizations.

Registration Form — Roadside Vegetation Management Conference

Name _____

Address _____
Street/Apartment No. _____

City _____ State _____ Zip _____

Home Telephone No. (____) _____

Office Telephone No. (____) _____

The University of Northern Iowa is an equal opportunity educator and employer with a comprehensive plan for affirmative action.

Registration Fees:

_____ \$25 pre-registration
_____ \$30 on-site registration
\$_____ Total Enclosed

Make check payable to UNI Continuing Education and mail to:

**University of Northern Iowa,
Continuing Education and Special Programs
NON-CREDIT PROGRAMS
Cedar Falls, IA**

This information is being solicited to register you for this conference. All information is confidential and will not be released to third parties. All items are required, therefore incomplete forms cannot be processed.

This conference has been approved for 3 Continuing Education Units for Pesticide Applicator's Certification.

Bargain Books

Using Wild and Wayside Plants,
Nelson Coon

288pp.; order #: 23936-5, \$6.95

One hundred plants, most found on roadsides, are described for the instruction and enjoyment of exploring campers, motorists and city dwellers.

and

Field Guide to the Grasses, Sedges, and Rushes of the Northern United States.

83pp.; order #: 23505-x, \$2.95

Over 370 plants described with 500 illustrations.

Send for both above books to:

Dover Publications, Inc.

31 E. 2nd Street

Mineola, NY 11501

include \$2.50 postage & handling per order (not per book)

Agricultural Pesticides and Wildlife - A Balancing Act.

For a free copy of this booklet, send to:

Iowa Coop. Extension Service

Iowa State University

Agronomy Hall

Ames, IA 50011-1010

Members of the Roadside Community

The goldenrods are perennial, native herbs including over one hundred North American species. Goldenrods highlight fields and roadsides from late summer through fall when their clusters of yellow-gold flower heads blanket the landscape.

The scientific name, *Solidago*, is derived from the Latin *solidare*, meaning "to make whole," referring to the reputed healing powers of the plants. One species, *Solidago missouriensis*, has served as a minor food source to the Hopi of the southwest, who ate the leaves with salt.

Goldenrods have often been accused of being the cause of hayfever, but the real culprit is ragweed, which blooms at the same time. Goldenrod pollen is sticky, and not likely to be airborne in large amounts, therefore, not likely to be inhaled by humans. Goldenrod may actually

benefit some roadside inhabitants, because the seeds are a food source in winter.

Several species of goldenrod are good roadside community members. Gray Goldenrod, *Solidago nemoralis*, for example, is usually associated with disturbance sites such as fence rows, abandoned fields, and open woods. Stiff Goldenrod, *Solidago rigida*, makes good soil erosion control because it is

known to colonize disturbance sites such as pocket gopher mounds. The many native species of goldenrod offer potential uses in roadsides, wildlife habitat areas, and reconstructed prairies.

By the time you read this, they will be in full bloom. Take advantage of their beauty while you can, because as Robert Frost has said, "Nothing gold can stay."



S. canadensis

S. rigida

Road Apples

Current news:

Two pilot vegetation surveys are currently being conducted in Clayton and Union counties (see "Road Warrior" article, this issue). Both are using the new Cover-type Survey

forms Al Ehley designed. We hope to report on their effectiveness soon.

Other news:

Let us know what's going on in your area! Send ideas, articles, news info, etc. to our IRVM office; we're

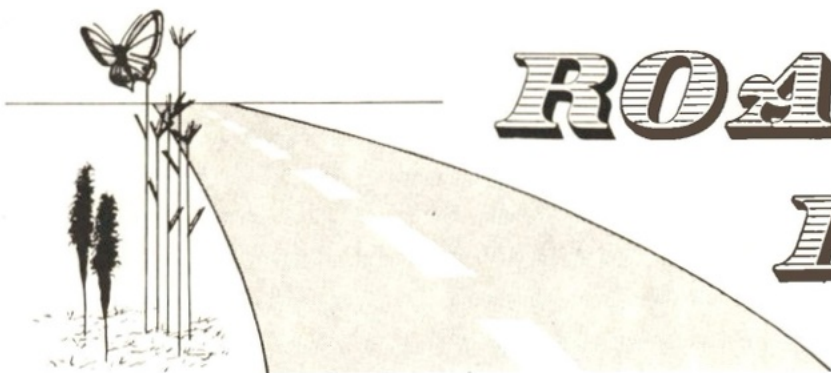
always searching for more roadside information.

WANTED: Allis Chalmers 72 or 80 pull-type combine.

Contact: Doug Sheeley, Hardin County Eng. Office (515) 858-3461

Roader's Digest

1268 McCollum Science Hall
c/o Biology Department
University of Northern Iowa
Cedar Falls, IA 50614



ROADER'S DIGEST

Vol. 2 No. 5 November 1990

Newsletter of the Integrated Roadside Vegetation Management Program at the University of Northern Iowa

Fourth Annual Roadside Conference – A Success

After four annual roadside conferences the number of participants is still increasing. Almost 160 people attended this year's conference. There seems to be a shift in attitude of the participants. No longer do they arrive full of skepticism about a "new-fangled" program for managing roadsides. Instead they come to learn more about a program that, through education and successful adoption by 23 counties, has gained acceptance and is now viewed as the "trend" in roadside management.

This year's program included specialists in fields related to 'the establishment of roadside vegetation.' Dr. Paul Christiansen, Professor of biology at Cornell College in Mount Vernon, Iowa, spoke on seeding establishment of native grasses and flowers. He recommended taking advantage of roadside disturbances caused by ditch cleanout and regrading since such areas provide a good seedbed. As a cover crop he suggested Canada wild rye because it establishes quickly, is vigorous in the first couple years and gives ground as the warm season grasses establish.

Daryl Kothenbeutel, a seed dealer from Muscatine, Iowa, discussed the purchasing, handling and storage of native seed. He said at this time there is not enough native-Iowa seed available. In regard to seed prices he said they reflect the difficulty of planting, harvesting and cleaning the seed. These steps take a lot of time and money making them impractical for counties to do on their own to any great extent. The money spent on good, viable seed will make it worth your while with a significantly higher germination rate.

Steve Holland, coordinator for the Iowa DOT IRVM program, brought us up to date with the progress and goals of that program. Education is currently their main goal and of course maintaining a safe roadway. He said over the



This year's conference featured an outdoor display of equipment used in roadsides.

No longer do they arrive full of skepticism about a "new-fangled" program for managing roadsides.

past five years the state has reduced the use of herbicides by 80% with a spot-spraying program. The state now owns six seed drills and employs three new people in the roadside program. Steve conveyed DOT's cautious approach to roadside burning acknowledging the need for it while keeping safety as the priority.

Dr. Daryl Smith of the biology department at UNI discussed the "native ecotype" project. A project funded in part by the Living Roadway Trust Fund with the goal of providing native grass and wildflower seed in sufficient quantities to state and county roadside programs. This would help protect the genetic purity of existing prairie plants and retain their disease resistance. Native grasses, evolving under

Iowa's climatic extremes, will do the best in Iowa's roadsides. The project is a cooperative effort involving the USDA Soil Conservation Service, USDA Plant Materials Center in Elsberry, Missouri, the University of Northern Iowa and the Integrated Roadside Vegetation Management Program. Seeds are being collected throughout Iowa, channeled through the office at UNI and shipped to the Plant Materials Center in Missouri. The PMC will propagate, evaluate and produce native foundation seed. This seed will be provided to growers at no cost.

The project calls for the collection of three kinds of native seed for 1990: *Elymus canadensis*, *Lespedeza capitata* and

Bouteloua curtipendula. Harvested seed should be allowed to dry a few days and be sent to this office labeled with county and date of collection.

The conference included a question and answer session in which a panel of roadside biologists and the above-mentioned speakers responded

to questions from the audience. The conference concluded with an outdoor display of all kinds of equipment used in roadsides.

UNI/SCS County IRVM Program: From Vision to Model



Guest Editorial

By Daryl Smith, Ph.D.

The year was 1988 and Bill Haywood of the Black Hawk County Conservation Board had a vision. He wanted to somehow move the successful Integrated Roadside Vegetation Management (IRVM) programs of Black Hawk, Story, and Mitchell counties to other counties throughout the state. Interest had been growing for some time and he had received numerous requests to speak to promote IRVM. However, he saw the need to provide a statewide basis for future integrated roadside vegetation management activities. To provide a structure for this statewide program he recruited Daryl Smith of the Biology Department of the University of Northern Iowa (UNI) and Bob Dayton of the U.S. Department of Agriculture Soil Conservation Service (USDA-SCS). He felt that the educational and technical experience of the two organizations would be invaluable to the program. The University of Northern Iowa Biology Department had a long history of involvement with preservation and management of natural areas and for a decade or more had been intensely involved in prairie preservation, restoration, reconstruction and management. Since the IRVM program was predicated upon enhancement and management of native vegetation, especially prairie plants, UNI was a logical choice. In addition, UNI had a number of people who could serve as excellent resources for the program. The

USDA-SCS was also a logical choice because of their emphasis on water quality and mission to control soil erosion. They also have extensive experience working with landowners in promoting soil conservation practices. UNI was selected as the site for the program office and SCS provided one of their employees as a state roadside coordinator. Initially the UNI/SCS IRVM pilot program was funded by the 1986 Groundwater Legislation through the Iowa Department of Natural Resources (DNR) in a grant to the Black Hawk County Conservation Board. Subsequent funding has been provided to UNI by the Iowa legislature through the Living Roadway Trust Fund. When Al Ehley began working as State Roadside Coordinator in November, 1988, six counties were using IRVM programs. Al's eight years of experience as a Soil Conservationist were excellent preparation for the position. He was able to provide strong support and guidance for the program without dictating policy. He worked with counties to assist them in instituting IRVM programs and then coordinated expertise and support on a statewide basis to assist the counties in maintaining and enhancing their local programs. The long standing relationship of SCS personnel with counties was a valuable asset in implementing IRVM programs throughout the state. After one year of operation of the IRVM office, the original six counties with IRVM programs had been expanded to a total of 11 counties. At the end of the second year of operation the total number of counties with IRVM programs stands at 23.

The selection of UNI as a site for the IRVM office has had many benefits beyond the natural resource management expertise. Continuing Education has coordinated the increasingly popular annual Roadside Conferences. The Office of Public Relations

and Graphics Services have provided professional expertise in the production of a wide variety of educational and promotional materials ranging from newsletters to pamphlets to posters. The university community provides a large pool of capable students for part-time employment with the program. Both the students and IRVM benefit from this relationship.

Integrated Roadside Vegetation Management was an idea whose time was right. The culmination of Bill Haywood's vision of a statewide program for counties provided the impetus to make it happen. Not only has the UNI/SCS IRVM Program assisted 23 counties with their roadside programs, but it has stimulated interest in roadside management throughout the state. As a result of this interest, the Iowa legislature funded an Iowa Department of Transportation IRVM Program for the state's primary highways and established a Living Roadway Trust Fund (LRTF) to provide funding for roadside projects. Several midwestern states have established Department of Transportation roadside programs for their primary highways, but Iowa is unique with a county IRVM program on a statewide basis and the Living Roadway Trust Fund. With IRVM programs for both primary and secondary roads and LRTF components the state has assumed a leadership position in the Midwest. Consequently, the UNI/SCS IRVM Program has been proposed as a model for other states.

Dr. Daryl Smith is a professor of biology at the University of Northern Iowa.

An IRVM Technical Manual

The County Integrated Roadside Vegetation Management (IRVM) office assists county governments in developing vegetation management practices for secondary roadsides. Our office serves county roadside managers by providing technical references, printed brochures, and personal recommendations. Our affiliation with the USDA's Soil Conservation Service and the University of Northern Iowa gives us access to information sources generally unavailable to field managers. In this capacity we can inform roadside managers of past and present research in topics of erosion control, vegetation establishment and maintenance, weed and brush eradication and other areas of management. We have begun a program to summarize

publications and reports from several academic and professional disciplines for distribution to roadside managers throughout Iowa. We will be indexing reference summaries according to major topics, headings, sections, subsections, etc. and will update these categories periodically as more researched information becomes available. Eventually, we will introduce these categories with advisory articles written by the IRVM staff. These articles will detail standard operational procedures that have proven to be successful in county programs. Our ultimate goal is to produce a Technical Reference Manual for Integrated Roadside Vegetation Management.



IRVM Vol. 2, No. 5
November 1990

Al Ehley,
State Roadside Specialist

Kirk Henderson,
Editor

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University of Northern Iowa
Cedar Falls, IA 50614



(printed on recycled paper)

Leafy Spurge is Scourge of Prairies

Guest Editorial

By Dianne Blankenship

Leafy Spurge is an extremely annoying, persistent, aggressive, noxious weed that is increasingly becoming a problem in Iowa. Because it so rapidly spreads, early identification of it in an area, whether it be a prairie, a woodland, or a disturbed area, can help to lead to its control. Roadside managers should be especially alert to recognizing this plant and making appropriate plans for a roadside that is already infested or that is threatened from adjacent property.

First of all, I have become so interested in Leafy Spurge because of my work at Sioux City Prairie. I have become increasingly upset as it has gone unchecked at Stone State Park and has taken over progressively larger areas within Sioux City and especially in Plymouth County to our north. With the drought of previous years, it did especially well, and acres and acres were literally yellow in the spring of 1990. I've kept it in check at Sioux City prairie, but where there is no management for it, it advances so quickly, increasing its area by as much as 25% each year. It has no respect for native, undisturbed habitat, but spreads even more rapidly with disturbance, and since all roadsides are areas of disturbance, beware. It is very evident along roads at Stone State Park where grading has been done. At the North American Prairie Conference I was told it has been seen in every county in Iowa. Rangelands have been hit particularly hard. (It is toxic to cattle.) But also "preserved" native prairies, when the plant has been ignored, have been entirely lost. Leafy Spurge seems to be a special threat to the loose soils found in the loess hills of western



Iowa. But it seems to grow anywhere, including all types of soils and the full range of wet to dry habitats.

Leafy Spurge is a deep-rooted perennial which reproduces by seeds which are propelled up to fifteen feet from the plant, and by roots that reportedly extend as far as fifteen feet into the ground and readily advance vegetatively up to four feet per year. It is stimulated by fire and disturbance, and control can be reached only through the use of certain herbicides or experimental biological methods that have not yet been approved in Iowa. Though biological control is relatively new, research should be watched closely, and efforts should be made to get Iowa approved for USDA APHIS (Animal and Plant Health Inspection Service) approved programs using biological controls which at this point use insects. The only choice in Iowa now is chemicals, and the weed is very stubborn even with strong chemicals. Tordon (Picloram) seems to be the most successful chemical on Leafy Spurge, particularly during fall regrowth time (mid-September) but also during flower development time in June.

To recognize Leafy Spurge, watch for a bluish-green, narrow-leaved plant that grows on upright stems that grow from 6 to 36 inches in height, but usually about 12 inches tall. The flower is not showy but the yellowish-green bracts are very conspicuous in late May and early June.

Please contact your local weed commissioner for more information; subscribe to the free newsletter, Leafy Spurge News, edited by Russell J. Lorenz, Agricultural Experiment Station, North Dakota State University, Fargo, ND 58105; attend a Leafy Spurge Annual Meeting; and encourage the Iowa office of the USDA to accept that we have a problem with Leafy Spurge in Iowa and would like to be approved for the releases of biological controls if we choose to use them.

Dianne Blankenship is a teacher in Sioux City, and a member of the Iowa Prairie Network.

The Road Warrior

"I was born when I was five years old in a log cabin that I built myself..." recalls Jon Steege whose favorite words are "that reminds me of a story" and was obviously ready with one when I called to do this article. In spite of that I managed to learn he is married, has a daughter in high school, a son at Upper Iowa and has lived on the same farm for most of his life. He still works the 160 acres himself though more as a hobby since becoming the Roadside Vegetative Manager for Fayette County two years ago.

The respect for the land inherent in the farming practices he learned from his father and his six years as a Soil District Commissioner made it easy for Jon to recognize the importance of IRVM's goals. Jon especially emphasizes the "integrated" and "management" aspects in his program by implementing all phases of vegetation management. To Jon, vegetation management means timeliness of operations. He is happy to be working with his Conservation Board where he has enough help to get jobs done when the time is right. This applies to burning exactly when he can knock back the brome and encourage the prairie species the most, seeding only under optimum soil conditions and paying much attention to



soil preparation and cultipacking for maximum seed germination.

Fayette County was the first program to have a 'written' roadside management plan. Perhaps it was the ten years Jon spent working with 'water quality planning' that taught him the importance of a good plan when taking on a large project. Fayette County's plan is still used as a model for other counties considering IRVM.

At the same time planning is not Jon's favorite part of IRVM. He prefers to be outside working in Fayette County's 1135 miles of ditches. He shares the work in the roadsides with his assistants Joe Schrage and Paul Frana. Joe does most of the weed control (thistle and multi flora rose spraying) as deputy weed commissioner. Paul is the brush crew foreman and also handles most of the Truax drill seeding. Jon oversees the roadside burning. Earlier

this year he put on his "chrome-plated" backpack sprayer and conducted a demonstration burn with Iowa DOT as part of an effort to teach them the integrated approach to roadside management. Jon claims his backpack sprayers are "only stainless steel," alluding to the ribbing he takes from other roadside managers over having such a well-funded program.

Having always been interested in preserving and managing woodlands, Jon appreciates the "tons of trees" he's been able to plant while working with the County Conservation Board and Pheasants Forever. He serves on the State Council for Pheasants Forever and enjoys hunting. His interest in wildlife led him to consider being a game warden "except that they don't have time to fish or hunt." He says if he had it to do over again he might attend the U. of Montana to become a wildlife biologist now that there are more careers available in that field.

In closing Jon says it never did bother him to get up and talk to a group of people. In fact while at UNI he considered majoring in speech. Only when unprepared did he ever "fall flat on his face." With as many stories as Jon knows it is difficult to imagine him falling flat on his face. But that probably reminds him of a story.

Bargain Books

Directory to Resources on Wildflower Propagation

This book is provided free by the National Council of State Garden Clubs and contains propagation information on prairie and woodland species as well as several pages of references including thirty studies by highway departments relevant to roadsides.

Send \$3.00 for shipping and handling to:
National Council of State Garden Clubs
4401 Magnolia Ave.
St. Louis, MO 63110

Missouri Wildflowers Has almost 300 color photographs and some useful taxonomic information. Send \$8.50 to:
Missouri Department of Conservation
Fiscal Section
PO Box 180
Jefferson City, MO 65102

Road Apples

The response to the call for *Lespedeza capitata*, *Elymus canadensis* and *Bouteloua curtipendula* seeds has been fair. We need more. So keep them rolling in. Include location and date collected.

We are pleased to announce the addition of Scott Zager to the IRVM staff here at UNI. Scott is a graduate student who will be putting together information for a Roadside biologist's technical manual.

The video recording Scott made of the Roadside Conference turned out well and is available for loan.

We would like to thank Barbara Harvey for working with us over the summer. We wish her the best.

Announcing the formation of "The Iowa Prairie Network," an organization for preserving Iowa's prairies. For more information contact Pauline Drobney, 319-266-7369.

Roaders Digest
1268 McCollum Science Hall
c/o Biology Department
University of Northern Iowa
Cedar Falls, IA 50614

Members of the Roadside Community

Indian Summer... Indian Corn...
Indiangrass....

There must be something about the word "Indian" and creating warm autumn images. *Sorghastrum nutans*, on the other hand, does nothing to enhance seasonal ambiance. That is unless you enjoy egghead word games while carving your Jack-O-Lantern. In which case you should know *Sorghastrum* comes from Greek meaning generally "a poor imitation of sorghum" and *nutans* from Latin for "nodding". This is according to Runkel and Roosa in "Wildflowers of the Tallgrass Prairie."

No source could be found to explain how the name Indiangrass came about. In the absence of facts, one is free to imagine the mind of the fearful settler who looked out across the landscape and saw a grass as tall as a person and wearing its seedhead like a golden feather. Perhaps to them "Indian" grass seemed an appropriate name for this native species.

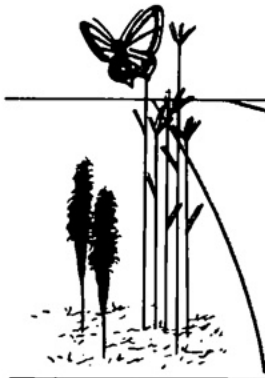
Indiangrass is a perennial, warm-season grass that is

easily established from seed. It makes up about 20% of most seeding mixes used in county roadsides. Ranchers appreciate Indiangrass as nutritious forage or dry hay. Roadside biologists appreciate its ability to stabilize the soil in ditches with its long mop of roots. And they are happy to plant something of such high value to wildlife. For nesting

and protective cover, Indiangrass is excellent. Its seed is eaten by numerous songbirds and small mammals. The foliage and stems are used by a variety of mammals.

Indiangrass prefers a mesic moisture regime as does Big Bluestem and it grows just about as tall. Prior to the emergence of the seedhead the two grasses are easily confused. The following characteristics should enable one to tell the two apart. Indiangrass is a lighter shade of green, grows slightly more erect, has leaves growing at a 45 degree angle from the stem and most importantly has that "claw-like" ligule where the leafblade attaches to the sheath.





ROADER'S DIGEST

Vol. 3 No. 1 January 1991

Newsletter of the IRVM County Roadside Assistance Office at the University of Northern Iowa

Thomas Jefferson: Roadside Manager?



At a White House dinner and reception honoring Nobel prize laureates, John F. Kennedy said, "I think this is the most extraordinary collection of talent, of human knowledge, that has ever been gathered together at the White House, with the possible exception of when Thomas Jefferson dined alone." This reference to the wide range of Jefferson's talents came to mind while considering the variety of roles demanded of our county roadside managers.

The typically humble roadside manager might laugh at such a comparison. On the other hand there is plenty of justification considering all their responsibilities. Having a farm background and a good knowledge of prairie plants is extremely helpful, since establishing native vegetation in roadsides to control weeds and prevent erosion is the basic premise of the program. But the job involves so much more.

In some counties the roadside manager is called a roadside biologist. This refers to the need for understanding the organisms living in the roadsides and their relationships with each other. The manager must choose the right plants; a combination of grasses (cool season and warm) and forbes while considering soil and moisture conditions, wildlife encouragement and traffic safety. This all works best if operations are attuned to the proper season which brings up the need for planning. Managing roadsides works best when there is a solid, well-thought-out plan, both annual and long range, to follow.

Most counties still use some herbicides. The amounts are greatly reduced. The emphasis, therefore, is on efficient application. This requires knowledge of plant physiology and chemistry.

Much of the work in roadsides involves machinery. This calls for operating and maintaining equipment as well as some creative engineering due to the unique topography of roadsides.

Already the list of a roadside manager's talents includes farmer, botanist, biologist, chemist, machine operator, mechanic and engineer. While all of these skills are important, none are more important than the ability to work with people. The roadside manager's day is full of contacts with all sorts of people from assistants, co-workers and immediate supervisors to county supervisors and the public they represent.

Landowner contacts is another important aspect of managing roadsides. The success of a roadside program relies

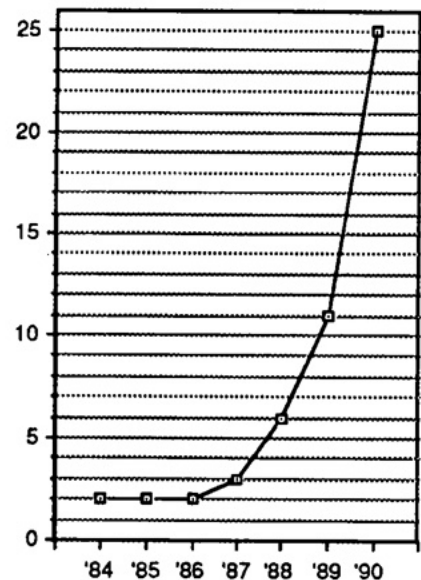
heavily on gaining the cooperation of landowners. This comes in the form of help with operations such as roadside burning and preventing roadside disturbances by promoting good farming practices. These efforts can be enhanced by establishing good relationships with a variety of agencies: federal and state soil conservation, Extension service, Iowa Farm Bureau and Pheasants Forever.

Even though the roadside program has been around for a while now there is much need for education. Roadside managers have many opportunities to speak for the program. Taking advantage of these times to talk about the goals and practices greatly ensures a receptive public.

So, to the list of talents can be added organizing, delegating, promoting, educating and public relations. All of these communications skills are to the program's great advantage. How this list of talents stacks up against those of Thomas Jefferson one can only guess. At the very least it is an impressive list and shows there are some very accomplished individuals at work in the roadsides.

IRVM Growth Chart

Number
of Counties
with IRVM
Programs



The number of counties with IRVM programs has increased dramatically since the establishment of the IRVM office at UNI in 1988 and the initiation of the Living Roadway Trust Fund in 1989.

Roadside Visions from 1972



Guest Editorial

By Roger Q. Landers, Ph.D.

People see the roadside from very different eyes. To some the roadside is an extension of their lawn, thus it is kept in the neat trim of closely mowed bluegrass.

To others the roadside is an extension of their fields, and it is closely mowed to emphasize the care and attention that has gone into the growth of the crop.

Or the roadside may be viewed as an extension of the road itself providing clearer views for the driver, often without regard for

every section of road, but at least within the range of normal driving. All these possibilities have a valid purpose—what are the problems of management with each one?

A neatly trimmed lawn appearance this past year would have required weekly mowings during the growing season. Few of us can afford that. We do well to mow twice or so on most of the roadides to keep the view clear of tall grasses and weeds. Because Iowa has such a good climate for the growth of plants, the short lawn grasses cannot hold their own against the natural occurrence of taller species. Mowing works against the climate to produce a short grass vegetation that is naturally found far to the west where the climate supports the short grasses best. Close mowing of tall plants in Iowa can be detrimental because a scabbed-off slope will show next season an

abundance of weeds.

The natural species for Iowa are tall prairie grasses and flowers or trees. We can manage the roadside with minimum effort if these conditions are understood. Weeds thrive in

openings created by disturbances, plowing, close mowing, excessive spraying, ruts from heavy equipment, animal digging, overgrazing, etc. Because the prairie species and the selections of standard roadside species are perennial, they come back each spring from the old root system, and most of the time unless disturbances occur can control the growth of weeds which must start up each year from seeds.

Once a vigorous natural roadside is established it needs no mowing, spraying or replanting except for spot attention where disturbances have allowed the entrance of weeds. The real problem comes in convincing people that what they are seeing is desirable, saving them maintenance costs, reducing the spread of weeds,

to seed and mulch a lawn mixture back in front of these houses. Doing this turned a somewhat negative situation into a positive, acceptable solution. The people greatly appreciated this, and some even pitched in and helped me.

This situation told me that native prairie grass is not the answer in all roadside situations. Doing this gave me a chance to work with the landowners and explain to them some of the aspects of the roadside program. They seemed to look at roadside management with a more positive outlook.

providing more area for wildlife without cost to the landowners, and providing a variety of interesting shapes and colors of plants along the roadside.

Because of the many different views of the roadside it seems unrealistic to depend on one general treatment — blanket spraying — to manage it. There should be areas mowed, spot spraying where specific weeds have gotten out of control and areas left completely untouched except for safety mowings.

It is our proposal to reduce county blanket spraying of roadides, to promote spot spraying only those noxious weeds required by law, to educate people on the recognition of valuable, harmless and harmful roadside species, and to set up areas as a demonstration of the newer techniques of roadside management.

1. Following ditch work, areas should be seeded to proven mixtures of species and protected from erosion.

2. Roadides have variable soil conditions and one plant species cannot possibly cover all conditions.

3. Roadides already in plant cover should be managed according to a classification procedure whereby most areas are left unmowed and unsprayed, disturbances are kept to a minimum and spot treatments of problem species are cared for on the spot rather than with a blanket spraying.

Dr. Landers is a Rangeland Specialist with the Texas A&M Research and Extension Center. This article was written in 1972.

The real problem comes in convincing people that what they are seeing is desirable, saving them maintenance costs, reducing the spread of weeds, providing more area for wildlife without cost to the landowners, and providing a variety of interesting shapes and colors of plants along the roadside.

the health of the plants that grow there, looking upon them more as a nuisance than as a valuable cover.

Or the roadside may appear in sharp contrast to the intensive cultivation and the bare road surface as a bit of nature, with trees growing in from the adjacent forest, prairie grasses from the old railroad right-of-way which preserved remnants of the original expanse of Iowa prairie grasses such as the hairy grama and 2 1/2' little bluestem or the prairie rose, or specially selected species to quickly cover slopes and roadcuts and fill, here hairy vetch and rye, sudan grass, smooth brome, the tall vegetation providing a haven for pheasants.

It would be nice to have all these possibilities, to please everybody, not on

Field Notes

**Chris Bass
Roadside Manager
Muscatine County**

This summer a seven-mile road construction project started in Muscatine County. The road is in the process of being straightened and is to be paved next year. The first two miles were seeded this fall before weather and timing forced me to wait until next spring. There are numerous houses along this road, and in the process of road construction many of these people's yards were destroyed. I decided



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Al Ehley,
State Roadside Specialist
Kirk Henderson,
Editor

Roadside Digest is a bimonthly newsletter reporting the activities of and providing information for the Iowa counties implementing the Integrated Roadside Vegetation Management Program.

Roadside Digest is cooperatively funded and supported by the Iowa Department of Transportation Living Roadway Trust Fund, The University of Northern Iowa, and USDA Soil Conservation Service.

For a free subscription and additional information, contact:

Kirk Henderson
1268 McCollum Science Hall
Department of Biology
University of Northern Iowa
Cedar Falls, IA 50614



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Surface Coverings and Mulches

By Scott Zager

The first installment of the proposed IRVM Technical Manual has been distributed to roadside managers for comment. Its primary focus is on surface coverings (mulches) for erosion control and includes technical data on treatment rates of application, effectiveness at sediment reduction, and costs of implementation. While the costs for temporary erosion control appear high, the probability for successful seeding establishment will be greatly increased. This and future sections are designed to give roadside managers an accurate assessment on techniques available for roadside management. The advantage of county-level IRVM programs is that roadside managers are not only making policy decisions in the office, they are implementing those decisions in roadsides. If ever there is a situation where they can cut costs without compromising quality, they will find it. It is our mission at the UNI office to provide county roadside managers with the best information possible.

We believe that it is a calculated risk every time a roadside manager sows seeds. However, there are many things a manager can do to increase the likelihood of success. These include hiring knowledgeable staff, using the right equipment, and planting quality seed at the proper rate. Temporary erosion control is one of the most important steps in establishing vegetation by seed. Unfortunately, it is too often neglected because of the added costs of materials and manpower. Before deciding against erosion control, a prudent manager should consider the costs of redoing the job, the effect of failure on an IRVM program's credibility, and the possibility of leaving a road

vulnerable to erosion for a year or more. Research studies have demonstrated that controlling erosion and pollution at the source by using slope coverings is more cost effective than trapping eroded material later with filter fabric fences or sediment ponds. Controlling sediments at the source also

While the costs for temporary erosion control appear high, the probability for successful seeding establishment will be greatly increased.

saves the costs of restoring eroded slopes. It has been shown that mulching and interrupting surface flow significantly reduces sedimentation. This increases the probability and quality of grass establishment. Others have found that mulch increased forb establishment in nearly all species tested and mulched plots increased flowering length and effective display of *Coreopsis*. In general, mulching has the following advantages: (1) it absorbs and dissipates energy released by falling rain; (2) reduces runoff water velocity; (3) moderates weather conditions including soil temperature while increasing moisture retention; (4) secures soil and materials in place; and (5) promotes sod development through decomposing mulch. In addition, geotextile nets are designed to secure slopes from mass erosion by adding cohesive strength.

The Road Warrior

Searching historical records for accounts of the early days of IRVM one comes upon the name Milt Owen. Milt is listed with the pioneers whose contributions cleared the way for today's roadside biologists. Milt left his home in Maquoketa back in "76" and brought his family to live in Osage when he was hired as Director of the Mitchell County Conservation Board. Milt and his wife raised a daughter, now married, and two sons, still on the homestead.

Equipped with a B.S. in Wildlife Biology from the University of Montana, Milt inherited a program spending \$45,000.00 a year (about half the CCB's budget) on herbicide for broadcast spraying. In 1978 growing dissatisfaction with this type of program on the part of the public and the Board of Supervisors led to the appointment of Milt Owen as the Weed Commissioner and a proposal to eliminate contract spraying. Mitchell County reduced herbicide use to spot-spraying and only in response to complaints—usually of Canada thistle. This took place before anyone had even heard of IRVM. Over the past four years the county has had no weed complaints



and hence has done no spraying.

Another trail-blazing effort ensued when Milt heard about Daryl Kothenbeutel's use of warm-season grasses for wildlife plantings in Muscatine Co. In 1978 Mitchell Co. started a plot of Cave-in-Rock switchgrass in conjunction with SCS as a conservation plantings seed source. Milt started using the seed for roadsides as well. At that time it was for wildlife rather than weed-control, not yet realizing all the advantages of warm-season natives.

Milt shares roadside responsibilities with Assistant Weed Commissioner Larry Lacour and Jim Doidge, the County Naturalist who has been working on an

inventory of roadside vegetation.

The team has selected one township rich in native vegetation for a pilot project involving landowners. The objective is to "get landowners doing some of the management for us by giving them some of the knowledge to work from." A letter was sent to all residents of the township encouraging them to hold off on fall burning and inviting them to a conference introducing IRVM. A burn clinic will be held in the spring.

In his work with Mitchell County, Milt derives the most satisfaction acquiring land and

"seeing those areas take shape as wildlife habitat." Much of Milt's interest in wildlife came from his father who "had a real feel for the outdoors and instilled it in all the kids." Their eastern Iowa farm had streams and a lot of land left to habitat. This allowed for much fishing, trapping and hunting. Pheasants Forever also provides an outlet for his interest in wildlife. Milt joined the first Iowa chapter in 1983 and helped get the Iowa Council of Pheasants Forever established at the state level. It was through the efforts of people like Milt Owen, that IRVM was brought into the 20th century.

Bargain Books

Nebraska Weed Book

Our copy has not yet arrived. We hear it is real nice, contains large pictures and is a lot of book for the money.

Send \$15.00 to:

Nebraska Dept. of Agriculture
Bureau of Plant Industry
301 Centennial Mall South
PO Box 94756
Lincoln, NE 68509

Wildflowers and Weeds: A Field Guide in Full Color

By Courtenay and Zimmerman.

This one comes from Wisconsin.

Between this book, the Nebraska Weed Book and the Missouri Wildflowers book referred to last issue, one should have a reference to check no matter what part of Iowa you are in. This book can be ordered through most book stores.

Road Apples

The 1991 Edition of the Roadside Calendar has arrived and is available upon request.

International Erosion Control Association: Conference and Trade Exposition "erosion control: a global perspective," will be held in Orlando, Florida February 20-22, 1991. For more information contact: Ben Northcutt IECA PO Box 4904, 1485 S. Lincoln Steamboat Springs, CO 80477.

The search has begun for information relating to, "The impact of roadside vegetation on drifting snow." Any tips leading to the capture of some good data will be greatly appreciated.

Roader's Digest

1268 McCollum Science Hall
c/o Biology Department
University of Northern Iowa
Cedar Falls, IA 50614

Members of the Roadside Community



Badger

Far under the misty grasslands old
Where soils are deep and tunnels hold
In earthen cells a critter dwells
Taxidea taxus the badger bold

This ancient member of the weasel clan
With grizzled fur and a stocky stand
Has razor claws on wide front paws
And makes dirt fly like a hurricane

Alone at night he ambles out
Through fence rows and roadsides to sniff
and scout
A badger treat is ground squirrel meat
A carnivorous feeder have no doubt

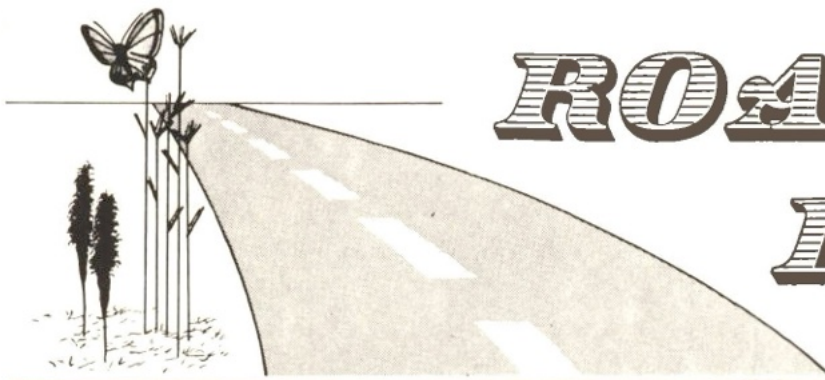
In weather fair he moves each day
Abandoning burrows where rodents will stay
Alas, Alack, He will be back
To collect the rent from his hapless prey

For eagle or coyote the fight is fierce
Loose hide, thick fur are hard to pierce
Cornered he's bound to stand his ground
If not for man enemies are scarce

Breeding season late summer brings
Up to five hairless young are born in spring
A solitary critter she rears the litter
And by the fall the young take wing

The badger is trapped for his thick fur
Or shot for digging where not preferred
So many there are that die by car
Too bad the rest can't be preserved

Losing livestock to their holes is very rare
Some roadbed damage we'll gladly bear
This animal's role as part of the whole
Makes persecution extremely unfair



ROADER'S DIGEST

Vol. 3 No. 2 March 1991

Newsletter of the IRVM County Roadside Assistance Office at the University of Northern Iowa

Fire: A Necessary Tool for Managing Roadsides

There was a time when managing roadsides involved two things- broadcast spraying with harmful chemicals and mowing along the shoulder. This approach perpetuated a yearly cycle that drained a county's resources while gaining no ground on controlling roadside weeds. These practices are finally giving way to the "integrated" approach to roadside vegetation management. The word "integrated" implies a heightened level of sophistication, a complex system incorporating a variety of methods. These methods include managing roadsides as a resource with a wider range of goals in mind. Wildlife habitat and scenic beauty and preventing soil erosion have been added to the old goal of weed eradication.

A key to meeting these goals is the use of native vegetation, planting the grasses and forbes that made up Iowa's vast prairies. And it follows that a program promoting the use of this native vegetation would encourage the use of fire as a part of its integrated management approach. After all, prairie plants developed for thousands of years in the presence of periodic fires and receive many benefits from burning. These benefits include: 1. Stimulating the growth of natives already in the roadsides 2. Removal of thatch 3. Fast recycling of nutrients 4. Warming of the soil 5. Pushing back woody invaders. These unique benefits derived from the use of fire make roadside-burning an important tool for roadside managers.

As prairie biologist Daryl Smith put it in an article for the "Iowa Prairie Blazingstar," "Recently, interest in the use of fire as a management tool has accelerated because other management tools such as chemicals or mechanical removal are either environmentally unacceptable, not effective or too expensive. Use of fire as a management tool for natural ecosystems must capitalize on the beneficial nature of fire to the ecosystem and take into account the potential hazards of fire. Therefore, prescribed burning, as it is called, is conducted under specified conditions with proper timing to meet both of these objectives."

A prescribed burn conducted in the roadside by trained personnel lacks the excitement of a true prairie fire. The road



A crew conducts a prescribed burn in a Black Hawk County roadside. The 250-gallon tank mounted on the pickup truck provides 125 p.s.i. of water pressure.

and plowed fields provide natural firebreaks on each side and water available from a pressurized hose and water tank following along in a pickup truck make roadside burns easy to control. Still the flames consume the old vegetation with intense efficiency making fire a useful force when properly harnessed.

The last issue of the "Iowa Prairie Blazingstar" contained a wealth of information on the role of fire on Iowa's prairies and the use of fire in managing natural areas. Editor Pauline Drobney still has some copies available. To obtain a copy of this sixteen page publication write to this office at the address on the next page. Donations to "Iowa Prairie Blazingstar" are still being accepted to defray publication costs.

Because the ideal time for burning roadsides is quite short, we recommend enlisting the help of landowners to increase the number of burn crews. Landowner participation and education can be enhanced by conducting burn clinics. They can also learn that prescribed burning involves more than just dropping a match. With trained neighbors helping neighbors more effective burning will be accomplished each year.

Diary of a Roadside Birder...

Fireline

Guest Editorial
By Martha Camp

June 23, 1990:

BZZZZZZ!!...Groggily I shut off my alarm, rolled out of bed, and began to dress for another day in the roadside ditches. I gradually became aware of the all-too-familiar sound of rain outside my window. Great, wet feet again today!! I drove to pick up my field assistant, Doug Drynan, and we set off toward the roadsides we were to work on. The drizzle ceased as we neared the study area, so I dropped Doug off to census one roadside and adjacent rowcrop field, while I censused another nearby.

Later in the morning, censusing done, we searched for nests by walking side-by-side about a yard apart, parting the grass with long sticks. After an hour, we were rewarded, as a hen pheasant flushed, leaving behind a nest of 15 eggs. We recorded the condition and position of the nest so we could monitor it, and moved on. A little while later, we found a red-winged blackbird nest with two eggs, the male bird dive-bombing us from above. Three hours later, we had found no other nests, but two in one day wasn't so bad.

Our final task of the day was to measure the height, density and

composition of the vegetation in the roadsides. That was soon done—Doug and I were an efficient team—and we headed home, ready for a shower and some DRY clothes.

From the first of May to the fourth of August, Doug Drynan and I conducted a study of bird's use of roadsides adjacent to rowcrop fields. The research, which will become the basis of my master's thesis, is one in a series of studies that Dr. Louis Best, professor in the Department of Animal Ecology at Iowa State University, has done on birds' use of strip cover habitats in Iowa. We worked on eighteen roadsides in Story and Boone counties. Ten roadsides were composed of mainly native prairie grasses and a few forbs, eight roadsides were almost entirely smooth brome. Five prairie grass and four smooth brome roadsides were burned in the spring by the Story County Conservation Board. We found thirty-one species of birds in roadsides compared to only twenty-four in adjacent fields. The most common birds seen on roadsides were: red-winged blackbirds, brown-headed cowbirds, vesper sparrows, american robins, western meadowlarks, gray partridge, dickcissels, savannah sparrows, song sparrows and eastern kingbirds. The relative abundance of birds on roadsides was about forty-five times greater than that in the fields.

Some birds (western meadowlarks, dickcissels, american goldfinches, eastern kingbirds, horned larks and killdeers) preferred burned roadsides, while others (ring-necked pheasants, gray-partridge,

and savannah sparrows) preferred unburned ones. There were no noticeable preferences exhibited by any species for native prairie grasses or smooth brome roadsides, which may be due to the fact that the roadsides studied, like many roadsides in Iowa, do not yet contain mature stands of native prairie grasses.

Eight species built a total of seventy-six nests on the studied roadsides: red-winged blackbirds (38 nests), gray partridge (17 nests), ring-necked pheasants (7), vesper sparrows (6), dickcissels (3), song sparrows (2), western meadowlarks (2), and common yellowthroat (1).

The data collected as a result of this first year of research indicate that roadsides may be a valuable and unique resource for some grassland birds, whose habitat has been greatly diminished as more and more of Iowa's land is converted to rowcrop farming. To augment the present data, I will be doing the same research in the summer of 1991 in Hardin County, Iowa—hopefully with a little less rain!

Martha Camp is a graduate student in the Department of Animal Ecology at Iowa State University.

Field Notes

Rob Roman
Roadside Manager
Linn County

When I first became involved with the IRVM program in Linn County in April of last year, I was immediately excited about the opportunity to try some really unique things in roadsides. Our County Engineer mentioned native plant demonstration sites that he had visited in other states. County Route W-36 runs north to south in western Linn County between the communities of Center Point and Palo. New grading and straightening of a two mile section of the roadway began last fall. Part of the construction is adjacent to and bisects a portion of the Pleasant Creek State Recreation Area. I hoped this site could be developed into an educational tool to promote awareness of IRVM in Linn County and Iowa's prairie heritage. The ranger at Pleasant Creek suggested seeding the entire area between the old road and the new road grade. This would provide a native vegetation display area for the new information center to be built in 1991. DNR will provide labor and

equipment for controlled burns, visitor access, visitor education, etc. There is also the possibility of interpretive trails and using the area as a seed source for future roadside seedings. The road department received a grant through the Living Roadway Trust Fund (L.R.T.F.) for a 'cost share' on the purchase of a native grass drill. The Linn County Conservation Director supported the project and will allow us to use department equipment to prepare the seedbed. We will be borrowing a cultipacker from a member of a local Pheasants Forever chapter.

The demonstration project will total 40 acres. About three acres will be in the right-of-way and the rest adjacent to it. Seven varieties of native grasses and thirty-seven varieties of Iowa ecotype prairie wildflowers will be seeded. L.R.T.F. monies will purchase the seeds. The long term benefits inherent in this project are overwhelming. It's really nice when government agencies can work together on a project and develop a model area for generations to come!



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Al Ehley,
State Roadside Specialist
Kirk Henderson,
Editor

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All programs and services are offered on a non-discriminatory basis without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

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Cedar Falls, IA 50614

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County Engineers Respond to Ditch-Cleaning Survey

By Scott Zager and Al Ehley

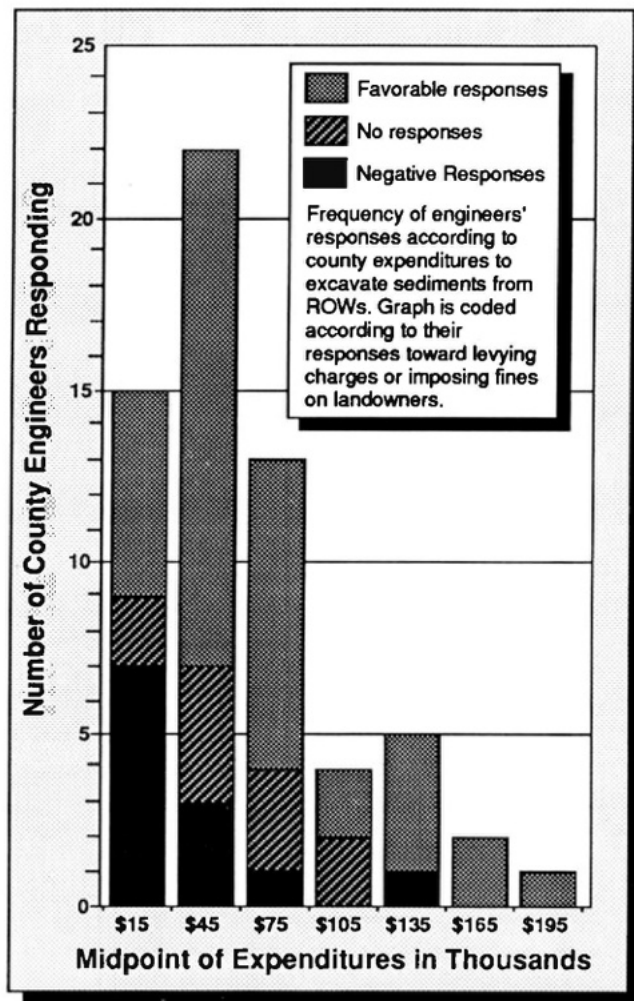
In a 1988 study by George Butler Associates, 89% of the responding Iowa county engineers said they were experiencing problems of poor drainage in their ditches and culverts — 21% said it was a large problem. Since poor roadside drainage can generally be attributed to adjacent cropland erosion depositing sediments into right-of-ways (ROWs), we believed that budgeted expenditures by county secondary road departments would provide an actual cost assessment to damages created by erosion. Therefore, we surveyed Iowa county engineers to determine how much their county spends annually to excavate sediments from ROWs. We also asked whether they would consider imposing a fine or levying a fee on those landowners who continued to allow their soils to erode into adjacent ditches.

Of the 99 engineers queried by mail, we received 63 responses. The total annual expenditures cited by the respondents was \$3.6 million, from which, we project statewide expenditures for secondary road departments exceed \$5.8 million annually. Individual county expenditures averaged \$58,540 with some counties spending as little as \$3,000 to as much as \$200,000 annually. Nearly 25% of the respondents spent less than \$30,000, but 13% spent over \$120,000. The Iowa Department of Transportation (IaDOT) spent nearly \$1.7 million in maintaining drainage along state roads in 1987. Our results combined with IaDOT figures are comparable to a study by Rosenberry et al. (1987), who estimated statewide expenditures to be \$8 million annually with an additional \$20.2 million needing to be spent each year.

A majority of the engineers (63%) surveyed would consider assessing excavation costs or levying a fine to landowners who continue to allow eroded sediments to be deposited into ROWs. Generally, counties who spend more than \$60,000 annually favor charging the landowner. Counties with favorable responses account for over 71% of the total state-wide expenditures. Only 19% of the engineers would not consider charging landowners. The majority of these counties spend less than \$30,000 annually. All of the negative respondents combined, spent less than 13% of the total state-wide expenditure. There were 11 county engineers (18%) which felt they could not provide a yes or no answer — yet 5 of them commented favorably on the proposal or requested further information to make a decision. Many engineers commented that such a policy would be difficult to administer and would receive a large negative response.

Sedimentation in roadsides costs Iowa taxpayers an estimated \$28 million a year for ditch re-excavation. Each county responds differently to roadside sedimentation depending on budget priorities and available funds; therefore these expenditures may not reflect that county's true concern for erosion. Evaluating the total amount of damages created by erosion is difficult because many costs are hidden or take years to manifest themselves.

Roadside ditches are designed with a specific water flow capacity depending on local topography. Sediments filling ditches immediately affect drainage because they are not designed with excess storage capacity. Sediments plug drainage tile in roadsides further degrading overall roadside conditions. As water flow is impeded, standing water occurs further reducing storage capacity and saturating slope bases. Saturated soils accelerate road deterioration by weakening the substructure of the road base, ultimately endangering the road surface. Eroded sediments in road ditches reduce field tile efficiency, causing flooded fields and reduced crop production. When drainage capacity is severely impacted, the likelihood of flooding across road surfaces increases during heavy rains. Finally, sedimentation is a major contributor to weed problems. Eroded sediments and standing water choke out desirable plants, creating a favorable situation for weed establishment. Much of the cost for replanting and weed control can be



attributed to erosion — even at levels which do not immediately impact ditch drainage.

We at the County Roadside Assistance Office are not advocating charging landowners for excavation as a means to recover lost revenues. Instead, we see it as a means to prevent roadside sedimentation by encouraging landowners to implement soil conservation on their property. We believe that county roadside managers working with individual landowners and the USDA Soil Conservation Service, can offer county engineers a cost-effective alternative to continual roadside excavation. Roadside managers can inventory county roadsides to identify problem areas. They can make initial contacts with landowners on behalf of the county. Then with the aid of the SCS, a soil conservation plan can be written and implemented which meets the needs of all concerned. If the landowner does not wish to cooperate, counties may respond in several ways. They may decide to do nothing, refusing to excavate the ditch until the landowner agrees to be part of the solution. They may proceed to clean out the ditch and assess the landowner for the service or they may levy a fine as mandated by the county board of supervisors. In any scenario, roadside managers can be there to initiate solutions before problems get too costly.

We might add further that over 90% of the county engineers with roadside managers employed in their county responded favorably to the proposal. This suggests that there is a role for roadside managers in assisting soil conservation officers and rural landowners in controlling erosion that impacts county roadsides.

Road Apples

1991 Roadside Weed Management Video Conference. March 11, 1991. Contact your County Extension Office for more information.

Annual Weed Commissioner's Conference. March 14, 1991 in Des Moines.

Webster County is looking for a Resource Coordinator who's job will be to plan and manage the I.R.V.M. program. Send resume to:

Webster County Conservation Board
R.R. #2 Kennedy Park
Fort Dodge, IA 50501
515-576-3230

"Prairie Reconstruction," A seminar by Pauline Drobney.

Saturday, April 6, 1991. 9:00 am to noon and 1:00 to 5:00 pm. Room 2532 McCollum Science Hall UNI campus. Registration fee: \$35.00.

"Learn to Speak the Language of the Prairie," seminar with Pauline Drobney. Four 1-1/2 hour sessions. May 7, 9, 14, and 16. 6:30 pm Room 2241 McCollum Science Hall UNI campus. Registration fee: \$22.00.

Registration for both seminars is through UNI Continuing Education and Special Programs, Cedar Falls, IA 50614-0223. 319-273-6855.

This office would like to thank everyone for the time and effort put into collecting seeds for the Iowa Ecotype Project. We sent a van full of seeds (160 individual collections) to the Missouri Plant Materials Center.

Roadster's Digest
1268 McCollum Science Hall
c/o Biology Department
University of Northern Iowa
Cedar Falls, IA 50614

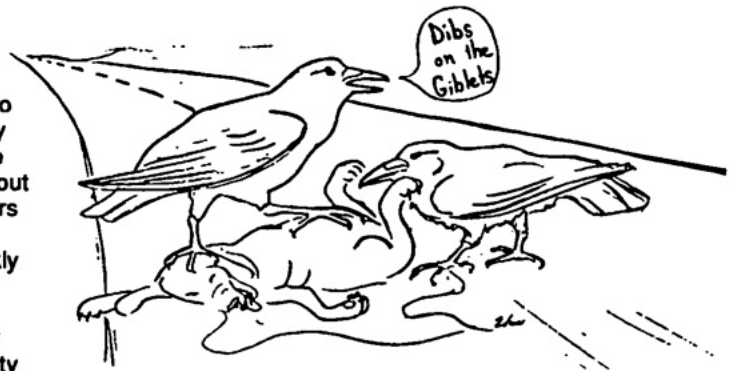
Members of the Roadside Community

A common site along Iowa roads is that of the common crow. Crows come to our attention as they tear away at a piece of roadkill, flapping out of the way of our cars only at the last second. They quickly settle back to their feast, showing very little concern for our presence. This pretty much sums up our relationship with these birds. They get around us. And they do it very well.

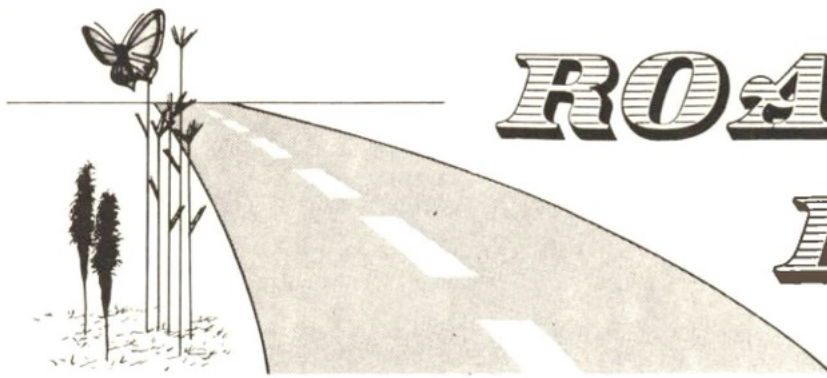
Creating the impression that we afford them such an easy life (we extend their foraging habitat with each new mile of road we build), combined with their habits of preying on the eggs and young of both game-birds and song-birds alike, pulling up corn sprouts and driving off predators with raucous mobbing behavior has generated a lot of hostility towards these fabled, black creatures.

It is a measure of the crow's success that this hostility persists today. Henry Ward Beecher said, "If men were birds, few would be clever enough to be a crow." The Des Moines Register fears no reprisal running a story in which hunters discuss crows with contempt and use technology to trick them into shotgun range just to find out if they taste as bad as people say. Crows are killed for the fun of it when there is nothing else to shoot.

Author Tony Angell ends his book, "Ravens, Crows, Magpies and Jays," with this tribute to the crow family. To some, they are the apotheosis of avian form and a spirit worthy of the highest artistic tribute. Others consider them as



competitors, more to be destroyed than admired. It's hard to imagine that anyone professing sensitivity would not recognize these birds as a most remarkable consolidation of highly evolved animal social systems, physical apparatus, skills and beauty. They also demonstrate directly that often elusive capacity to sustain healthy populations within the carrying capacities of their chosen environments. To some degree, perhaps greater than most of us would admit, we find this intelligent family of birds most attractive because they are not too unlike ourselves. Their foibles are our own. They squabble within their families and wage battles with those clans that would impinge upon their home ground. Their lives involve a struggle for identity in their social hierarchy and survival in the biologic community of their choosing. Like us, they seem to have fleeting moments of joy when the mate is won, the game is played, the belly is full, and the sun shines on our backs. There is also that intriguing element about corvids that is of the unknown. These birds are more than descriptions by weight, measure, color, and distribution, for behind their amber eyes are answers to questions we may never learn to ask.



ROADER'S DIGEST

Vol. 3 No. 3 May 1991

Newsletter of the IRVM County Roadside Assistance Office at the University of Northern Iowa

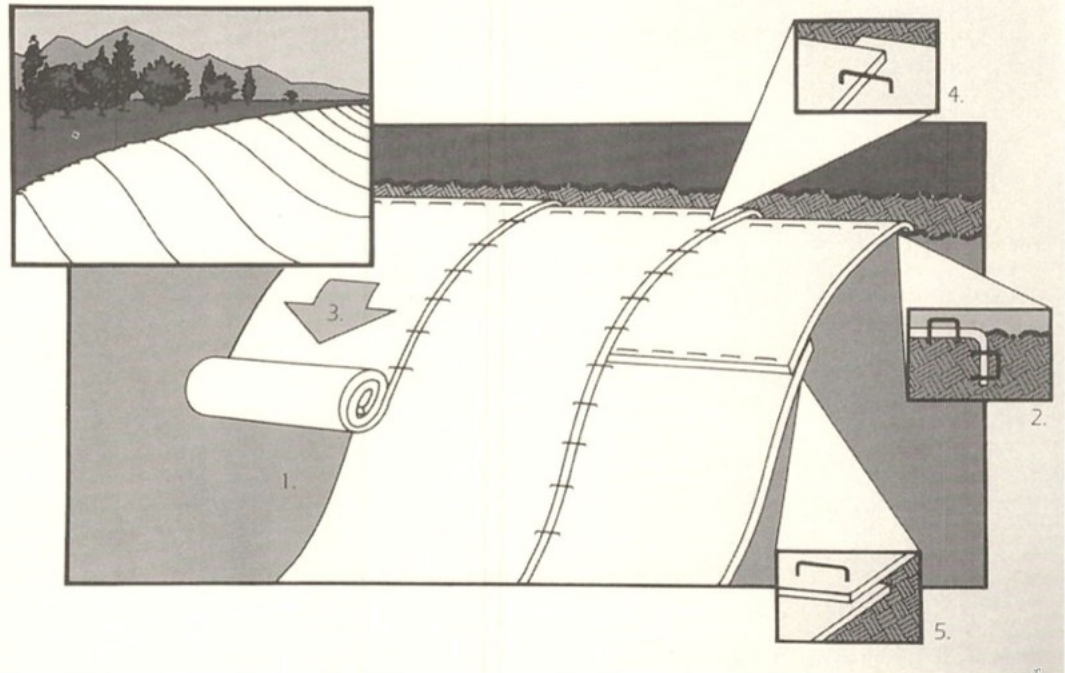
Mild-Mannered Clark Road Turns into 'SuperProject'

By Scott Zager

The UNI County Roadside Assistance Office (CRAO) has been encouraging county roadside managers to incorporate surface coverings or mulches in the vegetation establishment process. Recent studies have shown such coverings can reduce sedimentation losses by up to 98%. In addition, mulch coverings provide safe sites where seedlings can establish and grow.

In the spring of 1987 Black Hawk County upgraded Clark Road into a modern secondary road. Following construction, the right-of-way was planted with native flowers and grasses. When the project was evaluated late fall 1990 it was found that the prairie vegetation was well established in ditch bottoms but slopes were inadequately protected. Several slopes were bare and rill erosion had developed in critical portions of the roadside which receive extensive runoff. Vegetation alone was inadequate to protect the ditch bottom in one segment of the roadside and a gully had begun cutting into the foreslope.

Recently CRAO received funds from the Living Roadway Trust to establish a roadside demonstration site on a segment of Clark Road bordering Black Hawk and Buchanan Counties. The primary objective of this project is to demonstrate various vegetation establishment techniques with surface coverings to county engineers, roadside managers and other public officials. The demonstration will involve hydraulic seeding with mulch and tackifiers, the use of ground straw with non-asphalt tackifier, and erosion control blankets. The project will be conducted in cycles where one technique will follow another. These will be repeated each day as the project develops. There will be no formal presentation time, but company representatives will be available at the job-site to discuss the application and limitations of their products. Individuals visiting the project are reminded that the demonstration will be an



Erosion control blankets will be used to stabilize soil on Clark Road during a project slated for this summer.

actual construction zone and they should be safety conscious. The site will be on a rural surfaced county road, some 8 miles from the nearest facilities.

The project will become a display area for the Integrated Roadside Vegetation Management philosophy featuring two IRVM principles: 1) the use of native vegetation in low maintenance situations and 2) segmenting roadsides according to vegetation requirements. This project will be an ideal opportunity to examine erosion control as part of the vegetation establishment process. We also will evaluate mulches for weed suppression. In addition, it also will display native grasses and flowers as an effective vegetation cover for enhancing roadsides.

Implementation of the project has received numerous delays this spring because of unusual weather. We have tentatively scheduled the project for June 11 and 12, 1991. Those interested in attending during these dates are requested to contact our office so we can contact you with any last minute changes.

Mid-Succession Prairie Plants for Roadsides



By Paul Christlansen

The flora of the tall-grass prairie contains a wide variety of strategies which are exploited in producing a vegetation. Relatively few annuals or biennials, some short-lived perennials, and large numbers of long-lived perennials are the major constituents of the flora. Some species are adapted to dry sites, others to mesic and still others to wetter habitats. Some have a narrow tolerance range, others are wider. Taken together, there are species combinations to fit a wide variety of ecological situations.

For prairie roadsides a particular suite of plant characteristics are desirable. Although roadways present a variety of ecological conditions, the constant through all of them

is disturbance. Roadside ditches are subject to a variety of disturbances ranging from spraying and mowing to excavation. A flora which can withstand these and other insults must be opportunistic, yet have sufficient longevity to provide adequate cover. These species are those which dominate in mid-succession, that is after the flush of early-succession annuals and biennials have been displaced but before the long-lived permanent species have taken over.

In addition to being opportunistic, prairie roadsides will be more satisfactory if the plants are attractive, providing a colorful floral display throughout the growing season.

I have selected a number of prairie species which fit the above criteria. These selections are based upon observations of species occupying disturbed sites such as mima mounds and roadside ditches, species which did well in established trials from seeds (Christiansen 1967), and observations of prairie plants over a 25 year period (see table 1).

In the grass family both Side-oats grama (*Bouteloua curtipendula*) and Canada


wildrye (*Elymus canadensis*) establish readily and come back quickly after disturbance. They can provide the necessary stability when new seedlings are becoming established. Indiangrass (*Sorghastrum nutans*) is a good invader which often leads the way as prairie invades an adjacent area. Switchgrass (*Panicum virgatum*) is often used as a component of roadside seed mixtures and warm-season pastures because of its ability to become established quickly. Tall dropseed (*Sporobolus asper*) is a vigorous colonizer in sandy soils. Big and little bluestem (*Andropogon gerardi* and *A. scoparius*) do not establish as rapidly nor are they as invasive as the above species but should be regarded as important members of the roadside community.

Among the composites Asters and Goldenrods often are dominant in mid-succession sites. Heath aster (*Aster ericoides*) is especially invasive. Canada goldenrod (*Solidago canadensis*), Rigid goldenrod (*S. rigida*) and some of the Sunflowers are also good examples of disturbed-site species. Showy sunflower (*Helianthus laetiflorus*) and Big-tooth sunflower (*Helianthus grosseserratus*) are

Continued on page 3

Table 1. Prairie species useful in roadside vegetation

Species	Bloom date/Color	Height	Habitat
Grasses:			
Big bluestem	Late summer	6 feet	Mesic
Little bluestem	Late summer	3 feet	Dry-mesic/dry
Tall dropseed	Late summer	3 feet	Dry/dry-mesic
Side-oats grama	Late summer	2 feet	Dry-mesic/dry
Indiangrass	Late summer	5 feet	Mesic
Switchgrass	Late summer	4 feet	Wet mesic/mesic
Canada wildrye	Mid-summer	3 feet	Mesic
Composites:			
Heath aster	Fall/White	2-3 feet	Dry-mesic
False boneset	Fall/Cream	2 feet	Dry
Yellow coneflower	Summer/Yellow	3 feet	Mesic
Daisy fleabane	Early summer/White	2 feet	Mesic
Canada goldenrod	Late summer/Yellow	3 feet	Mesic
Rigid goldenrod	Late summer/Yellow	4 feet	Mesic
Wild lettuce	Summer/Yellow	4 feet	Mesic
Oxeye	Summer/Yellow	4 feet	Mesic
Showy sunflower	Late summer/Yellow	5 feet	Dry-mesic
Big-tooth sunflower	Late summer/Yellow	6 feet	Wet-mesic
Black-eyed Susan	Summer/Yellow	2 feet	Mesic
Legumes:			
Tall bushclover	Late summer/Green	3 feet	Dry-mesic/dry
Milkvetch	Summer/White	3 feet	Mesic/wet-mesic
Wild pea	Early summer/Pink	2 feet	Mesic/ wet-mesic
Tick trefoil	Summer/Pink	3 feet	Mesic
Purple prairie clover	Summer/Purple	2 feet	Dry-mesic
White prairie clover	Summer/White	2 feet	Mesic
Partridge pea	Late summer/Yellow	2 feet	Dry/dry-mesic
Other Families:			
Golden alexanders	Spring/Yellow	2 feet	Wet-mesic
Canada anemone	Spring/White	1 foot	wet-mesic
Northern bedstraw	Early summer/White	2 feet	Mesic
Four-o' clock	Early summer/Blue/Pink	2 feet	Mesic
Hoary groundcherry	Summer/Yellow	2 feet	Mesic
Butterfly milkweed	Summer/Orange	3 feet	Mesic/dry-mesic
Common milkweed	Summer/Pink	3 feet	Mesic
Whorled milkweed	Summer/White	2 feet	Mesic
Windflower	Early summer/White	2 feet	Mesic



IRVM Vol. 3, No. 3
May 1991

AI Ehley
State Roadside Specialist
Kirk Henderson
Editor


Roadside Digest is a bimonthly newsletter reporting the activities of and providing information for the Iowa counties implementing the Integrated Roadside Vegetation Management Program.

Roadside Digest is cooperatively funded and supported by the Iowa Department of Transportation Living Roadway Trust Fund, The University of Northern Iowa, and USDA Soil Conservation Service.


All programs and services are offered on a non-discriminatory basis without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

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Plants . . .

Continued from page 2

both clonal and invasive. Early-season composites are Daisy fleabane (*Erigeron annuus*) and wild lettuce (*Lactuca canadensis*). In June Oxeye (*Heliopsis helianthoides*) makes a showy floral display, it is a vigorous competitor, and it establishes easily from seed. Black-eyed Susan (*Rudbeckia hirta*) and yellow coneflower (*Ratibida pinnata*) can also hold their own in disturbance. False boneset (*Kuhnia eupatorioides*), common on drier prairie, is often one of the first invaders into roadsides.

The legumes can also furnish vigorous species for roadsides. Milkvetch (*Astragalus canadensis*) can be quite vigorous in roadside conditions. Wild pea (*Lathyrus venosus*), another species which increases with disturbance, is a good candidate for use in roadsides. Tick trefoil (*Desmodium canadense*) is often observed on railroad rights-of-way and roadsides taking advantage of disturbance. In the fall, an annual, Partridge pea (*Cassia fasciculata*) produces bright yellow flowers. It is especially effective in sandy soils. Tall bushclover (*Lespedeza capitata*) also favors droughty and sandy soils.

Among the other families in the prairie flora are a number of candidates for mid-succession situations. Four-o'clock (*Mirabilis hirsuta*) has been known as an invader after disturbance. Northern bedstraw (*Galium boreale*) often persists on roadsides in spite of disturbance. Hoary groundcherry (*Physalis heterophylla*) is another vigorous invader. Several milkweeds do well in the face of disturbance. Common milkweed (*Asclepias syriaca*) and Butterfly milkweed (*A. tuberosa*) as well as Whorled milkweed (*A. verticillata*) hold their own in disturbance. Horsemint (*Monarda fistulosa*) is often found established in roadsides and waste places.

Several spring-blooming species are also adapted to roadsides. Golden alexanders (*Zizia aurea*) persists in roadsides in spite of disturbance as does Canada anemone (*Anemone cylindrica*) which establishes and persists in disturbed situations.

Experience with establishment of prairie species on roadsides plus additional research to discover favorable seeding methods, seed handling techniques and other characteristics related to establishment will refine and expand the above list. Roadside biologists will have an increasingly reliable and desirable species list to satisfy ecological and aesthetic requirements.

References

Christiansen, P. 1967. Establishment of prairie species in Iowa by seeding and transplanting. Unpublished Ph.D thesis, Iowa State University, Ames, IA.

Paul Christiansen is an Instructor in the Department of Biology, Cornell College, Mount Vernon, Iowa.

Road Warrior



With a shovel handle for a microphone and golden oldies from the radio filling the air, the back of a pickup truck easily becomes the stage for Russ Prichard, all-night D.J. and Roadside Manager of Black Hawk County. Russ became Roadside Manager in 1988, taking over one of the oldest roadside programs in the state. That is not to say the way was paved smooth for Russ Prichard. Working so near the Roadside Office at UNI and picking up where the legendary team of Bill Heywood and Scott Zager left off, Russ was thrust into the spotlight from the start. While others might have caved in under such pressure, Russ seems unphased. As the owner of a record collection which includes 93% of the POP-hit singles spanning 25 years, Russ possibly harbors a yearning for the spotlight anyway. The selection is strictly pre-Beatles as Russ remains loyal to his old favorites. Suddenly it all makes sense, the Wolfman Jack Goatee, the soft crooning voice and the smoothly flowing writing style.

Russ appreciates things that endure. Married for 27 years, he and Sandy moved to Black Hawk County when he was hired as Park Officer at Hickory Hills in 1976. Prior to that he worked for Clayton County Conservation Board and Illinois EPA. Russ grew up in Belle Plaine and attended Iowa State University where he earned a B.S. in Fish and Wildlife. He has two sons now in their twenties.

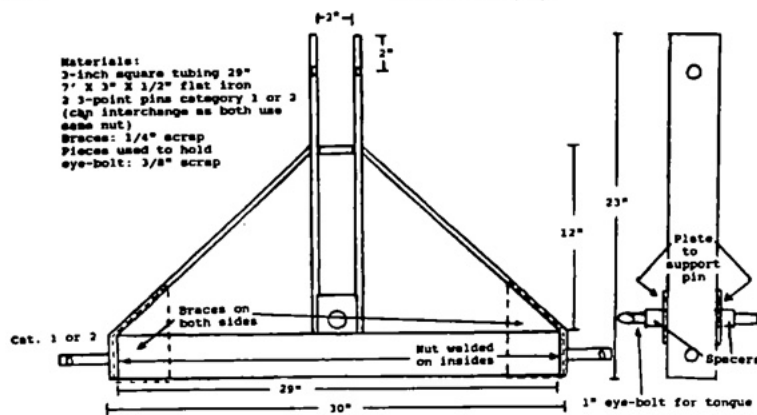
When asked about his burn program, Russ says, "The best way to bring back prairie, if you want to do it right, let Mother Nature do it and help her all you can." For Black Hawk County this means getting out and burning as much as possible when the time is right.

When it comes to spraying thistles, Russ likes to hit them three times, once in the spring to prevent flowering, again in midsummer to catch the ones that did not show up earlier and then the decisive blow in the fall when the herbicide will be translocated to the roots with the nutrients being stored for winter.

Black Hawk County has some nursery areas planted years ago for harvesting grass seed (an advantage of working with an established program) and an old combine to do it with. Russ also gets some forbes harvested locally with the help of some retired people in the Green Thumb Project.

The Black Hawk County Roadside Program is in the process of moving to the County Engineer's Office. This was necessitated by budget constraints within the Conservation Board. Russ expects this will enhance communication with engineers and hopes it will increase involvement into brush control activities such as cutting, chipping and treating stumps to the best advantage.

When asked what he likes best about managing roadsides Russ says, "I like to see something naturally strong like a prairie community in place of something weak like a community dominated by bromegrass, managing something that runs parallel to nature instead of perpendicular." Are native grasses the "golden oldies" of Roadsides? They are certainly the plants that will stand the test of time and that makes Russ Prichard happy.



Field Notes

A product of the Guthrie County Roadside Program's commitment to Research and Development is this adaptor for attaching pull-type equipment to a 3-point hitch. The drawing was submitted by Mike Webb.

The tongue of the implement is attached to the eye bolt (which is allowed to turn). Chains are run from implement sides to the sides and top of adaptor to give the lift and prevent the implement from twisting sideways.

Road Apples

Applications for Living Roadway Trust Funds should be in by June 1.

Iowa Prairie Conference at UNI July 26-27.

Wildflower Workshop August 2, Glenwood, IA.

Fifth Annual Roadside Vegetation Conference September 26 & 27. John Deere Supervisor's Club, Waterloo.

The Black Hawk Soil and Water Conservation District Commissioners have voted to make the district a pilot for introducing roadside management into their soil conservation plans.

Bargain Books

Fire in North American Tall Grass Prairies- Recommended to all students of grasslands and of fire ecology. Collins, S.L. and L. Wallace, eds. 175p. \$14.95.

University of Oklahoma Press
1005 Asp Ave
Norman, OK 73019-0445

Grasslands- The newsletter of the California Native Grass Association. A quarterly publication that comes with a \$35.00 membership in the California Native Grass Association.

PO Box 566
Dixon, CA 95620

Seed World Magazine- A monthly publication featuring many articles and advertisements on seeds and related products. With a subscription comes the Seed Trade Buyers Guide each April, which is about 200 pages of ads and listings such as State seed law index, seed companies, equipment and agencies. \$18.00/yr.

380 E NW Hwy
Des Plaines, IL 60016
1-708-298-6622

Roadside Digest
1268 McCollum Science Hall
c/o Biology Department
University of Northern Iowa
Cedar Falls, IA 50614

Members of the Roadside Community

Stands of Canada wildrye can already be found in some roadsides. It is hoped that some day this native prairie grass will be an even more familiar sight along Iowa county roads. Growing from 2-4 feet tall with an awned spike seed head nodding in the wind, Canada wildrye makes attractive roadside vegetation. For wildlife it provides good nesting and protective cover and is a valuable source of food.

Recently this cool-season grass has drawn attention for its potential role when mixed with warm-season grasses for roadside plantings. A cool-season grass is one adapted to rapid growth during the cool moist periods of the year; usually dormant during hot weather or injured by it (Heath et al. 1985). Canada wildrye would be actively growing while the warm-season grass seed is still waiting for the right conditions to germinate. As a cool-season grass, Canada wildrye is a desirable grass to seed in mixtures with warm-season, native grasses, as it affords fall and spring pasture (Phillips 1963).

In roadsides it can be seeded in the fall when it is too late for warm-season grasses to establish or in the spring to

hold the soil until the warm-season grasses get started. Some see it as an all-purpose cover crop. Early vigorous growth and a fibrous, wide-spreading root system make Canada wildrye a valuable ground cover (Runkle and Roosa 1989).

At present seed for Canada wildrye is expensive and is not widely available in ecotypes native to Iowa. To solve these problems this office, in conjunction with the USDA Plant Materials Center at Elsberry, Missouri, is developing cultivars from native seed collected in Iowa. The foundation seed will be distributed to commercial growers in Iowa for large scale production thus providing roadside managers with good seed at an affordable price.

References

Heath, M.E., R.F. Barnes, and D.S. Metcalfe. 1985. Forages The Science of Grassland Agriculture. Iowa State Univ Press, Ames, IA.

Phillips Petroleum Co. 1963. Pasture and Range Plants. Phillips Petroleum Co, Bartlesville, OK.

Runkel, S.T. and D.M. Roosa. 1989. Wildflowers of the Tallgrass Prairie. Iowa State Univ. Press, Ames, IA.

Wildflower Prairie

by Bradford Kunkle

When I was a lad out on the prairie,
Some sloughs were a huge bouquet of wild flowers.
There I spent life's golden hours
Running wild among the flowers.
There were hayrack loads of
Shooting stars and Sweet Williams,
Grass flowers and violets too.
And the Buttercups made my day,
But thanks to the tiling machine
That huge bouquet of wild flowers
is a cornfield today.



Elymus canadensis

This poem is part of the legacy of Fayette county farmer, Bradford Kunkle, who died in 1986. Jon Steege, roadside manager for Fayette County, has since found significant prairie species in the ditches surrounding the Kunkle residence.



ROADERS DIGEST

Vol. 3 No. 4 September 1991

Newsletter of the IRVM County Roadside Assistance Office at the University of Northern Iowa

5th Annual UNI Roadside Conference September 26-27, 1991

With 33 counties now participating and a vast amount of information to be shared, the annual roadside conference has grown to become a two-day event featuring a great line up of presentations by experts in the field, exciting fieldtrips and social opportunities to discuss what's going on in roadsides. The

County Roadside Assistance Office at UNI wishes to extend a warm welcome to all counties with programs and to all interested counties, agencies and members of the public who want to keep up with IRVM. For more information call us at 319-273-2813.

Schedule of Events

September 26, 1991

- 8:15 Registration
- 8:50 Welcome and Introduction
- 9:00 *Permanent Roadside Stabilization for Long Term, Low Maintenance, and Traffic Safety*
Al Ehley
- 9:30 *Roadside Stabilization Techniques*
Scott Zager
- 10:00 *Erosion Control Techniques on State and Federal Highways*
Ole Skaar, Iowa D.O.T.
- 10:30 BREAK
- 10:45 *Roadside Seeding With Hydro-Mulch*
Vince Meyer, Central Fiber Corp.
- 11:30 *Controlling Erosion With Fiber Blankets*
Tim Lancaster, North American Green Corp.
- 12:00 LUNCH
- 1:00 Erosion Control Field Trip
- 5:00 Return to Cedar Falls
- 5:30 Steak Fry at UNI Museum
- 7:00 Evening at the Prairie
- 9:00 Return to Cedar Falls

September 27, 1991

- 8:15 Registration
- 8:50 Welcome and Introduction
- 9:00 *IRVM Videotape and New IRVM Materials*
Al Ehley
- 9:30 *Iowa's Natural Roadside Communities Shoreline to Timberline*
Jock Ingles, LaFayette Seed Company
- 10:30 *Living Roadway Trust Fund*
Steve Holland
- 10:45 BREAK
- 11:00 Concurrent Session I
Roadside Inventory Process and Roadside Management Techniques
- 11:30 Concurrent Session II
Setting Up a County Roadside Program and Roadside Management Techniques
- 12:00 LUNCH
- 12:45 Roadside Management Techniques Field Trip
- 4:00 Return to Cedar Falls

Prairie veteran to speak at conference

Jock Ingles will be among the featured speakers at the annual roadside conference. He is a long-time speaker on the prairie circuit, and has been involved in prairie restoration for many years. Jock also has been a consultant to several state departments of transportation on the use of native vegetation in rights of way.

Species set for Iowa Ecotype Project

The seeds to be collected this year for the Iowa Ecotype Project are purple prairie clover (*Petalostemum purpureum*), tall dropseed (*Sporobolus asper*) and white wild indigo (*Baptisia leucophaea*). Once again much help is needed collecting these seeds. This is the project to develop native grass and wildflower seeds from plants evolved in

our state, with the goal of making them available in sufficient quantities at reasonable prices. A small amount of seed for each collection site is all that is needed, perhaps a third to a half cup. The prime collecting dates are mid-September to early October. The seeds should be sent to this office labeled with county and a site

reference number. Collectors should keep a record of the exact location of each collection and date of collection.

Blue joint grass, mentioned earlier as a species for collection, will be included next year. Keep track of blue joint locations for next year's harvest. Contact this office (319-273-2813) if you have any questions.

Wild Parsnip could pose real problem



Guest Editorial
By Russ Bennett

Does anyone else out there have problems with Blisterweed in their roadsides? You may know this plant by some of its other names: *Pastinaca sativa*, Wild Parsnip or that #@%&*! weed. This increasingly common alien plant may rapidly become a major invader in almost any environment and shows a potential as a real problem for Roadside Management Programs across our State. While *Pastinaca* hasn't made the Iowa Noxious Weed List yet, it clearly deserves a place in anyone's "Obnoxious Weed" category.

Pastinaca sativa is a European biennial member of the Ammiaceae or Carrot family, originally brought here as a garden vegetable. In fact, those of you who enjoy parsnips can make use of its roots though why anyone would fight its toxic leaves to get to a really bland and grainy tuber is beyond me. The plant makes an early summer growth surge and blooms with a flat umbel of pale yellow flowers, appearing similar to a golden Queen Anne's Lace with a hormone problem. It produces a large number of flat, oval seeds spread casually by wind but mostly by simple progression from the parent and resulting in large colonies over smaller areas. The plant readily colonizes most open ground but seems to thrive most in damper loamy or clay soils and for all purposes, can be considered extremely competitive.

Aside from leaving unattractive brown skeletons from July on, the Wild Parsnip also has the ability to provide injuries worse than Poison Ivy for many people. *Pastinaca* contains high concentrations of volatile oils which bind to the proteins in the skin and cause the body's immune system to view our own skin as foreign. The chemical is so powerful that if it gets into a broken cell, it can alter the structure of DNA. A rash develops on the skin within a day or two after exposure, though sunlight on the skin area greatly speeds the process. This rash then turns into itchy, burning blisters which will eventually disappear and leave whitish scars for up to a year. During that time, the scarred area is very sensitive to water, especially warm water. True immunity to

Pastinaca toxin is rare, even for people who have no reaction to Poison Ivy.

So how do we wage war on *Pastinaca sativa* and eliminate it from our roadside community? Experience and research show the process won't be easy by any method. Those of you still using primitive herbicide technology may have partial success using various broadleaf treatments such as 2,4-D or Crossbow. Round-up is quite effective in timely use (I HAVE worked with these materials in a previous life) as well as Stinger and Telar. Of course, the problems of treating such a widespread and invasive pest may well outweigh the benefits. Herbicides in general are image-poor right now and in this case may require the old broadcast approach to get ahead of *Pastinaca*. Most effective brands will also damage young native forbs, probably more so than the target you're after. There is evidence that *Pastinaca* has a high

tolerance to treatment once past the rosette stage, forcing the need for heavier dosages. With the exception of isolated plants or those in areas that do not contain desirable native species, *Pastinaca* management through chemical use may be little more than a partial answer.

Personal research and information from University and USDA sources imply that *Pastinaca sativa* may be managed through physical/cultural methods so that herbicide use can be minimized. Monitoring of burned areas in both cool-season and native prairie stands shows that Parsnip may be highly susceptible to

spring burning. Studies of eight sites burned this past April-May show marked reductions in *Pastinaca* populations. In two of eight sites, populations were reduced by 95% to 100% and in four other sites by over 75%. All eight sites showed a marked reduction in Parsnip, though the results are inconclusive at present. *Pastinaca* apparently competes well with Brome and fairly well in even solid stands of Big or Little Bluestem but fares poorly in communities dominated by Switchgrass, a Switchgrass/Indiangrass mixture and may be non-existent when forced to compete with the dreaded Reed's Canarygrass. Increases in forb populations seem to encourage *Pastinaca*, possibly because the diversity of growth rates allows space for weed establishment. So far, there is apparently no connection between light incidence and *Pastinaca* establishment, with the exception of heavily canopied areas. All in all, *Pastinaca* maintains an ability to adapt wherever enough open ground and weaker competition allow it room to become established.



Wild Parsnip

Anyone who has found an effective control method for *Pastinaca sativa* should consider relating the information to other Roadside Managers. While this plant may not appear as a problem in your area now, it may soon become a true noxious weed and in some locations a serious competitor with young prairie stands. One last note that we all should remember when considering ways of controlling problem plants such as *Pastinaca* or other species such as Giant Ragweed is that these plants are bare-ground colonizers and can be looked at as part of a chain of succession in the transition to a desired vegetational system. By minimizing the time that soils are allowed to sit before prairie stands or even cool-season covers become established, we may be able to exert control over problem plants simply by denying them the opportunity to get a foothold. *Pastinaca sativa* may well be a very useful indicator of the condition of a given area simply by its presence. Blisterweed will most certainly present management problems for us all, but we Roadside Managers are always anxious for a challenge, aren't we?

Russ Bennett is the roadside manager in Johnson County.



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Al Ehley
State Roadside Specialist
Kirk Henderson
Editor

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California working with Native Perennial Grasses

By David Amme

(From "Grasslands" the newsletter of the California Native Grass Association)

"One thing which a good farmer learns is that in fighting nature he will always be defeated but that in working with her, he can make remarkable and immensely profitable progress."

Louis Bromfield - Malabar Farm
Designers, landscape architects, planners and land managers are seeking solutions to the challenging and difficult problems of slope stabilization and erosion control, noxious weed invasion, habitat mitigation and restoration, fire hazard, sustainable production, and the dwindling water resources. It is the designer's fondest dream to create a stable landscape that requires little or no maintenance. Indeed, the closer the landscape design approaches the potential natural vegetation the more stable that landscape is. The restorationist learns that by working with or following the natural processes of vegetation establishment, less inputs and costs are required. As this awareness grows, more and more landscape architects, environmental consultants, farmers, and agricultural researchers are discovering the utility and benefits of native perennial grasses.

The fast and loose techniques of broadcast seeding and spray-on hydroseeding with exotic annual grasses and "native" wildflowers are not fulfilling long-range landscape goals. Annual grasses, especially Blando brome (*Bromus mollis*) and Italian ryegrass (*Lolium multiflorum*), grow quickly and

efficiently exploit the soil moisture near the surface making it difficult for perennial species to establish. Seeded wildflowers rarely persist past the first year. Annual and biennial weeds such as riggut brome (*B. diandrus*) and yellow starthistle (*Centaurea solstitialis*) soon invade, increasing abatement problems and the potential for fire hazard. There is no "silver bullet" single species or seed mix for establishing a stable grassland landscape. Proper species selection, seed bank evaluation, seed bed preparation, seeding techniques, and especially post-establishment management are critical factors in attaining vegetation stability.

The Healing Grasses

Native perennial grasses have many applications in farm, urban, and wildland settings. Farmers are finding native perennial grasses useful in sustainable agricultural systems as low input perennial hay crops, as cover crop plant material in orchards and vineyards, and as harbingers of beneficial insects. Drought tolerant perennial grasses are ideal for transition areas surrounding high-use turf areas of urban parks and golf course fairways. Perennial grasses can be used in habitat restoration and creation settings, including open-space areas, woodlands, riparian corridors, and wetland margins. Native perennial grasses and the associated native grassland community offer an alternative to the noxious weeds along the thousands of miles of the right-of-ways of the state's highway system. The faster growing, short-lived perennial grasses have similar seedling vigor and growth

rates to the exotic annual grasses and are useful in erosion control mixes on disturbed sites and in reseeding areas burned by wildfires. One distinct advantage to using native grasses after fire disturbance is that they are not so competitive that they eliminate the local native flora of flowering herb, shrub, and tree species and allow the surrounding native plant community to reestablish.

There are many different kinds of native perennial grasses in California. There are short-lived and long-lived perennials, both tall and short in stature. Some perennials spread by underground rhizomes but most of California's perennial grasses are bunch grasses. Many perennials die back completely in the summer regardless of summer water and some will regrow with occasional supplemental irrigation. The majority of California's perennial grasses are the cool-season types. These grasses generally germinate in the fall, grow vigorously in the late winter and spring, and produce their seed by the end of May. Warm-season grasses grow in the late spring and summer and flower in the fall. The most important warm-season perennial grasses in California are alkali sacaton (*Sporobolus airoides*), deergrass (*Muhlenbergia rigens*), saltgrass (*Distichlis spicata*), and prairie threeawn (*Aristida* spp.).

Editor's Note: This article goes on to describe grasses appropriate to California. They were omitted due to lack of space. The grasses may differ from region to region but the uses and objectives are the same.

Road Warrior



What is the formula for making a prairie enthusiast out of a Fisheries and Wildlife Biologist? Considering how quickly and completely this reaction takes place, it must be spontaneous and irreversible. A proven catalyst is hiring as a Roadside Vegetation Manager and letting them drive around Iowa's county roads. Hardin County has its share of good native roadsides. And Doug Sheeley has found a lot to like about prairie plants since he was hired to manage roadside vegetation for Hardin County in March of 1989. He says, "One of the greatest joys of the job is going out and finding new prairie. That is really exciting to me. It's surprising how much is there. I've been locating and inventorying and

compiling a data base."

A 5-acre nursery was planted using mostly seeds they collected themselves. "It was planted last summer and very little showed up aside from yellow coneflower and black-eyed susan. But then this year it was just like something was turned on all of a sudden. Silphium, Liatris, Eringium, Echinacea are all doing well. It will be a successful stand."

Hardin County's roadside program places the biggest emphasis on weed control and seeding. Last year a large roadside seeding project was done using both warm-season and cool-season native grasses. "It was kind of a thrill to see something really be successful. It's a well-travelled route. We have had people complement us on how it turned out. Such successes go a long way in easing the apprehension involved in starting a roadside program."

Doug's education includes a B.S. from Iowa State and a Master's Degree from Texas Tech University. For two years he was employed by Wildlife International Ltd., a

private consulting firm out of Maryland, before returning home to Ackley where he lives with his wife Nedra and twelve year old son Heath.

Doug is getting more and more into working with landowners on erosion and other landowner related problems. He prefers talking to them face to face. Farmers can be hard to find so he must often resort to mailings and phone calls. Personal contact is effective and most people are pretty receptive to suggestions.

Education and awareness is another important area for Doug's program. He has tried conducting seminars but prefers going out and speaking to groups such as Kiwanis, Lions Club and Pheasants Forever. He also wants to be involved with kids and classrooms. Doug plans to implement an Adopt a Highway Program as a means of educating people about roadsides and prairies.

When not out creating prairie roadsides Doug is active with the Ackley-Geneva Booster Club fundraising for some of the school's extra-curricular programs.

Road Apples

5th Annual Roadside Conference Sept. 26 & 27. Location: John Deere Supervisors Club- Exit U.S. 20 at Cedar Falls South Main Exit. Go north approx. one half mile to Ridgeway Ave. Turn East on Ridgeway and South on DeWitt Road just past the John Deere Engine Works. Its another half mile to the Supervisors Club.

The Clarke Road Project will take place in September. The dates will be set soon.

Native Plants: Your Backyard and Beyond. Oct. 5 in Bloomington, MN. For more info, contact Bonnie Harper-Lore of the National Wildflower Research Center (612) 475-0045.

Bargain Books

Grass Land

by Jim and Alice Wilson. A 32-page, 11" x 11" paperback with color photos and brief text designed to rekindle your prairie spirit. \$3.25.

A Garden of Wildflowers, 101 Native Species and How to Grow Them
by Henry W. Art. 304 pages of instructions and good black and white drawings. \$14.45

What Do You Know About Grass?

By Jim Wilson. This is an 8-page Nebraska-rangegrass perspective on grass selection. Ecotypically, it's a little loose considering current views on local seed use. Contains good info as well. \$.30

These items are available through Stock Seed Farms, Route 1, Box 112, Murdock, NE 68407

Roaders Digest
1268 McCollum Science Hall
c/o Biology Department
University of Northern Iowa
Cedar Falls, IA 50614

Members of the Roadside Community

Rabbits were not all that common on the tall-grass prairie. They preferred open woods and forest-edge situations with brush and brambly briars to hide in. As a result children of the earliest settlers in Iowa got eggs and candy from the Easter Buffalo and read stories about Br'er Badger. Cultivation of the prairie vastly expanded rabbit range especially while those split rail fences were around providing somewhat of a thicket between fields.

Rabbits are the number one game animal in the United States. They are preyed upon by everything from crows to weasels. Heavy rain and cold spells wipe out their young by the nestful. Many rabbits are killed by passing cars. They really have only two defenses, running or freezing in place, and only an instant to decide which is the best choice under that moment's circumstances. Rabbits aren't that fast either. Tortoises can't really out run them but most dogs can run them down in an open field. So how do they survive? First of all they have short memories so they don't die of stress. Second, and most important, they reproduce like rabbits. Females have been known to have two litters in their first season starting when they are only 10 weeks old. There are 500 million rabbits in this country indicating this strategy for survival is successful and the race is not about to peter out.

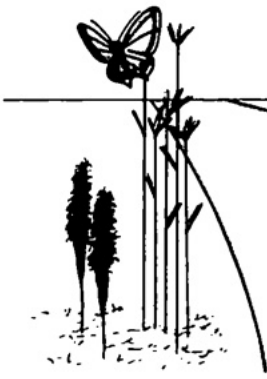
Roadsides provide pretty good habitat for rabbits,

being low and out of the wind like a gully. Roadside have some ground-hog burrows which rabbits inhabit since they don't dig their own holes. And the rabbit lobby is pushing to have brush removal eliminated from roadside programs. What they really like about roadsides is the abundance of fresh green shoots growing upon the shoulder due to mowing and the additional moisture that runs off the road.

There is a drawback to spending time in the dew-soaked grass of the roadsides. Rabbit fur is not waterproof and the road itself is the handiest open space to let the dew dry off their fur. Rabbit populations can be estimated by counting rabbits on the road early in the morning. Unfortunately this undewwing is often their undoing.

Blow dryers on fence posts would be nice





ROADER'S DIGEST

Vol. 4 No. 1 January 1992

Newsletter of the IRVM County Roadside Assistance Office at the University of Northern Iowa

An Interview with Bill Haywood

Some members of the California Native Grass Association are trying to start a roadside program in that state. They are going through stages which parallel those of Iowa's program a few years back, trying to teach key people what the program is about and cultivate support for the program in the state legislature. In other words they are doing what Bill Haywood did for IRVM in Iowa.

We hadn't talked with the 'Founding Father' of IRVM for a couple years, for the most part since he started his own forestry business. When Bill heard there are now 37 counties implementing his program and other states are showing interest, he was pleasantly surprised. "It's unbelievable that it's happening! You guys have done a great job making the program work." The success of the program was only a dream several years ago when Bill was working as a Wildlife Conservationist for Black Hawk County and had the responsibilities of County Weed Commissioner thrust upon him.

Bill recalls how he got started with IRVM, "As a biologist you just couldn't justify writing a guy up for having one of 24 odd species of noxious weeds when you yourself had 5,000 acres of bull thistle on County land. Everyone has weeds and yet they would turn in their neighbors. Then it would turn out they turned them in because they had run over their dog or something. My principles went against broadcast spraying. The chemicals were being put on at such strength that it sterilized the soil to the point that nothing but weeds would grow. The spraying was propagating weeds."

Bill started a Roadside Program in Black Hawk County, found supporting agencies in SCS and UNI and traveled

around the state selling the 'integrated' approach to roadside vegetation management.

Has there been progress in Iowa's roadsides? "From a citizen's point of view you cannot ignore the fact that DOT has come in line with the program. They are not mowing every inch nor are they spraying nearly as much. I can't help but feel great about that. Even in the strong management districts they are very restricted in their mowing and use of herbicides. DOT is thinking like we are and eventually that will pass on to the public."

Bill feels the future of IRVM lies with education. "It is important to build support for the program in the county with local level education. To do this your program must be about 90% education and extend right down to the very individual farmer. Otherwise things can be destroyed by some distraught people. Say you start a program and two years later something goes wrong, lots of weeds in the roadsides that year. There will be a backlash effect. All the farmers start hollering, county supervisors cave in and a good program gets burned. An active education program really makes a difference."

Bill stopped working with the IRVM program when he went into forestry. "You don't just walk away from ten year's work. I see a lot of prairies I would like to manage. But I was getting so split and overwhelmed with the two ecosystems forest and prairie. I had to decide which one I was going to pursue. I like equipment and I like growing trees. I can spend three quarters of my time establishing the next one hundred year's timber. Fire has been excluded from the ecosystem. When we harvest we try to act like a big fire. It's a ball! But I do miss the prairie."

Beware of Prairie Dogma

By Scott Zager

The process of establishing vegetation by seed includes several factors which when properly attended to increase the probability of success. These establishment factors include species and cultivar selection, seed conditioning (scarification, stratification, inoculation), soil conditions, water availability, season, weed competition, and proper storage. Theoretically, if one knew all these factors and optimized each one

accordingly—prairie establishment would be a sure bet. However, these establishment factors are often in conflict with one another, e.g. the optimal time for seeding prairie plants in the midwest coincides with the period of most vigorous weed growth. Therefore, establishment factors must be weighted and prioritized to achieve the most practical likelihood of success. If one consideration, such as season of planting, has a higher priority than an optimal weed control technique, then

weed control can be mitigated for satisfactory results, say additional mowings throughout the summer.

In the early 1970's when prairie reconstruction was becoming popular, it was suggested that seedings in Iowa should be performed in June. Planting prairie during June became common practice for many reasons, some being reasons of practicality and convenience in relationship to other management objectives. Unfortunately, the original

Continued on page 2

Public Education Vita to RVM Programs



Editorial

By Al Ehley

State Roadside Specialist

With 37 counties across Iowa using an "integrated" approach to managing their roadsides, I see successful, energized roadside offices and I see roadside programs you have to kick to see any life. One element that is evident in active programs and absent

...Beware of Prairie Dogma

Continued from page 1

premise for June plantings became lost and the dogmatic adherence to June planting excluded consideration of other planting times more optimal for seedling establishment—depending on climatic conditions and seed physiology. The original premise of a June planting was to allow extra time for repeated tillage of the soil in order to deplete the seed bank of weedy species, thereby reducing weedy competition with the developing prairie plants. Competition by weeds is an important threat to prairie plant establishment, however it is only one of the many factors which must be managed for successful establishment. June plantings in the Midwest discount the fact that many warm season grasses germinate and sprout late April, early May, enabling development during a period when rainfall is more dependable. It ignores the fact that many warm season grasses develop adventitious roots, necessary to the survival of the plant, two to eight weeks following germination and that available soil moisture at this time is just as critical as it is during the previous period of seedling germination. Yet fall plantings of forb seed have been reported to have greater success. This may be due in part to stratification and scarification occurring through the winter, but these processes can be performed by managers so forb seed can be planted with grasses in the spring.

During the 1980's more individuals acquired experience in prairie plant establishment, becoming very

in other programs is PUBLIC EDUCATION. If your county is proud of their roadside program, it's impossible to hide that enthusiasm.

Public education can manifest itself in many different ways. The monthly or quarterly newsletter is one of the best ways to promote a program and keep the public informed of new activities and work sites. Periodic articles with pictures in the local newspaper is another. County Roadside Managers visiting schools with science and biology classes get the young people interested in roadside vegetation and the benefits of using native prairie grasses and wildflowers. Involving

knowledgeable in numerous establishment techniques which have proved successful. Many philosophies have formed espousing new dogmatic statements: "I have gotten my best stands with plantings in July and August" or "We always plant in late fall, through the winter if possible to mimic nature and allow seeds to stratify while the seed works into the friable soil during the freeze/thaw cycle." Others are adamant, "May plantings are best—all other times are for convenience only and may result in less than optimal results." Understandably novices are confused. They do not have the experience to discern between the often conflicting experts; yet they are responsible for gambling with very expensive seed under the critical eye of skeptical superiors. Each of the above statements has an underlying set of priorities concerning the important factors of successful vegetation establishment. However, considerations which are important during normal years become relatively less important during drought years. Therefore the weights assigned to each factor must constantly be evaluated.

The vegetation establishment philosophy to be expressed by IRVM has only one dogma: planting situations vary from year to year and site to site in such a manner that vegetation managers must understand the fundamental factors of seeding establishment and be able to prioritize these considerations in order to maximize the probability of success at each planting site.

local conservation organizations on specific projects spreads tremendous growth and awareness of an IRVM program. And finally, one-on-one visits between County Roadside Managers and farmers is essential to successfully establish and promote an IRVM program on roadsides adjacent to their fields and farmsteads.

Public Education provides the means and rationale for implementing a County IRVM program. If the public, the people who foot-the-bill for the program, are knowledgeable and informed about the latest activities going on in their rural roadsides, then they will support (or demand) additional prairie roadside establishment.

If you want to see how healthy the IRVM program is in your county, take a look at their emphasis on Public Education. If it isn't receiving the attention it deserves, ask why. The ultimate success of an IRVM program depends a great deal on Public Education.



IRVM Vol. 4, No. 1
January
1992

Al Ehley
State Roadside Specialist
Kirk Henderson
Editor

Roaders Digest is a bimonthly newsletter reporting the activities of and providing information for the Iowa counties implementing the Integrated Roadside Vegetation Management Program.

Roaders Digest is cooperatively funded and supported by the Iowa Department of Transportation Living Roadway Trust Fund, The University of Northern Iowa, and USDA Soil Conservation Service.

All programs and services are offered on a non-discriminatory basis without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

For a free subscription and additional information, contact:

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University of Northern Iowa
Cedar Falls, IA 50614



Member, International Erosion
Control Association



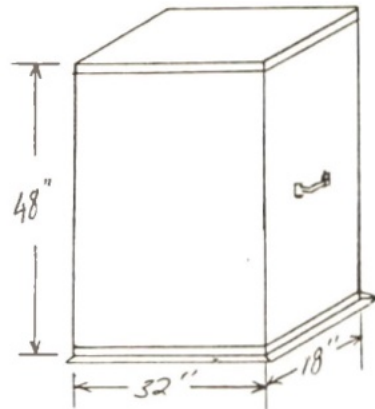
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Roadside Burn Box

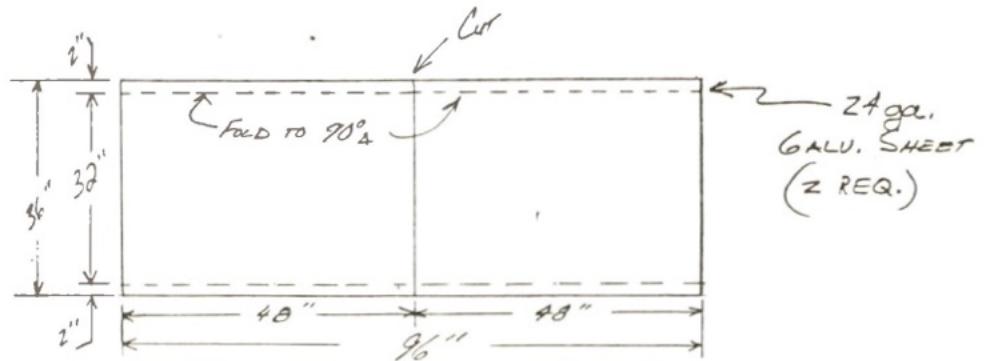
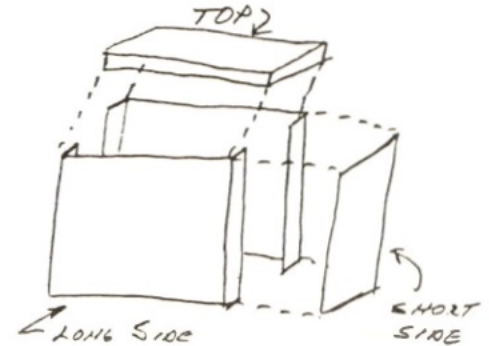
This roadside burn box was designed with telephone junction boxes in mind. We seem to have an inordinatenumber of them scattered around Polk County and always in the wrong place. We use fiberglass insulation to further fireproof the assembly.

Where the box was used, the results were very satisfactory. The grass was unsinged under the cover and the telephone box was cool to the touch. We do clear away any standing grass and wet the area under and around the unit prior to the burn.

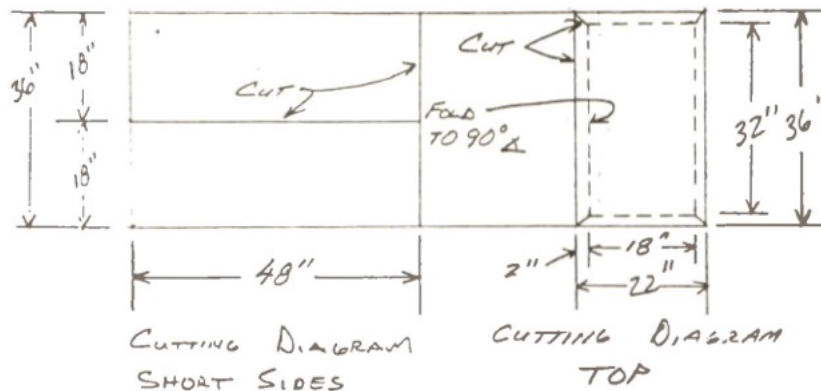
I figure by the time labor was included, it cost between \$75 and \$100. This is pretty cheap insurance. If you have any questions, contact:
Loren Lown
Roadside Vegetation Manager
Polk County.



SCALE $\frac{1}{2}'' = 1'-0''$



CUTTING DIAGRAM - LONG SIDES



- Pop Rivet all Joints
- Edge with 1" x 1/8" Angle Iron
- Line with 1" Rigid Foil-Faced Duct Insulation
- Pop Rivet 2 Cabinet Handles to Sides

Road Warrior

"Roadside vegetation management is not yet an exact science. It is a chance to be creative because procedures are not set in stone. We are pioneers, testing a lot of different things and learning all along. I enjoy the challenge of trying to figure out new and better ways of getting things done—."

These are not the words of Captain Jean Luc Picard of the Starship Enterprise. They are the words of Dave Webber, Roadside Vegetation Manager for Story County. They exemplify the spirit and positive outlook indicative of a successful IRVM program because in many ways the job requires someone who is comfortable going 'where no person has gone before'.

Dave would be the first to acknowledge that Story County Roadsides are not everyone's 'final frontier.' But in Iowa, where so few natural areas remain, they are close. Realizing this, the Story County IRVM program receives excellent support from the Conservation Board Director, the County Supervisors and County Engineers. These people believe in the objectives of the program and understand native vegetation establishment takes time. Their patience is being rewarded. "We have many plantings that are doing very



well. One of those has had only a season and a half to grow. It takes a while for concrete results to show up." But that makes it all the more satisfying. Dave is not resting on past successes. "We are working with different planting mixtures, planting times and techniques in order to speed up the process."

Story County has some test plots for looking at weed control and is doing vegetative surveys on a seeded area looking at what is growing and how fast restoration takes place. Dave gets his summer help involved in these projects to make the job as valuable an experience for them as possible.

Dave Webber grew up in Dallas and Crawford counties where a lot of time was spent on the farms of family members. This experience proved valuable for the future roadside

manager getting familiar with machinery and the concerns of landowners. Much time was also spent hunting ducks and geese on the Missouri River.

Fascination with wildlife behavior led Dave to a degree in Fisheries and Wildlife Biology at Iowa State University.

The position of Roadside Vegetation Manager fits his background and interest in natural resources, ecology and wildlife as well as agriculture. Dave worked

as a Research Associate with the Agronomy Department at ISU doing statistical analysis with corn breeding. This was aimed at Integrated Pest Control looking for natural pest resistance.

Dave likes "to stay open to other people and their ideas and to strive to trade and learn and cooperate with them." This will help him as he is trying to work with the 'encroachment' clause and learning how to implement this law. "There is a need to show landowners there are ways they can benefit from this program and to create cooperation and support with them on issues such as weed control."

When not pursuing his Roadside mission, Dave devotes time to fixing up a house with Glenda, his wife, getting outdoors to enjoy wildlife and working on the prairie they planted a couple years ago.

Field Notes

Walt Wickham
Roadside Biologist
Clinton County

If you wish to use native Iowa ecotype seed the cost is often out of sight for a roadside program's budget. So how does a roadside manager acquire an assortment of grass and wildflower seed to plant in roadsides on a limited budget? This is where seed harvesting comes into play. Wildflower seed harvested from prairie remnants offers some real savings to a roadside program. Combine seed cost savings with volunteer seed harvesters and you are getting a double benefit. The Clinton County program has been lucky in that we have harvested several pounds of seed which would have cost our

program hundreds if not thousands of dollars to purchase. In addition, the volunteer harvesters are getting exposure to the roadside program and an education in prairie ecology. This year however, we have found ourselves with several pounds of some species and little or none of others. I am sure that other roadside biologists are in the same situation. Anyone interested in a trade? We have several pounds of blazingstar (*Liatris pycnostachya*) we would be willing to trade for other native Iowa wildflower species. Perhaps a topic for discussion at the next roadside managers' meeting might be setting up some kind of seed exchange. Think it over and let me know how you feel about this.



Road Apples

The 1992 Edition of the Roadside Calendar is available or will be very shortly. For your free copy write or call (319) 273-2813.

The International Erosion Control Association (IECA) will hold its 23rd annual Conference and Trade Exposition in Reno, NV, February 18-21, 1992. For more information contact Ben Northcut, Executive Director, PO Box 774904, Steamboat Springs, CO 80477, (303) 879-3010.

From Robert Byrne's book, *The Best Things Anybody Ever Said*:

"Thanks to the Interstate Highway System, it is now possible to travel from coast to coast without seeing anything."

Charles Kuralt

Bargain Books

Field Guide to Wildflowers of Nebraska and the Great Plains

By Jon Farrar. This one is particularly good for counties in Western Iowa. Nebraska Game and Parks Commission, PO Box 30370, Lincoln, NE 68503. (402) 471-0641. \$17.95.

Annual Grass and Perennial Weed Identification (NCR-92)

ISU Publications Distribution, 112 Printing & Publications Building, Iowa State University, Ames, IA 50011. \$5.00.

Roader's Digest
1268 McCollum Science Hall
c/o Biology Department
University of Northern Iowa
Cedar Falls, IA 50614

Members of the Roadside Community

Organisms In the Soil

"We live on the rooftops of a hidden world. Beneath the soil surface lies a land of fascination, and also of mysteries, for much of man's wonder about life itself has been connected with the soil. It is populated by strange creatures who have found ways to survive in a world without sunlight, an empire whose boundaries are fixed by earthen walls." (Peter Farb "Living Earth," Harper and Brothers Publishers, 1959.)

Eventually all the consumers living above ground die and are added to the soil. These materials along with roots, tubers and other underground organs provide food for the 'strange creatures' (decomposers) living in the soil. Microorganisms play the dominant role as decomposers. Among these, bacteria are the most abundant. The live weight of bacteria in the soil may exceed 2,000 pounds per acre. Secreting enzymes that digest organic material, they play a key role in the cycling of nutrients.

Fungi are also important decomposers. They vary in size and structure from single celled yeasts to molds and mushrooms. Unlike bacteria, fungi can invade and penetrate organic materials. This ability makes them effective decomposers of woody materials. Ninety percent of all native plants have associations with mycorrhizal fungi. Mycorrhizae or "fungus roots" increase the plant's absorption of water and nutrients.

Blue-green algae also inhabit soils. They are important for their ability to fix carbon and thereby contribute to the

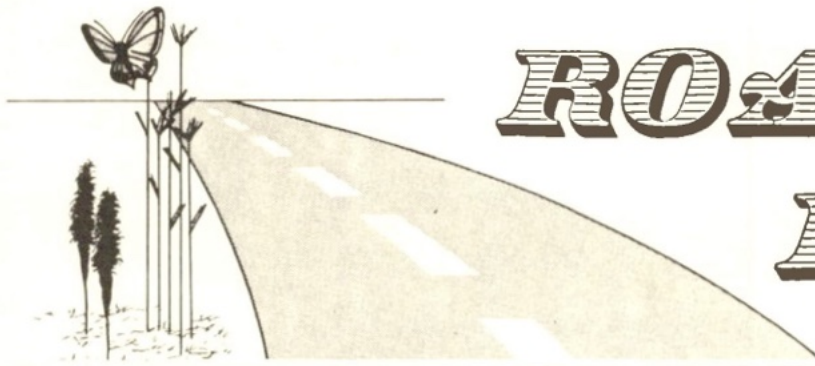
organic matter of the soil.

There are also many small animals that inhabit the soil. Among these are Nematodes. This includes a variety of worms mainly microscopic in size. They help cycle nutrients by feeding on decaying matter, earthworms, other nematodes and on the roots of higher plants.

Earthworms are the best known group of larger animals inhabiting the soil. They are found most abundantly in fine textured soils that are moist and high in organic matter. The common earthworm (*Lumbricus terrestris*) is a European import. Earthworms leave the soil more open and porous by their activity of mixing soil materials, creating channels and producing castings. When earthworms emerge from the soil on a rainy day they are killed by ultraviolet radiation unless they quickly find protection. They forage on plant material at night or organic matter that exists in the soil.

Almost all of the life in the soil is dependent on organic matter for energy and nutrients. One reason for the high productivity of grassland soils is related to the amount and distribution of organic matter. The roots of grasses are shortlived, and each year the decomposition of dead roots contributes to the quality of humified organic matter. Once the organic content has reached a low level, restoring the organic matter to its original level would require that the original vegetation be reestablished.

Foth, H.D. 1978. *Fundamentals of Soil Science*. John Wiley & Sons, New York, NY.



ROADER'S DIGEST

Vol. 4 No. 2 May 1992

Newsletter of the IRVM County Roadside Assistance Office at the University of Northern Iowa

Northern Iowa Biology Department Plays Key Role in IRVM Program

Establishing and maintaining native vegetation in roadsides is challenging work. Little information exists on the subject. For many counties fitting an IRVM program into their budget and current infrastructure is difficult no matter how much they like the IRVM philosophy. The 38 counties in the program are spread out all over the state making it difficult to share information. The County Roadside Assistance Office exists to help counties overcome these problems.

The office, located in the Biology Department at UNI, provides assistance in the form of technical information, education, training and research. It serves as a clearinghouse of information. And it coordinates activities such as meetings and conferences for the counties in the program. All of these functions are better served because of our location in the Department of Biology at UNI.

The Roadside Office is located down the hall from the herbarium, one of the most extensive dried-plant specimen



collections in the Midwest. The specimens themselves and the botanical experts associated therein are a constant source of information. The same is true of the UNI Biological Greenhouse.

The biology department has a strong tradition in prairie restoration and preservation, nationally recognized conservation and environmental education programs and excellent programs in plant taxonomy, plant physiology, plant morphology and plant ecology as well. In addition

to these features of the department with their obvious applications for roadside vegetation management, many other components of the department at some point intersect with roadsides.

For the Roadside Program, the advantages to being located in the UNI Biology Department are great. The potential is even greater. The challenge is to repay the Department of Biology for all the support we receive.

Roadside Vegetation: Player or Pest?

**By Harlow C. Landphair, Ph.D.,
Research Scientist, Texas
Transportation Institute, The Texas
A&M University System,
College Station, Texas (Originally
published in the Transportation
Research Record) This article is
reprinted from the March, 1992 issue
of Public Works Magazine.**

As a landscape architect involved in public practice and education for most of my career, I had been involved tangentially in transportation projects for a number of years. In 1987, we were approached by the Texas State Department of Highways and Public Transportation (SDHPT) to help develop and execute a new, broad-based highway beautification program. As part of that contract, SDHPT asked that we focus on beautifying the state's highway system and reducing roadside maintenance

costs. These two charges are, if taken together, antithetical. It is not possible to add ornamental plant material to the roadside, regardless of its hardiness, without increasing the maintenance burden to some extent. Yet, we have taken this charge to heart, and it has resulted in the research initiative described here.

For the most part this is not a technical article. Its purpose is to challenge some of the fundamental beliefs that influence our current approach to roadsides maintenance and to initiate a new dialogue about the development and administration of roadside management programs. The emphasis is on the role of roadside vegetation. It is suggested that, of all roadside components, vegetation is the least understood and therefore the most frequently misused and abused. Fundamental questions are raised about perception and application of

vegetation on the roadside, and suggestions are offered as to how views should be changed.

Roadside Vegetation Management Problems

Roadside vegetation management is universally viewed with mixed emotions. On the one hand, it is recognized as the primary material for erosion control and surface stabilization. In other forms, ornamental trees, shrubs, ground covers, and wildflowers are viewed as "beautification." However, from a maintenance point of view, roadside managers more frequently find themselves locked in mortal combat with the vegetative community of the roadside. Police actions and outright wars are waged annually to remove unwanted vegetation from some of the roadside

Continued on page 3

Roadside Programs – Well Above the Bottom Line

Fireline

by Kurt Baker
Roadside Manager
Cerro Gordo County

Are County Roadside Management Programs at a crossroads? In times of budgetary cutbacks at all levels of government, each entity must trim fat and yet provide services the taxpayers have come to expect. In Cerro Gordo County

(CGC), roadside management (RM) was certainly challenged due to the changing political and economic climate throughout the state. Recently, CGC went through an in depth department by department budget reduction process. Where did roadside management fair? Is it worthwhile to continue roadside management activities, and if so, at what level?

To answer these questions, one needs to look at what is being accomplished and what it costs. In CGC, RM is responsible for anything dealing with vegetation in the rights-of-way (ROW). This includes weeds, brush, mowing, seeding and vegetation control around guardrails. To

maintain road safety, these are services that need to be done. If the Conservation Board did not do it, another department would.

We have long preached that our roadside management program was saving taxpayers dollars. When evaluating the cost of completing these jobs, it was incredible at how much "bang for the buck" the Conservation Board could provide when compared to other departments. In political environments, most jobs are evaluated on a dollar basis. Our roadside management program has proven that we can provide at least the same quality in work performed when compared to traditional roadside management, but at a substantial reduction in costs.

To answer the original question, I think roadside management programs are at a crossroads. But, when critically evaluated from a Supervisor's or County Budget Director's perspective, roadside management programs do provide a bargain to taxpayers.

Roadside Conference in Ames August 26-27

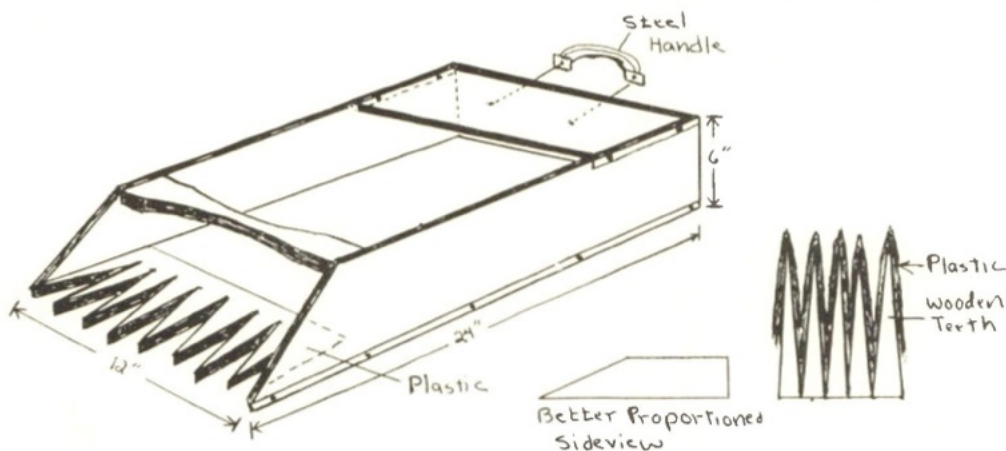
The first day is largely aimed at Roadside Managers.

Speakers for the second day are:

- "Welcome and Introduction" Dave Webber, Story County Roadside Manager.
- "Changes at DOT Since IRVM" Steve Holland, IRVM Coordinator for DOT.
- "Grand Mistakes and Great Decisions, A Midwest Restoration History of Roadside Wildflowers" Bonnie Harper-Lore of Midwest Office of the National Wildflower Research Center.
- "Update on the Iowa Ecotype Project" Daryl Smith, UNI Biology Professor.

- "Roadsides as Micro-Habitats Placing Special Demands on Vegetation" Harlow C. Landphair, Research Scientist of the Texas Transportation Institute.
- "Landuse Impacts on Roadsides" K.A. Connelly ISU Crop Production Specialist.
- "A Ditch Cleanout Conservation Compliance Program" Lyle Laartz Engineer for Floyd and Chickasaw Counties.
- "Iowa's Natural Roadside Communities: Shoreline to Timberline" Jock Ingles President Lafayette Home Nursery.

The afternoon will be capped off with a bus tour of Story County Seeding Sites.




Native Grass Harvesting Comb

Bottom piece - 1/2" solid wood
Side pieces, end piece and top cover plate - 1/4" plywood
Top handle - 2" wide scalloped to 1" wide 1/2" pine.

A piece of approximately milkjug-weight plastic should be fastened over

entire comb area. Teeth should be cut in the plastic so they are 1/4" wider than the wooden teeth for more effective seed stripping.

The length of the teeth should be closer to half the overall length of the wooden box (see sideview).



IRVM Vol. 4, No. 2
May 1992


Kirk Henderson
Editor

Roadside Digest is a bimonthly newsletter reporting the activities of and providing information for the Iowa counties implementing the Integrated Roadside Vegetation Management Program.


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All programs and services are offered on a non-discriminatory basis without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

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Roadside Vegetation: Player or Pest? *continued from page 1*

and, in other instances, to get anything to grow at all. Each growing season, roadside managers descend on the roadsides with armies of mowers, grade-alls, front-end loaders, and spray rigs to seek out and destroy the enemy.

It appears that, as roadside managers, we have accepted the inevitability of this seasonal cycle as something akin to the rise and fall of the tides. However, those who accept the inevitability of the vegetation management cycle fail to recognize that plants on the roadside are responding to habitat conditions created by the design of the roadside. The conditions are created by the design of roadside features that make the roadside favorable for plant growth and development. The fact that plants respond to unique microhabitats is seldom recognized in the design of structures and the development of roadside maintenance strategies.

In addition to the design problems associated with unexpected or unwanted plant habitats, there are the characteristics of the plants themselves. Plants, like people, are different in terms of their behavior and their abilities to perform certain tasks. It can be demonstrated, for example, that some plants have decidedly better hydraulic characteristics than others (i.e., some resist flow, whereas others lie down and form a smooth, hydraulically efficient mat that protects the channel and reduces the accumulation of silt). Yet, there is little evidence in the literature that the transportation community has given much thought to these specific vegetation qualities. Herein lie the problems.

Plants, like people, are different in terms of their behavior and their abilities to perform certain tasks.

Perception of Vegetation as a Maintenance Liability

Except for the redeeming qualities of erosion control and decorative appeal, roadside vegetation is, more often than not considered a liability. In general the maintenance community accepts this as part of the cost of doing business and proceeds to attack the same old problems with each new growing season. Everyone in the roadside management field has intimate knowledge of these seasonal, vegetation-related headaches. However, for the sake of review, some of the alltime favorites follow.

- Mowing.
- Brush removal.
- Pavement edge encroachment.
- Problems with vegetation and structure interfaces (i.e., signs and poles, guardrails, walls, headwalls and endwalls, and expansion joints in pavement and riprap).
- Obstruction of drainage ways.
- Blockage of drainage structures.

These problems are not only annual annoyances, but also significant drains on the manpower and financial resources. It is estimated that Texas spent more than \$50 million on mowing state-maintained rights-of-way in 1988 and an additional \$5 million on herbicides for vegetation control. No direct figures were available for the cost of herbicide application, mechanical vegetation removal, ditch and culvert cleaning, and other problems directly related to the quality and behavior of roadside vegetation. A conservative estimate is about \$250 million. This is not exactly a small sum, yet even at this cost transportation departments across the country watch their budgets escalate and accept the problems as inevitable. This need not be the case.

Vegetation and the Highway Environment

First, let us examine the context and environment in which and about which we make daily vegetation management decisions. Three fundamental perceptions influence and cloud decisions about roadside vegetation maintenance.

Perception of the roadside. Generally, the highway design community tends to view the roadside as what is "left over" after the highway and its appurtenances are accommodated within the available right-of-way. This perception is termed "green scrap syndrome."

Perception of the highway landscape. The highway is generally viewed as being the same as or an extension of the landscape by which it is bounded. For example, if a highway passes through a rural setting, it is considered a rural road, and it is generally accorded the attributes of the adjacent agricultural, forest, or range land. This leads to the unrealistic belief that whatever occurs on or adjacent to the original corridor can be regenerated after construction. Let us call this the "green fantasy syndrome."

"Perception of roadside plant communities. Plant communities are, for the most part, viewed as little "green things" with personalities that are generally at odds with what would be considered acceptable public behavior in good engineering circles. In other words, they display those antisocial types of behavior that obstruct and defy permanent solutions. This perception is characterized as "green belligerence syndrome."

Although each of these perceptions may have been overstated for dramatic effect, they are real and must be changed to come to grips with roadside maintenance costs. The significance of each perception will be outlined briefly along with examples of how each relates to the cost of maintaining the roadside.

Green Scrap Syndrome

Anyone who has ever tried to compile cost figures for roadside maintenance is familiar with green scrap syndrome. If we look at a typical cross section of maintenance budgets, we will find figures for mowing contracts, purchase of herbicide materials, and, in some cases, for the cost of spraying. All other maintenance costs are more often associated with the hard structures (i.e., drainage structures, bridges pavements, signage and delineation, and guardrails and safety hardware). Given the abstract nature of the roadside, it is not difficult to understand why this perception persists, and it is a major deterrent to developing an understanding of the role of vegetation as a highway construction material.

We must recognize that the roadside is not just a collection of green scraps. Consider for a moment the basic functions of the typical highway right-of-way. The immediate shoulder provides information, lighting, emergency stops, runoff, and recovery. The middle zone is usually occupied by drainage channels and structures. The back slope is used to access adjacent properties, provide buffer space between adjacent land use, and provide space for large information standards and lighting apparatus. Seen in this light, the roadside is a far busier place than generally thought. Looking closer, it also becomes apparent that the prevalent material, with the exception of the pavement, is the "green stuff." We also know that if that green stuff is in poor health or is not appropriate for the job at hand, unpleasant things occur. Some of the more common problems include accelerated erosion and siltation and blocked drainage ways and structures, which can also lead to pavement and embankment failures.

Green Fantasy Syndrome

Though the non-paved portions of the right-of-way closely resemble the adjacent landscape, they are, in fact, quite different. In most cases, changes made along the construction corridor realign the micro-environmental conditions to the extent that the right-of-way becomes totally different from its immediate

Continued on page 4

Roadside Vegetation: Player or Pest? *continued from page 3*

surroundings. Topsoil is disturbed; drainage patterns are changed, which affects overall moisture relationships; slopes and orientations are modified; and the existing vegetation community is effectively destroyed. Ecologists refer to this phenomenon as a catastrophic event. This term is often used by "environmentalists" with great emotional appeal, even though it is out of context with the term's real ecological significance. The net result of a catastrophic event is a new beginning. A new ecological succession begins, in which the forces of nature begin the creation of a new biotic community in harmony with the new conditions. Change is not necessarily bad; it is just different.

The green fantasy syndrome does not recognize the reality of this powerful natural process. We spend untold dollars every year trying to save or fight Mother Nature, and we usually lose in either case. It is important that we, as designers and managers, look more closely at the ecology of the roadside and develop a better understanding of the micro-environmental and successional processes that will occur in the new environment.

Consider for a minute the unique environmental conditions of the roadside. It is hotter and more prone to drought, soils are generally poor and highly compacted, slopes are generally increased perpendicular to the centerline, the air quality is poor due to exhaust emissions, and runoff is generally more polluted in the immediate right-of-way zone. Given the harsh environmental conditions and comparing these conditions to the body of research published on highway vegetation, we find that most of the work has been done using typical agricultural research methods. Most often this means the use of small field plots, two to three meters square, with generally friable, well drained, and hospitable soils. In most cases the plots are flat, with slopes of one percent or less. Temperatures are not influenced by pavement mass, and the air and water are generally clean. Although some generalizations and extrapolations are possible from research using these methods, the aggregate results must be viewed as inconclusive at best because there is no way to realistically duplicate the extreme environmental conditions of the roadside.

On the other hand we know that plant communities do flourish in the roadside, even though we may not completely understand the reasons. Because our attention is usually devoted to the problem areas, we often forget that a much greater percentage of the roadside is all right. This strongly suggests to me that there is a great deal yet to be learned from more careful examination of the conditions and circumstances that lead to this success.

Green Belligerence Syndrome

The earlier tongue-in-cheek remark about waging annual war on unwanted roadside vegetation is an appropriate analogy. There can be little doubt that plants like Johnsongrass, varieties of thistle, and other noxious weeds are a headache. However, these are only a fraction of the total roadside plant community. Too often these problem plants draw attention away from a much broader issue of plant suitability. Different plants have varied preferences for habitat and behave differently depending on the situation. In reviewing a cross section of highway planting specifications it was found that, in almost every case, the roadside is treated as a homogeneous environment, when nothing could be further from the truth. This simple oversight disregards the functional zones of the right-of-way noted earlier. Planting each zone of the roadside with the same plant material is democratic; however, unlike some of today's clothing, "one size does not fit all."

By planting uniformly over the entire cross section of the right-of-way, we essentially surrender the opportunity to design the surface material of the roadside in accordance with the function it is to perform. We would certainly never design a pavement cross

section in this way. Yet this is exactly how we design our roadsides. In most cases we are lucky. The plants sort themselves out through the process of natural selection, and no one thinks too much about it unless problems arise.

If you look closely at plants growing in older, more established roadside communities, you will see that they have assorted themselves into associations that reflect the micro-habitat conditions. Plants with higher moisture requirements will colonize the swales and borrow ditches. Lower-growing species and those most tolerant of frequent mowing will show up on the immediate shoulder. The taller grasses and woody species will colonize the guardrails, walls of drainage structures, fence lines, and any other location that is protected from mowing machinery.

This suggests that we look more closely at the message

Mother Nature is trying to send us and begin exercising our design prerogative by establishing plant communities in concert with the function of the particular roadside zone. To do this, we must be better students of how plants perform in the roadside environment. We must recognize that the highway is a demanding environment and that the plants are not being used to produce food, fiber, or red

meat. Plants on the roadside are engineering materials and should be understood and used in that frame of reference. The background research we have done to date strongly supports the notion that plants can be developed and used in this way. However, little has been done to develop the information necessary to put these simple principles into practice.

The concept of plants as engineering materials is simple, but generally overlooked. In the years ahead we should set a goal to better understand the engineering properties of plant materials so they can be used more efficiently and effectively to reduce the cost of roadside maintenance. The following principles should govern research in this area.

- The roadside is not just leftover space. It is a necessary and functional part of the highway. It is used to provide safety, drainage, access and information to the traveling public.
- Each zone of the right-of-way has a different function and should be treated differently with respect to the vegetation that is used in that zone.
- The roadside environment is a structure. By its design and use it is a unique environment. It has nothing in common with agricultural fields, home lawns, forests, or other manifestations of the landscape and must be understood in terms of its unique ecology.
- Plants are different with respect to their preferences for habitat and the functions they can serve on the roadside. They should be used more effectively as part of the materials selection process.
- Plant-structure relationships contribute to many vegetation management problems and can be corrected by more careful design consideration.

Research in this area will require patience and will take a number of years to reach the objectives outlined. It must be undertaken with the realization that roadside maintenance takes place in an environment of many interconnected systems that cannot be effectively examined out of context. Progress will begin slowly and gain momentum with each new insight. The savings that might accrue from any individual discovery or improvement in our maintenance know-how will probably be small. The real benefits will be realized in the aggregation of small discoveries and by continuing the search for simple, common-sense maintenance solutions.

Dr. Landphair will be a featured speaker at this year's annual Roadside Conference August 27th in Ames.

We must recognize that the roadside is not just a collection of green scraps



Road Warrior

What impact does a person's name have on the rest of his life? Shakespeare's Juliet says, "a rose by any other name would smell as sweet?" But does a person's name really make so little difference? Let's see once.

Take two very similar names such as Walt Whitman and Walt Wickham. One name is that of a poet, the other a Roadside Biologist. At first glance this example would seem to prove Juliet's point. Their names are similar and yet their lives very different. So the names had no effect, right? Not so fast. Closer examination may cast some doubt on Ms. Capulet's assumption.

Walt Whitman, regarded by many as America's finest poet, wrote a volume of poetry entitled *Leaves of Grass*. His roadside counterpart, Walt Wickham, is regarded as one of Iowa's finest

Roadside Vegetation Managers and he too is responsible for a large volume of leaves of grass.

Within Whitman's *Leaves of Grass* is a collection of poems called "By the Roadside." While within Wickham's roadside is a

collection of grass as nice as any poem.

In "Turf Fires- Spring Songs," Whitman says "As I go along the roads I like to see the farmer's fires in patches, burning the dry brush, turf, debris. I like its acrid smell- whiffs just reaching me- welcomer than French perfume." Instead of writing about it, Walt Wickham lives it. He lights the "Turf Fires" himself and comes home wearing the acrid perfume. Rarely does life so resemble art.

This is eerie. We have just scratched the surface and already the similarities in the lives of these two men are enough to make shivers run up and down your spine.

Of course there is a point at which these two lives diverge. Whitman did not obtain a B.S. in Fisheries and Wildlife Biology from Iowa State University. He was never the Weed Commissioner for

Clinton County. Nor did he spot-spray weeds and brush, seed native vegetation, and work with landowners to prevent soil erosion. These are all significant parts in the life of Walt Wickham, Roadside Biologist for Clinton County. Since taking the position in April of 1990 as the first Roadside Biologist for Clinton County, Walt has built an excellent program for the county and developed himself into a valuable resource. Besides his position as Roadside Manager and Weed Commissioner, Walt is very active in natural areas management for Clinton County. Through his work with native vegetation and time spent on the county roads he has become an important source of information on local prairies.

Here is where it gets kind of spooky again. Walt Whitman also had a keen awareness for native vegetation. This can be seen in works such as "Wildflowers," "The Prairies," "The Coreopsis," "Horse-Mint"; he even wrote something called "Mulleins and Mulleins" in which he goes into great detail about the life cycle of this roadside biennial.

After reading this can you guess which of these two preservationists, Walt Whitman or Walt Wickham, said, "and the matter of the cultivation (of fields) and spread of forests may well be press'd upon thinkers who look to the coming generations of the prairie States."

Vegetation Correlations with Small Mammal Abundance from Roadside Communities of Northeast Iowa

The following abstract has been accepted for presentation by Orlando A. Schwartz, Antonio M. Vivas, Rory Feddersen, Cynthia J. Miller, and April Orris of the Department of Biology at the University of Northern Iowa to the American Society of Mammalogists in June in Salt Lake City, Utah.

We determined the strength of the relationship between the abundance of

seven species of small mammals and the proportions of native grasses, nonnative grasses, forbs, and litter. For eight weeks we snap-trapped small mammals and determined plant biomass from native prairie, revegetated prairie, and weedy roadside habitats of Northeastern Iowa. At each of the 48, 75 by 5 m study sites we set 30 snap-traps for two nights, and clipped the vegetation in four, 0.1 m clip plots. Vegetation was dried to a constant

mass. A multiple correlation analysis was used to test the relationships. Across the three habitats a positive correlation was shown between the proportion of litter and meadow vole abundance. There was a negative relationship between the proportion of nonnative grasses and the short-tailed shrew abundance and a positive relationship between the proportion of nonnative grasses and masked shrew abundance. For deer mouse abundance, within revegetated habitats there was a negative correlation with nonnative grass composition and within native prairie habitats there was a positive correlation with litter composition. The abundance of short-tailed shrews was positively correlated with the nonnative grass proportion in weedy habitats. Varied roadside management practices enhance the diversity of small mammals across the habitats sampled.

(This study was funded in part by the County Roadside Assistance Office.)

Bargain Books

Pasture and Range Plants An 8.5"x11" hard bound book with excellent color plates of 70 grasses, 37 legumes and 50 forbs. Available from Fort Hays State U. 600 Park St. Custer Hall Hays, KS 67601-4099. \$19.50 payable to Fort Hays Alumni Office.

Soon to be available: *Distribution Maps of Iowa Prairie Plants* a compilation of 275 maps of Iowa each one for a different prairie species showing the general range where a species might be found or once was growing. This is especially useful for selecting appropriate species for all kinds of planting projects.

By Paul Christiansen PhD

Road Apples

The Sixth Annual Roadside Conference will be August 26 & 27 in Ames hosted by Story County. The first day's activities will be for Roadside Managers. Registration for the second day's program of speakers is open to the public.

The seeds collected for the Iowa Ecotype Project have been sent to the U.S.D.A. Plant Materials Center in Elsberry, MO. for development. Also a portion of each collection is growing in the UNI Greenhouse and will be established in its own plot for evaluation. Thanks again to everyone who collected seed for this project. Species for the 1992 collection will be announced soon.

Roadside Video: "IRVM, A Low-Maintenance Approach to Roadside Vegetation Management" is available on loan through this office. (319) 273-2813.

Sept. 16 Minnesota DOT is holding an IRVM Symposium with presentations on all aspects of Roadside Vegetation Management. Contact Bob Jacobson Minnesota DOT Transportation Bldg. Rm 124 St. Paul, MN 55155.

May 29-31 Loess Hills Prairie Seminar at Onawa, IA. For more information contact: Western Hills Area Education Agency, 1520 Morningside Ave., Sioux City, IA 51106. The Iowa Prairie Network will hold its second annual meeting during that seminar.

Roaders' Digest
1268 McCollum Science Hall
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Cedar Falls, Iowa 50614

Member of the Roadside Community:

By Lella George
UNI Biological Greenhouse

We often hear that a weed is any plant growing where it is not wanted. Emerson defined a weed as a plant whose virtues have not been discovered. Perhaps if we understood these tormentors better, we would discover virtues worth cultivating within ourselves.

Recently my dad was giving mom and me instructions on managing his land while he spent some time in the hospital. He spoke of the 'wasteland' near where the old barn once stood. An image of a disturbed pasture, rocky and rich in lavender during hot July days returned to me. This was the thistle patch where I would challenge myself to pick a thistle flower for mom without pain of prickles. I told this to my folks and mom was quick to relay a story of how, as a child, her older sister, upon a dare, would pick bouquets of thistle. I assume the thistle I remember is *Cirsium vulgare*, or Bull thistle, a biennial reproducing only by seed, unlike its cousin, *Cirsium arvense*, or Canada thistle, one of our worst perennial weeds. (It is interesting to note that the specific name, *vulgare*, implies that it is more common than *C. arvense*. This is untrue today, probably because of our agricultural practices.) The Scots,



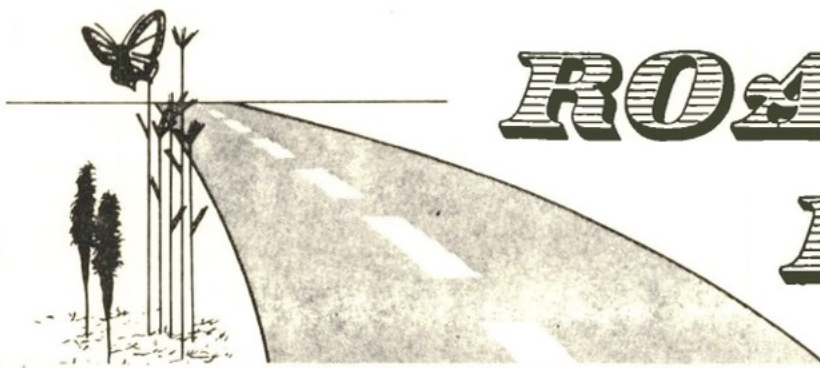
or spear thistle, is the national emblem of Scotland. It earned this reputation after an unwary raiding Dane stepped on one and gave an agonizing yell which allowed the Scots to defeat the Danes. The 'guardian thistle' became their emblem with the motto "Nemo me impune lacessit" - "no one provokes me with impunity".

One control is to dig as soon as the leaf rosettes are recognized, before the spines can penetrate your gloves, despite the rhapsodies of Robert Burns:

The rough burn thistle spreading wide
Among the bearded ear-
I turned the weeding heuk aside
An' spared the emblem dear!

If you do feel those prickles, you can make a salve from the plant to use for abrasions, skin irritations, and burns:

In a heavy kettle, heat 16 oz. olive oil to a boil. Add 1/4 lb. bees wax, stir until melted. Add 2 cups fresh thistle root, chopped, and simmer for 15 minutes, stirring occasionally. Strain salve into small jars using a fine wire strainer or cheese cloth. Do not put covers on jars until salve sets or a well will form in the center.



ROADER'S DIGEST

Vol. 4 No. 3 July, 1992

Newsletter of the IRVM County Roadside Assistance Office at the University of Northern Iowa

IOWA ECOTYPE PROJECT: GERMPLASM PRESERVATION

The importance of the Iowa Ecotype Project grows larger as the popularity of prairie plants for all kinds of landscaping projects continues to rise. For these plantings we tend to use seeds from other states because they are cheaper and more available. Unfortunately these plants pose a potential threat to the genetic integrity of Iowa prairie remnants. They are often more aggressive than native plants. And they are sometimes developed from a narrow gene pool making them more prone to being wiped out by diseases.

The Iowa Ecotype Project will ultimately provide seed to commercial growers that has been developed from a diverse collection of native Iowa prairie plants. This is accomplished by dividing Iowa into three zones running north to south and collecting seeds from as many counties within each zone as possible. This will result in greater availability of Iowa ecotype seed at lower prices.

The process is slow. But it has begun. Seeds for this project have been collected the past two years. Six different species have been collected. Sideoats grama, Roundheaded bushclover, Canada wildrye, Purple prairie clover, White wild indigo and tall dropseed. These seeds are channeled through the Integrated Roadside Vegetation Management Office at UNI and sent to the USDA Plant Materials Center at Elsberry, MO. There they are developed for use by commercial growers.



JUNE GRASS



OX-EYE

Species for the 1992 collection:

	<u>Collection time</u>
OX-EYE (<i>Heliopsis helianthoides</i>)	10/1
PALE PURPLE CONEFLOWER (<i>Echinacea pallida</i>)	9/15
JUNE GRASS (<i>Koeleria cristata</i>)	NOW



YOU CAN HELP

Limited funds are available for this project. As a result we rely heavily on volunteers doing much of the seed collecting. Any of these seeds you are able to find in your county represents a significant contribution. We do not need a large amount of seed. A few ounces (1,2 or 3; it varies depending on the seed size) is plenty. A sample of each seed collection is being maintained in its own plot at UNI for future evaluation.

The seeds collected each year are sent to Missouri by the following March. They can be sent to the IRVM office as soon as they are collected. Label them with your name and address and the county in which they were collected.

THIS PROJECT IS FUNDED BY A GRANT FROM
THE LIVING ROADWAY TRUST FUND

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