



ROADER'S DIGEST

Vol. 5 No. 1 January 1993

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

Ecotype + Cultivar = Ecovar

By Kirk Henderson

An October visit to the U.S.D.A. Plant Materials Center in Elsberry, Missouri yielded the following on the status of native prairie seed development for Iowa. This is where we have been sending the precious seed collected for the Iowa Ecotype Project of the Office for Integrated Roadside Vegetation Management in the University of Northern Iowa Biology Department in conjunction with the U.S.D.A. Soil Conservation Service with funding from the Living Roadway Trust Fund administered by the Iowa Department of Transportation.

The project, necessitated by the increasing demand for locally adapted seed, divides Iowa into three zones running north to south. Each year the seed of two or three species are collected from counties across each zone and sent to Elsberry, MO for planting. The Elsberry facility is set up with all kinds of equipment and buildings for processing seed and land to grow it.

After the tour we had a meeting with Plant Materials Specialist, Erling Jacobson from the U.S.D.A. Midwest Technical Center in Lincoln, Nebraska. Erling gave us a two-hour lecture on the plant materials release process. Their goal in working with these seeds is to increase the quantity of

seed through harvest and subsequent plantings until enough seed is produced to furnish a commercial grower with the necessary seed for planting at least a half acre plot, a plot the grower would maintain for seed production and sale for at least five years. The ecotype project involves no selection or genetic manipulation of this plant material. Rather than produce a vigorous cultivar that will outcompete our native stock, the objective is to produce seed that is a blend of ecotypes from across each of the project's three zones, an "Ecovar" if you will.

For this project the U.S.D.A. is using what is for them an alternative release system, one developed for producing seed for highway departments and conservation organizations. There are three classes of seed within this system.

1.) Source Identified: This class uses propagation materials such as seed, seedlings or other vegetative materials collected from natural sites, seed fields, orchards etc. No selection or testing of the parent population is done. There can be more than one source such as a multi-county area. But we must be able to go back and identify the origin.



2.) Selected: This class uses the progeny of phenotypically (visually) selected plants, untested parents, with promise but not proof of superiority.

3.) Tested: Materials for this class have proven genetic superiority during progeny testing. The genetic base has been narrowed by ruling out some of the less desirable plants.

The Iowa Ecotype Project falls under the Source Identified category.

In deciding how many ecotype zones are appropriate for Iowa, it was necessary to consider not only climatic variations across the state but also to guess how many released ecotypes the market will support. Commercial growers cannot be expected to maintain plots of seed for so many small regions of the state that there are not enough buyers to support their investment.

Currently the Plant Materials Center (PMC) is deciding whether or not Canada wildrye and sideoats grama, seeds collected in the fall of 1990 when the project first began, need to be planted one more year. That means we are getting very close to releasing the first "Ecovars" developed from this project. According to Bob Dayton, Agronomist for the Soil Conservation Service, "this project puts Iowa ahead of the other states in preserving the native seed and making it available on a commercial basis."

Turn Our Thinking Around to Prairie in Roadsides

Excerpted from conversations with Peter Schramm, Prairie Biologist at Knoxville College, Galesburg, Illinois and from his article, "Prairie Restoration: A Twenty-five Year Perspective on Establishment and Management" printed in the Proceedings of the Twelfth North American Prairie Conference.

Planting prairies along roadsides is finally becoming accepted. Long before the commercial people even

knew about prairie, prairie biologists had been saying that prairie vegetation is a natural for roadsides. Low-maintenance, erosion control, wildlife cover, beauty, and permanence, all contribute to its suitability. Unfortunately, people newly involved in this transformation are making many of the same mistakes that other new restorationists have been making. This is not an area for experimentation. Weedy failures on public land, there for everyone to see, are the

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Fireline

When the original survey crews laid out Iowa's "square" road system they chose what they felt was the most equitable solution for the rural landowner. The standard measuring device was a surveyor's chain. The chain of 33 feet in length was placed on the section line and

the distance of the chain in both directions became the standard 66 foot right-of-way. I'll call it standard because, while there are exceptions, it is the most common width. The roadbed of gravel-surfaced roads is usually 28 feet to 30 feet. Out of a total of 66 feet we should have approximately 18 feet of roadside on each side available for inclusion in the Integrated Roadside Vegetation Management program.

In the past most farms had livestock and fences were required. The rise of the cash-grain-only farmer meant that fences were no longer necessary. As soon as the fences

went, so did the easily definable boundaries between roadside and field. In the absence of boundaries many roadsides became cropland, some unintentionally.

Rural residents are justified in some cases when they say, "If I didn't take care of the ditch, no one would. Why shouldn't I farm it?" The roadside may have been neglected in the past but the I.R.V.M. program will help to eliminate many of the problems that have previously caused concern.

How severe is the problem of encroachment in Polk County? The problem appears to be the worst where the ground is best. In other words, the most productive soil in the north and northeast part of the county seems to pull the plow out of the field and into the roadside more than other areas. Every year, the field moves another six inches toward the road. I have been on very few gravel-surfaced roads in the county where I didn't see at least one area that someone has narrowed the grass roadside by several feet. The major problem of encroachment isn't the farmer who uses utility poles for a slalom course, although we do see that. The more common, and therefore the more serious, is the operator who plows that last furrow maybe a foot

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worst kind of public relations for prairie restoration.

I do not "know it all" when it comes to prairie restoration, but I have found it necessary to be somewhat dogmatic and outspoken to get key points across. There are two points I want to make about roadsides.

Number 1, Roadside plantings must be burned if they are to succeed and flourish. Without burning, the result is a weedy mess that will not get better with time. Whoever manages should burn every year, especially the first five to six years. The best restorations are burned year after year.

Number 2, Use species and seed in the planting mix that are sure to successfully establish in a reasonably short period of time. Roadside mixes should contain substantial amounts of the large grasses- by this we mean big bluestem and Indiangrass. Indiangrass particularly is an ideal grass for roadsides. An all-purpose, ideal grass mix, pure live seed, for roadsides contains 60% Indiangrass, 25% big bluestem, 10% little bluestem, and 5% switchgrass. Another good basic road mix is 40% Indiangrass, 40% big bluestem, 15% little bluestem and 5% switchgrass. Or the switchgrass can be left out entirely with no harm done. If it is included use very sparingly. The more competitive and staying-power forbs can be included in the grass mixes to increase diversity.

I also mosaic plant a lot. Mosaic planting can be done in cloverleaves and rest areas to assure a showy flower display. For this I use a lot of little bluestem and forb-dense plantings and back the big grasses way off to less than a pound per acre. When I do that I get these widely spaced tall grasses and I get nice intermix of little bluestem. I use quite a bit of it in there with a lot of forbs. That section of the planting, that part of the mosaic, is going to be weedier for longer. Still we get fabulous forbes there.

Again I would say on the roadsides, your

grass mix, we don't want just switchgrass syndrome. Switchgrass is quick and easy. But a closed, monocultural community with no diversity is exactly what we are trying to get away from when we turned to the natives. We want our basic, mesic, upland prairie stands which are big blue and Indiangrass. Those will develop rapidly on roadsides if burned and if the seed was good and if it was planted at the proper time. Those will come on and the PR will be better. When its done right, that's the bottom line.

So many people are into prairie. There's a lot of miss information going around. It needs to be done correctly. That's imperative or it isn't going to go. One or two or three forbes isn't enough. One should try to throw a lot of forbes out in a roadside.

It's better to do a small area. It doesn't make very much sense to me for a big government contract to come up and say we have so many hundred thousand dollars to plant prairie from Davenport, Iowa to Des Moines. You know nobody is going to have the seed. Whoever comes up with huge amounts it's going to end up with not very much bio-diversity. And its going to be a mess. It is far better to take one interchange and get somebody to do it who knows what they are doing. Do what I call the installment plan on prairie restoration and end up with much better prairie in the long run. When the Illinois DOT started doing this I would get letters from them saying we'd like to plant from Bloomington to Springfield. And they would say, "We'd like so many hundred pounds of purple prairie clover seed, and so many hundred pounds of...", and you begin to laugh and say, "Don't we wish."

These are some of the foibles and the problems. We have to turn our thinking around. It's like the national debt, you know, Ross Perot. We gotta turn our thinking around and take a new approach if we're going to do prairie in the roadsides.



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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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Road Warrior By Kathy Traeger

As the County's first Roadside Manager, Don Dahl has made the most of the opportunity taking Roadside Vegetation Management to new levels in Des Moines County. "I've been here two and a half years now. It's still a young program but it's growing rapidly." He admits it was a struggle in the beginning. "You don't have any equipment, you don't have any manpower and you don't know what direction to really go with." Now considered to have one of the most active programs, Don should be proud of the direction he has provided using his drill and hydroseeder to spread prairie grasses throughout the county.

Listening to Don describe the joy of working outdoors makes it hard to believe he spent nine years as a machinist for John Deere. Leaving the factory in search of greener pastures, Don became a "non-traditional" student and received a degree in Biology Conservation Management from Upper Iowa College. From there he went directly into the Roadside Management position with Des Moines County. "Maybe some of the other Roadside Managers would agree with me that this is one of the best jobs...it is very rewarding. The rewards lie in getting outside almost everyday, enhancing the environment and putting something back that will benefit our children."

Don's position is unique because he is supervised by the County Conservation Board even though he is actually a Secondary Roads employee through the County Engineer's office. His program receives good support from the county, he now has the necessary equipment to work with and hopes one day to have a full-time assistant. He usually has four student assistants in the summer and works alone in the winter months.

Equipment and manpower alone do not guarantee a successful program. Don is so convinced that promotion and education are the real keys to a successful IRVM program he never turns down the opportunity to speak about IRVM. "We've promoted the program quite a bit now. I've given presentations for the Board of Supervisors, the Conservation Board, or to anybody that I can reach." With radio talk shows and many presentations, Don has reached audiences such as Kiwanis, Rotary, Woodland Owners Club and farmer's organizations. "I show them specific results. It has really opened a lot of eyes. It is important to be honest about the realities. I show them the slides...exactly what IRVM is like. So they understand that this is not an overnight process."

Bringing awareness to young people is also important when promoting IRVM. Don has given presentations at Southeastern Community College, high schools, FFA meetings and 4-H clubs. "I feel it is essential to get those young people involved just so they know what is going on with the IRVM program. Without these efforts," he says, "you are just spinning your wheels."

Don's concern for the environment and appreciation for nature have carried over into his home life. He and his family, wife Deanna and their three children, live in an earth-sheltered house, an impressive structure they designed and built themselves protected from the wind on three sides by an earthen berm. Don also enjoys sports. Besides cheering the athletic activities of his children, Don gets involved on the field as a registered official with the Iowa High School Athletic Association. He referees high school football games in the fall and in the summer umpires softball and baseball.

In the future Don looks forward to showcasing his program when he co-hosts the 1994 UNI Roadside Conference with Michael Saltzgaver, Roadside Manager of Lee County. "We've got some nice rolling hills with 2:1 slopes that we are trying to get stabilized," says Don. Their challenge will be our pleasure when conference participants get to view the roadides of scenic southeastern Iowa, the domain of Road Warrior, Don Dahl.

AFIRM Beginning

It's true. Roadside Managers are now incorporated. Once only a dream in Al Ehley's vast subconscious, the Association For Integrated Roadside Management (AFIRM) achieved official status within the state of Iowa this month by filing its Articles of Incorporation with the Secretary of State. As stated in its by-laws, this organization supports the "Integrated" approach to roadside vegetation management and promotes the professional development of roadside vegetation management personnel.

Serving as officers for the organization's first year are: Jonathon P. Steege of Fayette County (President), Russell H. Bennett of Johnson County (Vice-president), Douglas G. Sheeley of Hardin County (Secretary), and Gerry Vande Vorde of Buchanan County (Treasurer). The three at-large members of the executive committee are Loren E. Lown of Polk County, David Webber of Story County and Walt Wickham of Clinton County.

The officers held a meeting at UNI on December 16th to discuss objectives for the upcoming year and planned the Winter Meeting for Roadside Managers to be held February 3, in Des Moines.

Encroachment/continued from page 2

too far and rolls a little sod down the ditch or allows soil to collect in the roadside because he is lacking a buffer to retain the soil in the field where it belongs.

What difference does it make if a few extra feet of roadside are incorporated into a cropland? It is a common misconception that the roadside is "wasted" ground. A healthy roadside provides many benefits, some of which are measurable in economic terms and some of which are not. From a rural businessman's perspective, a healthy weed-free roadside composed of native plants is a very real asset. A well-maintained roadside stand of native grasses and forbs is weed-free and not a seed bank for profit-robbing plants which will later invade adjacent fields. This can translate into savings at today's chemical prices and possibly big money in the future. Other benefits which come to mind include

increased soil stability, water filtering capabilities, wildlife habitat, education and beauty.

For the 6,000 years before the ancestors of most Iowans arrived, a plant community developed which was able to thrive and dominate the prairie soil of the great plains. With effort we may be able to recapture some of that landscape. In this era of high-priced and increasingly rare available land, the old cliché of "there isn't any more land being made," has a more serious meaning. The remaining acres of roadside are an asset Iowans can no longer afford to waste. Our state has less public land dedicated to parks and preserves than almost any other state. In the state with arguably the best farmland in the world, it is time for us to pay attention to our other resources. Words by William Wordsworth translate well to our ecological situation.

Member of the Roadside Community

By Kathy Traeger

The ringneck pheasant, introduced to this country in the 1880's, occupies an important niche both ecologically and economically as a member of the roadside community. Like grass on the prairie, pheasants in Iowa farmlands were taken for granted during the 30's and 40's when farming practices were conducive to pheasant production. Current land use practices have resulted in the elimination of nesting cover and nearly an 80% drop in pheasant population since the 1960's. Hunting seasons were shortened and bag limits reduced but without places to live pheasants could not survive.

In an intensely agricultural region such as Iowa, roadsides are of critical and increasing importance to nesting pheasants. Roadside vegetation left undisturbed year-round is especially attractive. Integrated Roadside Vegetation Management is one of several initiatives resulting in improved pheasant habitat.

Knowledge about pheasant nesting habits helps landowners and Roadside Managers understand the need for sufficient roadside cover. The pheasant has one brood each year. The normal nesting period for the pheasant is mid-April through August. The median time of nest establishment is approximately May 25th with the peak of hatch occurring around 15-21 June. The pheasant requires 35-50 nesting days per brood.

Ideally pheasants should have at least 30 acres of safe, undisturbed nesting cover per square mile. Nesting areas within a mile of

small grain fields provide ready access to these important feeding areas for broods. The roadside, this well-distributed nesting habitat supplies up to 25 percent of the pheasant production in Nebraska and Iowa. On study areas in Illinois where all roadsides were managed for wildlife nesting, the pheasant population doubled in 3 years and nearly half of all pheasant nests were established on roadsides.

Effective nesting cover must be tall and dense enough to hide both nest and hens. Tall native grasses, such as big bluestem and Indian grass used by IRVM counties, are versatile wildlife cover plants that provide a wide range of cover conditions. These grasses are highly resistant to lodging by heavy snows. The erect residual plants provide vital cover for early spring nesting.

Unfortunately, many thousands of nests and nest sites are destroyed annually in Iowa because of disturbance to our roadsides during spring and summer (late April through early August). Over a ten-year period the number of successful pheasant nests on seeded, unmowed roadside plots was nearly three times higher than on typical unseeded roadsides where mowing was not controlled (Joselyn, 1968).

Although roadside cover makes up a small percentage of the land base, its widespread distribution provides the primary source of available nesting cover for the ringneck pheasant. IRVM practices enhance pheasant habitat by reducing disturbance from mowing and herbicide spraying. Burning roadsides promotes prairie grasses and plant diversity. Iowa roadsides offer the most significant acreage of land which can be managed for the protection of this important member of the roadside community.

Road Apples

- The 1993 edition of the IRVM Poster/Calendar and The Roadside Almanac are available through this office upon request. (319)273-2813.
- Congratulations to Jon Steege, Roadside Manager for Fayette County, who has been appointed by the Governor to fill a vacancy on the State Preserves Board.
- The IRVM Technical Manual is ready for distribution. Most of the 99 counties have received their copy either in the County Conservation Board or Engineer's office. Anyone else can purchase one through this office for \$15.00 check payable to UNI Roadside Office.

Bargain Books

Prairies, Forests & Wetlands: The Restoration of Natural Landscape Communities in Iowa

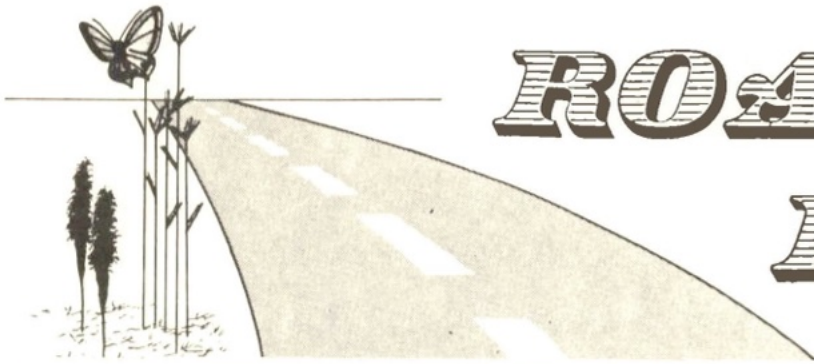
by Janette R. Thompson
\$24.95 Cloth, \$10.95 Paperback.

Iowa Bird Life

by Gladys Black. \$34.95 Cloth and \$15.95 Paperback. More than the usual photo and description. Proceeds go to The Nature Conservancy for habitat protection.

Both books are available in bookstores or through U. of Iowa Publications Order Department 1-800-235-2665.

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Is Your County Guilty of "ROADSIDE" Management?

By Kirk Henderson

Crimes against roadsides such as broadcast spraying of herbicides while under the influence of chemical companies, planting monocultures of European grasses without a clue, mowing addiction, prairie neglect and wildlife abuse are on the decline as counties find ways to overcome their roadicidal tendencies. To oversee their rehabilitation IRVM counties hire Roadside Managers thereby providing the most structured, supportive environment for recovery. This level of sustained guidance and monitoring prevents relapse and allows for successful reentry into environmentally sound management systems for Iowa's roadside resource.

Recently there has been some concern over the slowdown in hiring of new Roadside Managers. Observers speculate that, with 26 counties actively engaged in the program, other counties are awaiting results before joining in. Some blame tight county budgets for creating a climate unreceptive to starting up new programs. If either of these are real trends, they indicate a lack of awareness among counties that, by reorganizing funding for different roadside services already in existence within the county, an IRVM program can be created "revenue neutral," that is, without additional money. Yes, for the same money most counties can stop killing roadsides and start doing some positive things for their taxpayers.

Why do some counties choose to pursue their old 'roadside' ways instead of becoming productive, contributing members of the roadside community? Is the human condition such that we are not capable of real change? Are we doomed to remain as victims of our lowly origins forever? Discussion with representatives of non-IRVM counties across the state gives much reason for hope. Several counties are currently positioning for entry into organized IRVM programs. The most encouraging signs of all come from counties that exist under the most oppressive circumstances. These counties, for the moment unable to break into the open with formal IRVM programs, exemplify the true resilience of the human spirit by finding other ways to get some good things going in their roadsides. Making use of personnel and resources within the County Conservation

Board and Secondary Roads Department, these counties are managing spot-spray programs for herbicide application, acquisition of native grass drills for roadside seeding and some burning of roadsides where prairie exists already. In this way they REAP the rewards of an IRVM program on a smaller scale at least.

Thanks to these underground efforts and the overall spread of IRVM, roadside management in Iowa continues its steady evolution. Change is sometimes slow. There is much tradition to overcome and technology is still playing catchup. In the case of conservation tillage, those that got involved early are the happiest and provide the spark for the current revolution. Ultimately roadside management will enjoy a similar explosion and we'll be able to close the book on "Roadside" management forever.

Roadside Survey Planned

In order to get a clearer, more complete picture of the state of roadside vegetation management in Iowa, the UNI Roadside Office will be mailing a questionnaire to all counties in Iowa. Counties were last surveyed in 1988. Since that time 38 counties have formally adopted the IRVM philosophy. Of these 26 have a designated Roadside Manager running their programs. The primary purpose of the survey is to determine to what extent management practices in the other 61 counties have changed over the last five years.

Assessment of the Potential Value of Native Roadside Plants on Biological Control of Agricultural Crop Pests

Principle investigators: Dr. David Orr and Dr. John Pleasants, Affiliate Assistant Professors in the Department of Entomology at Iowa State University.

...The following is from an interview with David Orr.

My main area of emphasis here at Iowa State is the development of biological control programs for insects. Right now I'm focusing on the European corn borer. When I heard about the Integrated Roadside Vegetation Management (IRVM) Program replanting native plants, especially the flowering plants, I got to thinking. Other evidence has shown that food resources, especially in the form of flowering plants, can extend the life span and improve the effectiveness of natural enemies of pest insects. Natural enemies include things like insect parasites, predators and also diseases. My main area of focus is on insect parasites. They're probably the ones that would benefit the most from flowering plants. IRVM provides a very good opportunity to find out whether native flowers could benefit agriculture.

I already had a good parasite in culture in the lab with which to work. This is a parasitic wasp that attacks the European corn borer in the field. I got funding for the study through the Leopold Center for Sustainable Agriculture. The work is being done with a colleague named John Pleasants. Last year our investigation followed two different lines.

First of all we wanted to identify plants that looked like they could, based on available literature data, provide resources at critical periods in the natural enemies' life history. We identified a list of plants and tested some of them in the laboratory. We would take a flower from a plant and put it into a small cage that had constant air flow and water available for the flower and the insect. We measured whether or not the life span of the insect was increased or decreased in comparison to feeding the insect only water or both water and honey. We found that indeed we did get quite a significant increase in the life span of these insects from some

plant species. Based on our observations of the insects it looked like they were feeding on the nectar and in some cases maybe even the pollen of these flowers. We found that wasps were only able to use species with bowl-shaped or flat flowers. The nectar in flowers with a corolla tube was inaccessible.

The next stage of the project was to monitor the phenology of prairie plants. We collected literature data on the phenology of almost all of the prairie plants that occur in Iowa. By phenology we mean the time of year that they bloom, the time sequence during the year that they would be blooming and therefore providing resources. We identified two prairie sites in Central Iowa, Doolittle Prairie and the Ames High Prairie, and collected phenology data for most of the flowering plants we could identify there.

We entered that data as well as the literature data and data on the lengths of flower corolla tubes into a computerized data base. This data base would help us identify what plant species would be flowering when particular insects are active and whether particular insects could access the nectar in their flowers. The data set is important because different natural enemies have different feeding behaviors. The list of potential candidate flowers can be narrowed by including that information. We also included our longevity data and the presence or absence of these flowers on current planting lists. If somebody was interested in a particular natural enemy you could key in data about what time of year that natural enemy had a critical need for resources and you could call up all the flowering plants that would be available at that time of the year. From that particular list you could sort through and identify those that were suitable for planting in roadsides, that had accessible nectar or other resources and were already on planting lists. You should be able to identify potential candidates for resource provision for natural enemies from the data base. We put together this data base on Excel, a commercial data base

program, and we're hoping to publish this information in the near future and make that data base available to resource managers and academic types that might be interested in using the information for whatever purpose.

The plan for this year is to look at more of an applied approach where we identify areas that have flowers that we know are helpful to the parasitic wasp and compare population levels of both the parasite and the insect it attacks, the European corn borer. We will compare corn damage in areas where these flowers are present with conventional roadside areas where there is only grass to see whether these flowers really do make a difference in insect populations.

I'm really encouraged by the data we got last year and I'm hoping that this data base can provide a catalyst for future work or even be helpful as it is.



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Road Warrior

by Kathy Traeger



Bruce Bryant manages county roadsides with an outdoorsman's quiet sense of direction and appreciation for things that are the result of time, nature and a guiding hand. Near the Mississippi River, Bruce Bryant, Muscatine County Roadside Manager, has been working quietly for nearly two years. Moving his county's IRVM program steadily forward, quiet is Bruce's style. By remaining positive and consistent this style has been effective garnering support for his program from both the county

and private landowners. The county support recently materialized as new equipment for burning- drip torch, Indian pumps and flappers and for seeding- a native grass drill and a wildflower seeder. "At first we were borrowing things from the County Conservation Board. It was their equipment so we would have to wait in line." Success depends too much on timing for that situation to last very long. "We're better off now."

With new equipment Bruce's seeding projects have taken a more definite direction. "One thing we are trying is getting away from some of the taller grasses such as big bluestem and Indiangrass. Out of concern for visibility we are trying to stay with grasses in the 3 to 4 foot range. Not necessarily really short grasses, but little bluestem, sideoats

and switch. And not the hybrid-type switch that grows so tall and rank. But the native switch that is really only three feet high."

"I would like to plant some demonstration plots around the County Engineer's office building so that the secondary roads employees could see some of the plants and flowers. And on some of the construction jobs that we do, we are going to try to put a lot of flowers near the intersections."

Landowners support Bruce's program. "I was raised on the farm and have always worked with farmers. The main thing they worry about is getting something to grow in ditches besides weeds. They see you out there with a drill putting native grasses in the roadside and they think that is just great. Of course you have others that say, 'can't you plant crownvetch or birdsfoot trefoil?' I guess we are a populated enough area so it's pretty diverse. We have lots of acreages in this area, and those people like the idea of roadsides for wildlife."

The Other Side of The Ditch

By Chad Paup, Roadside Manager for Guthrie County

Gaining the cooperation of landowners is an important aspect of a Roadside Manager's job. After all roadsides border private property and that makes us neighbors to every rural resident in the county. As good neighbors we must remember to look at things from the other side of the ditch, how their business works and for what services they depend on the county. Since farmers are engaged in an enterprise with which we are somewhat familiar, we understand their priorities. And naturally this makes us more cooperative.

Roadside Managers hope for the same kind of cooperation from landowners. But do we give them an even chance? Unless they know what we are doing and what our priorities are, farmers are not going to know what it takes to be good neighbors to County Roadside Programs. It's our responsibility to provide a good understanding of I.R.V.M. concepts and objectives so that in time we can bring about an appreciation for what we are doing. Only then will there be an end to farming practices that run counter to good roadside vegetation management.

In Guthrie County I have the unique

opportunity of being the Roadside Manager, Weed Commissioner, Park Ranger, and Naturalist. With such a host of duties, I find myself giving many environmental programs. Roadside Management gets its share of the spotlight. Landowner knowledge of the benefits of roadside management to agriculture and wildlife increases acceptance and ensures success for the program. In some cases landowners may already be managing their own roadsides. The management techniques are sometimes not in the best interest of the roadside. Many are amazed how they can help reduce the roadside weed problem by simple changes in farming practices.

Keep telling them we are reducing our chemical dependency by establishing prairie, a vegetative cover that one day will keep out weeds on its own. Talk about erosion control and wildlife habitat. These are simple principles that you and I, as Roadside Managers, think and practice every day. But there are too many people that still don't have the concept. It should be our highest priority to educate people, end conflicts and allow for progress.

Bruce worked ten years with the USDA Soil Conservation Service and three years with the Iowa Prairie Seed Company. "I guess that is probably how I got the position of Roadside Manager. They wanted someone who had the experience with erosion control and seeding and that kind of thing."

When he's not working in roadsides Bruce can be found outdoors. "Being single I spend a lot of time hunting and fishing. I hunt just about everything." He also spends time working with a young golden lab. "Bandi did a good job hunting pheasants in her first year. We are at the point where she knows what a pheasant is, that and her food bowl. I do some fishing too. I bought a new boat and last year found most of my walleye right here on the Mississippi near the wing dam." I also golf and play softball and volleyball. So I stay pretty busy."

With his program in the growth stage, Bruce feels, "there is hope for more growth. Right now I'd like to take it one season at a time and plan for the year ahead. I want to see how I did last year and then decide what changes to make."

Burning Issues: Fire and Prairie Management

by Tim Orwig and Dennis Schlicht

Fireline

Spring's almost here. People who manage roadside prairies are gearing up for a new season. If you manage with fire, you know who is on your burn crew, what equipment you'll use, when your burn window is, where and how you're going to burn, and you have some vague notions of why. But do you have a set of goals for your management?

For many years, the dominant goal of prairie management has been growing impressive stands of plants. Fire clears away dead standing growth and thatch, exposes the soil to direct sunlight so that it warms quicker and timed exactly right it probably favors warm-season native grasses over cool-season non-native grasses. You have much more impressive vegetation after a burn. If your goal is impressive vegetation, and your starting point is bare (especially weed-seed filled) soil, then the more fire you use the better.

But if that pasture or roadside you are managing contains remnant prairie, you have other obligations than just impressive plants. We sometimes forget that a prairie is an ecosystem. We don't see many buffalo or wolves on our prairies (particularly roadside prairies!), so we seldom think about managing for ecosystem biodiversity. But even the smallest roadside prairie or railroad prairie has an animal population. In any prairie, there are undoubtedly more species of invertebrates than there are species of plants. Recent inventories on several Iowa prairies have revealed over 50 species of butterflies, 15% of which are prairie-restricted. Tiny roadside prairies surveyed in Iowa still harbor a remarkable diversity of prairie obligate insects. Clements and Shelford (1939) note that an acre of prairie may contain 10,000,000 insects.

Before you drop the match on a prairie this spring, set some goals. Do you have remnant prairie here, or is it all newly-planted? If it is remnant, then your goal should be to preserve the ecosystem, which is a complex web of

interacting (and often interdependent) species. How could this ecosystem be managed to produce the most good for the most species with the least harm?

Because fire often destroys invertebrates, particularly those in stems or leaf litter, consider more diverse techniques of maintaining diversity. If you must burn, leave large patches unburned each year to allow invertebrates to migrate from unburned to burned areas. Since populations need time to reestablish, maintain at least five year intervals between burns on any one portion of a site. But also consider your other management options, including mowing, mowing and baling, raking, brush hogging, hand cutting brush, hand cutting and treating brush, spot spraying, wick spraying, girdling, and controlled grazing.

At the very least, start setting goals for your management, and then evaluate and adjust your management based on how well you meet your goals. The articles in the list below should help. Burning is a tool, not a goal. If this tool achieves your goals, then it is useful. But if it does not, you should consider other options.

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IRVM Still Grabbing the Spot Light

Watch for articles on Iowa's Integrated Roadside Vegetation Management program in upcoming issues of:

▲ Land and Water, March/April

▲ Iowa Conservationist, May/June

▲ Audubon Magazine, May/June

▲ Rural Electric, July

Roadside Community Member

By Kathy Traeger

When growing up in the rolling hills of NE Iowa, early spring days would entice me to hike through the roadside, a wonderland escape filled with intriguing plants and creatures. Except for the slosh of soggy grasses under each footstep, it was usually quiet as the sun melted the last bits of snow and warmed the cool brisk air.

Swish...mysteriously gone, wriggling off into the underbrush allowing only a brief glimpse. The art of its escape seems to live in the color and pattern of its skin for this legless roadside community member. The mid-dorsal stripe, orange or yellow, with two yellow lateral stripes identify this reptile, one of the most fragile and beautiful creatures to inhabit the vegetating roadside, the Iowa garter snake.

Eastern and Redside garter snakes are the most abundant Iowa snakes. The redside is the western form and is the most distinctive, with bright red bars between dark spots above the lateral stripes. These are lacking in the eastern garter snake. The redside is found throughout Iowa except the northeast corner where the eastern form dominates. The plains garter are more heavy-bodied than the others. These races interbreed freely and unlike most snakes, they bear living young.

Rising soil temperatures in early April bring the first garter snakes to the surface. They bask in the spring sun near a deep mammal burrow or rocky crevice where they spent the winter. Soon courtship begins. The babies, born in August or September, eat earthworms and insect larvae and when older eat frogs, salamanders, and young mice. They grow as long as they live, usually 18-26 inches. Garters are often found around water,

especially isolated farm ponds and some roadside ditches.

The primary threat to garter snakes comes from birds circling overhead while snakes are active. Because these predators depend on vision for detecting prey, a snake's color pattern could determine whether it lives or dies.

Although of different colors, striped garter snakes use similar escape strategy. Stripes on the back and sides give the eye no points to fix on and make it difficult for predators to detect motion or to judge speed. Research shows that color pattern and escape behavior are genetically linked. Striped snakes are more likely to flee in one direction, while others may reverse direction several times during flight. Traits that influence a snake's ability to survive and reproduce are subject to natural selection so that the most favorable traits replace others and the most advantageous color pattern becomes the dominant one.

Because a snake is cold blooded, their metabolic and behavioral processes depend on its ability to raise its body temperature by external means. Even though threatened by predators, a snake must spend days basking to absorb sunlight in order to digest its food, it also basks to shed, and when it is pregnant.

By the end of Sept. most adult snakes begin moving to their winter home, an hibernaculum. They may travel a mile or more and must overcome many obstacles. As a result many are killed, perhaps near roadsides. By the end of November, Iowa's fragile and beautiful roadside community member, Iowa's garter snakes have found their winter home or died trying.

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Road Apples

•The UNI Roadside Office has a 45 minute video showing a Johnson County Roadside Burn available for demonstration/training purposes. (319)273-2813.

•The Loess Hills Prairie Seminar weekend is June 4-6. This is a great family prairie weekend. Western Hills AEA (712)274-6083.

•The Iowa Prairie Conference will be held this summer at UNI probably in July. More details soon.

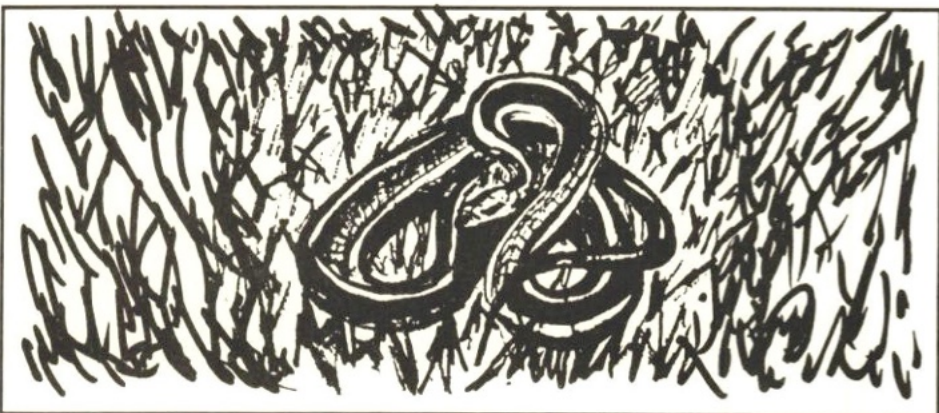
•Species for this year's Iowa Ecotype Project collection- Probably little bluestem, maybe Indiangrass and perhaps a blazingstar.

Bargain Books

How to Identify Grasses and Grasslike Plants by Harrington, H.D. This book does not contain grass species. It is a guide to the parts of grass plants and instruction on using them to tell one grass from another. Available through Patricia Ledlie Booksellers, INC. \$9.95. One Bean Road, P.O. Box 90, Buckfield, ME 04220, (207)336-2778.

Bringing Back the Prairie, A Restoration Guide for School and Community Sites. \$4.00 John Stiles, 1713 Lynncrest Drive, Coralville, IA 52241.

Some copies of the "Proceedings of the Twelfth North American Prairie Conference: Recapturing a Vanishing Heritage" are still available at a cost of \$20.00. Make checks payable to: University of Northern Iowa and send to: UNI Continuing Education, Proceedings of the 12th North American Prairie Conference, University of Northern Iowa, Cedar Falls, Iowa, 50614-0223.



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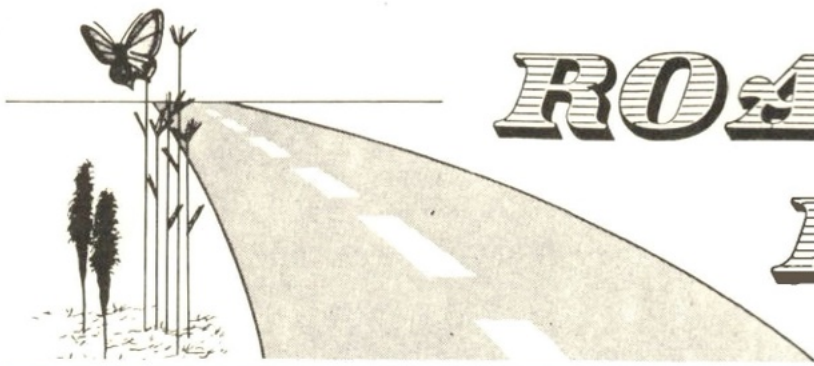
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What's Inside:

- ▲ Overcoming Roadicidal Tendencies...
- ▲ Wildflowers in Roadsides Benefit Agriculture???
- ▲ Fire is a tool, not an end in itself...
- ▲ Muscatine County's Roadside Manager, Bruce Bryant...
- ▲ Landowner Relations: Cooperation Through Understanding...

**Roader's Digest
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Cedar Falls, IA 50614**



ROADSIDE'S DIGEST

Vol. 6 No. 1 March 1994

Newsletter of the Office for Integrated Roadside Vegetation Management at the University of Northern Iowa

Roadsides "GET A LIFE" from the Living Roadway Trust Fund By Kirk Henderson

The LIVING Roadway Trust Fund emphasizes the vitality of Iowa's roadsides, alive with plants and animals and waiting to be managed for more. As a means of pumping life into county roadside programs, the Living Roadway Trust Fund (LRTF) takes on additional meaning. With Iowa's Resource Enhancement And Protection (REAP) fund, the Road-use Tax fund and utility fees as donors, the county portion of the Living Roadway Trust Fund last year totaled nearly \$120,000.00. The 30 or so counties with fully implemented Integrated Roadside Vegetation Management (IRVM) programs and designated roadside managers benefit greatly. Many are literally brought to life by this funding. At the same time, many counties have yet to tap this vital and very available source of money.

The problem, according to Steve Holland, coordinator for the Iowa Department of Transportation's Living Roadway Program, is that "the other counties think they have to hire a roadside manager to be eligible." That is not the case. Besides helping counties with existing IRVM programs, the money is intended to help new counties get started by funding demonstration projects and introducing IRVM practices to county officials.

As a means of getting counties actively involved in IRVM, the Living Roadway Trust Fund is very approachable. To be eligible for funding, interested counties need only file an IRVM plan with the Department of Transportation. The plan should demonstrate a commitment to integrated roadside vegetation management practices. Once approved, these grants provide money for conducting inventories to locate existing

roadside prairie areas, seed for roadside prairie grass and wildflower plantings, and equipment specific to use in roadsides such as native grass drills, as well as tools for conducting prescribed burns. Three percent of REAP goes into the Living Roadway Trust Fund making roadsides another thankful recipient of the

legislature's generosity at REAP funding time.

For more information regarding the Living Roadway Trust Fund and how to apply, contact this office at (319)273-2813. The next deadline for applications is June 30, 1994.

IOWA ECOTYPE SEED TO BE RELEASED

Agencies Plan Release of Locally Adapted Native Plants

growers

are requested

to apply for

production rights

The USDA Soil Conservation Service, the University of Northern Iowa, the Iowa Department of Transportation, the County Integrated Roadside Vegetation Management Program, and the Iowa Crop Improvement Association are cooperating in the release of the first "Source-Identified" plant materials for Iowa. They anticipate their first release to occur in

late March 1994. Additional releases of this type are planned for future years.

Two plant species will be released for 1994 production. Canada wildrye and sideoats grama are the release candidates. One ecotype of these species will be released for each of the three zones in Iowa (Northern, Central, and Southern zones). This means three ecotypes of each species will be available. Producers with facilities located in the same zone as the ecotype collection will receive preference for production rights. However, if no applications are received from any one zone, producers located in other areas will be considered. A map showing exact zone boundaries will be available to applicants.

continued on page 2

Seed Storage: Simple Measures Protect Big Investment

Paul Bockenstedt, graduate student in the UNI Biology Department currently coordinating seed collection and propagation for the Iowa Ecotype Project

Fireline

Of the many integral steps involved in a successful planting, the storage of seed stocks is perhaps the most overlooked. If you collect seed for your program that will be stored before planting, it's important that the most be made of the investment of your time and energy. Although each species is different, there are some general guidelines for seed storage.

Temperature and humidity play the greatest role in preserving seed viability. Seed life is doubled for every 10 degree decrease in storage temperature down to the freezing point. It is doubled for each

1% loss in seed moisture down to 5%. Maintaining conditions of 50 degrees and 5% seed moisture will allow for at least one year of storage with minimal loss of viability and vigor. Temperature and seed moisture effects are independent of one another.

Therefore, seed viability can be dramatically reduced if both of these factors stray far above the 50 degree and 5% moisture baseline.

Store seed in a constant environment.

Seeds transferred from a dry cool

Seed life is doubled for every 10-degree decrease in storage temperature down to the freezing point.

environment to a warm and humid one and back again face increased risk of viability loss, as well as fungal and insect damage. Seed should not be put into storage with a high moisture content. If this situation is unavoidable, be sure it is kept in areas of good air circulation, and store it in containers that allow for loss of excess moisture, such as paper or burlap bags.

Air circulation is important in both the drying and storage of seed. Collected seed exposed for several weeks to air which is about 20% RH should be ready for storage. This process can be expedited by circulating dry warm air (not hot) around the seed for approximately 1 working day. Once the seed is put into storage, some air circulation should continue to keep seed moisture low and prevent the growth of fungi.

Providing cool, dry conditions with adequate air circulation for seed storage will help protect your investment in seed and improve your chances for successful plantings.

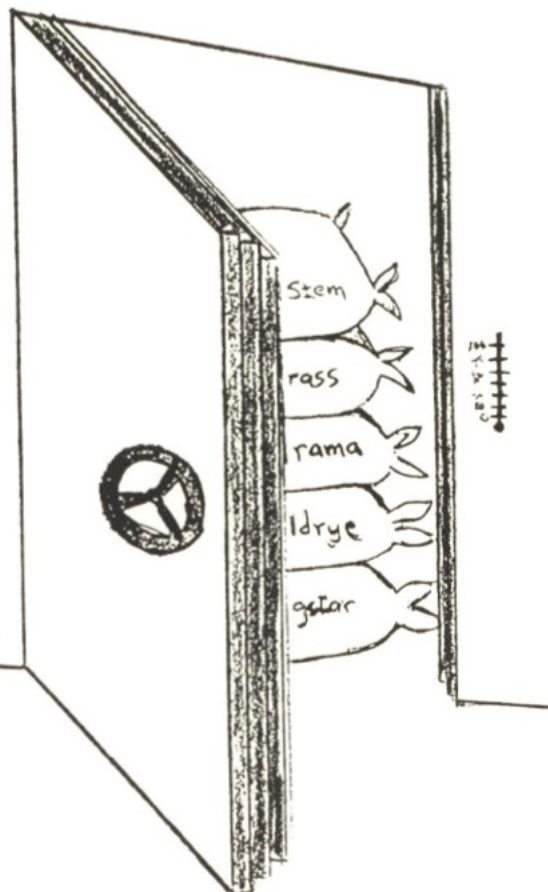
Release of Locally Adapted Native Plants/

continued from page 1

Interested seed growers will be asked to complete an application for production rights. Producers will be selected based on ability to produce the plants, their conservation ethic, pricing policy, and their willingness to work with the releasing agencies to produce certified material.

Source-Identified plants are not genetically improved but are guaranteed as to source. Also, seed supplies are maintained to guarantee future production. The Iowa Crop Improvement Association will certify these materials and will tag seed bags with yellow tags to indicate seed is of known geographic origin and quality. This is very important to consumers since many native plants and seed on the market do not have guarantees on their place of origin. This often makes adaptation to given areas questionable.

For more information contact the Soil Conservation Service at 314-876-0908 or 515-284-4370, the University of Northern Iowa at 319-273-2813 or 319-273-2238, or the Iowa Crop Improvement Association at 515-294-6921.



IRVM Vol. 6, No. 1
March 1994

Kirk Henderson
Director
Tammy Turner
Office Manager
Carole Kern
Special Projects

Roadster's Digest is a quarterly 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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Integrated roadside vegetation management: the Iowa model

Daryl D. Smith
Professor of Biology
University of Northern Iowa
Cedar Falls, Iowa 50614

For publication in the proceedings from the International Symposium on Environmental Concerns in Rights-of-Way Management.

Abstract

The original roads in Iowa traversed the tall grass prairie. As long as prairie remained adjacent to the roadside, seed was available for secondary succession of prairie. With more extensive development of agriculture, cropland replaced the prairie adjacent to roadsides. Therefore, when modern more extensive roadbed construction eliminated the roadside remnants, no seed sources were available. As roadside prairie was lost, weeds moved into the roadside. Weed control by extensive mowing or broadcast herbicide spraying proved to be expensive and inefficient. An integrated roadside vegetation management program (IRVM) comprised of a combination of native vegetation, reduced mowing, prescribed burning and spot spraying of herbicides was initiated as an effective, cost efficient alternative. The Iowa Model of IRVM has attained wide acceptance in the past five to eight years.

The Iowa Program

In the mid 1980's three counties established IRVM programs. Interest in IRVM spread rapidly; in 1988, an IRVM pilot program was established at the University of Northern Iowa (UNI) to assist counties in instituting IRVM programs and to provide support for the six counties with established programs. This pilot program was funded by a grant from the 1986 Iowa Groundwater legislation and was a joint venture of the UNI Biology Department, the United States Department of Agriculture-Soil Conservation Service (USDA-SCS) and Black Hawk County Conservation Board, one of the early leaders in IRVM. The next year, 1989, the Iowa legislature funded the establishment of an Iowa Department of Transportation IRVM program for the states' primary highways and established a Living Roadway Trust Fund (LRTF) to provide an annual

funding source for special roadside projects (Smith 1990).

Currently, 51 of Iowa's 99 counties are using IRVM programs. This is a dramatic increase from 3 counties in 1985 with IRVM programs. A county is considered to have fully implemented an IRVM program when they hire a roadside manager. As of 1993 there are 26 counties with IRVM programs directed by roadside managers. Another 15 counties are utilizing an IRVM program or partial program without designating a roadside manager. An additional 10 counties are in the final stages of implementing some form of IRVM program.

Traditionally roadside vegetation maintenance was viewed as a necessary evil and a financial drain on the state and counties. Agencies increasingly tend to view roadsides as space for creatively achieving a variety of objectives. With so much of our land under development and cultivation, they look at roadsides and see opportunities for scenic roadways, biodiversity, prairie restoration, rare plant protection and wildlife habitat.

Introduction

An ideal program for right-of-way maintenance of roadside vegetation would be cost efficient, reduce pollution, control weeds, reduce soil erosion and beautify the landscape. A marketing campaign could portray it as a win-win situation; the right thing to do and less expensive. An integrated roadside vegetation management program (IRVM) has all of these attributes. IRVM is based upon establishment of plant communities consisting of diverse, perennial, native vegetation which resist weed invasion. This natural method of weed control is supplemented with limited mowing, prescribed burning and spot spraying of herbicides to eliminate specific weedy problems. The Iowa Model of IRVM has proven to be successful and has attracted regional, national and international attention.

Historical context

A sense of the history of development of roads and associated roadside vegetation is helpful in understanding the need for integrated roadside vegetation management. As a country is settled, roads initially penetrate the wilderness by following existing trails. Consequently they are only a modest intrusion into the native vegetation. Iowa was 85% prairie at the time of settlement so most of the early roadsides consisted of native prairie. Most disturbances of that roadside prairie included incidental road widening from increased traffic and minor drainage modifications to improve wet spots. Construction impact was moderate as roadside ditches were constructed with hand tools and horse-drawn scoops. Prairie vegetation that was removed was soon replaced by secondary succession from prairie adjacent to the roadside. The secondary

succession could occur because of the presence of nearby sources of original prairie vegetation. In the latter part of the nineteenth, in spite of the use of more sophisticated construction technology and more extensive earth moving, prairie re-establishment via secondary succession was still relatively rapid as long as original prairie was nearby and/or remnant patches remained in the rights-of-way. Most of the early railroads in Iowa were constructed during this era, and secondary prairie succession commonly occurred in these rights-of-way. Some of the best remnant prairie communities occur in these rights-of-way, as well as in those roads built in this same time period. If the road and railroad rights-of-way are adjacent, the quality and quantity of the remnants increase. As agriculture expanded in the twentieth century, an increasing amount of land was converted to cropland eliminating the remnant prairies adjacent to roadsides. Consequently, opportunities for secondary prairie succession in rights-of-way declined.

The final demise of many roadside prairie remnants began in the 1920's. A program to get Iowa out of the mud created an extensive improved farm-to-market road system and eliminated many roadside prairie remnants. Improved road construction techniques included a firmer, raised roadbed and more modification of the right-of-way. Soil had to be moved to form the modern raised roadbed and to deepen the ditches for better drainage. Features like ditch foreslopes and backslopes became common. The more extensive earth movement erased most of the remaining remnant prairie vegetation. At the same time, virtually all adjacent land had been converted to agricultural crops. Native vegetation in fence rows and very isolated prairie remnants was all that remained. Essentially no remnants existed to provide seed for secondary prairie succession. Roadside prairie deterioration accelerated as subsequent technological advances in road construction equipment and techniques resulted in more extensive modification of rights-of-way.

The loss of remnant seed sources coupled with increased soil disturbance by road construction and erosion from adjacent cropland created ideal conditions for weeds. Unless the roadsides were intentionally seeded, they readily became prime sites for early successional weeds. Early roadside seeding mixtures consisted largely of smooth brome, and in some cases, fescue. On certain soil types, these non-native grass plantings are easily invaded by weeds and woody species. The weedy patches were a visual blight and caused concern for their invasion into adjoining cropland (Cramer 1991)

Mowing programs were instituted to control the expansion of the weedy flora in the roadsides. Initially, this mowing was done by local farmers who managed their own roadside ditches. Extensive mowing

programs developed as county and state agencies assumed increasing responsibility for maintenance. Often rights-of-ways were mowed fence to fence, requiring a heavy investment in equipment. Ultimately this weed control technique proved to be a costly management practice as it was labor intensive, and required considerable equipment maintenance. As herbicides became more readily available, they were used as an alternative weed control method to reduce the demand on the labor force. Agencies, particularly counties, often contracted with private companies to broadcast spray the roadsides under their jurisdiction. Herbicides effective in the control of broadleaf and woody species were used. This vegetative management technique, while less labor intensive, eventually proved to be quite expensive as herbicide and application costs increased. Many Iowa counties couldn't afford the high cost of spraying their many miles of secondary roads. Although costly, neither mowing or herbicide spraying proved to be effective in weed control. Both techniques tend to stress the perennial vegetation and open sites for weedy invasion (Christiansen and Lyon 1975). In addition, the use of large quantities of herbicide in broadcast spraying increased the potential for ground water contamination. By the middle of the 1980's, it was readily apparent that a more effective, cost efficient means of roadside vegetation management was needed.

Integrated Roadside Vegetation Management

Integrated roadside vegetation management (IRVM) provided a viable alternative for agencies seeking a cost effective, environmentally sound means of roadside weed control. As the name indicates, a variety of techniques are combined to increase the effectiveness of vegetation management. Ecological theory indicates that the most stable and diverse plant communities occur on sites which are least disturbed (Odum, 1971). Therefore, the most stable, diverse plant communities in any given area are those native communities that have naturally adapted to the area over an extended period of time. The Iowa landscape at the time of settlement was dominated by tall grass prairie, even in the more wooded areas. Extensive prairie openings occurred among the oak-hickory communities. Therefore, the IRVM program includes the establishment of native prairie vegetation in Iowa's roadsides as a replication of the plant communities that were best adapted to the state. These stable, diverse native prairie communities tend to maintain themselves and resist weedy invasion. Natural weed control reduces the need for mowing and chemical weed control. The diversity and adaptability of native prairie sustains the roadside vegetation through adverse conditions. The extensive root systems of the native vegetation provide the most effective means of holding soil and preventing erosion. The grasses and

other wildflowers add a rich aesthetic quality and present motorists with a wide variety of forms, texture, colors and hues compounded by seasonal changes. The more diverse prairie communities provide improved and increased habitat for wildlife as well as aiding in the preservation of native flora and fauna.

Early in the establishment of an IRVM program a windshield survey of the roadsides is conducted to locate roadside prairie remnants and weed problem areas. Once these areas are identified the roadside manager can develop management plans to enhance the remnants and to deal with the weed trouble spots. Mowing is probably the most noticeable roadside vegetation management activity. In the IRVM program, most mowing is limited to the area adjacent to the shoulder and to areas, such as intersections, which require height control for safety. In certain specific cases, mowing may be used to reduce weed seed proliferation to aid in weed control. Noxious weeds are located and identified to focus the herbicide control on the weeds rather than the entire roadside area (Ritzer 1990). Herbicides are used to treat specific spots where weeds are a problem rather than spraying the entire roadside. The use of less herbicide reduces the potential for ground water pollution. To obtain the best effect from this prudent dispensing of herbicides, applications are carefully timed to coincide with the most vulnerable stage in the life cycle of the target species.

The use of fire is an important component of an IRVM program (Henderson 1991, 1993). Prairie vegetation is fire adapted so prescribed burning can be used to enhance prairie remnants by suppressing woody species as well as non-native species. Fire is not only effective in controlling undesirable plants, but it often increases the vigor and diversity of the prairie vegetation, and reduces the incidence of disease in prairie plants.

With farming activities on one side and mowing and snow removal on the other, Iowa's roadside vegetation is subjected to many disturbances. Education of those responsible for activities that may adversely impact roadside vegetation is seen as important preventive maintenance. Where erosion from adjacent land results in sedimentation of roadsides, an IRVM program will involve local Soil Conservation Service personnel to design and implement a conservation plan for the adjacent land. The conservation plan helps protect the vegetation from siltation and reduces the frequency of expensive ditch-clean-outs.

Funding for an IRVM program can be obtained most readily by reallocating savings from reduced herbicide use. For example, in the mid 1980's broadcast spraying contracts for an entire county road system were \$70,000 to \$80,000. Based on these figures, herbicide costs with an IRVM program are reduced approximately

70% to 90%. However, by the mid 1980's, to save money most counties had cut herbicide use by spraying only one-half of their roadsides annually. With more attention to erosion control by IRVM programs, long term cost savings can be realized from reduced demand for cleaning silt from ditches. In some counties, these savings are significant as ditch cleaning costs vary widely from county to county ranging from \$20,000 to \$165,000 annually. Additional annually dedicated funds in most counties include \$25,000 to \$30,000 for brush control, these monies can be incorporated into an IRVM budget. Due to differences in amounts of mowing, state departments of transportation and more urban counties with extensive mowing programs will show greater savings from mowing reduction with IRVM than will rural counties.

Changing public perception of what constitutes an attractive roadside is part of the ongoing IRVM education effort. Increased awareness of native prairie has helped gain support for natural landscapes. This awareness has resulted in an acceptance of native prairie in roadsides rather than the manicured-lawn look requiring high-maintenance roadside management.

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Road Warrior

By Kirk Henderson



Who's on First? The Sac County Roadside Team has only one full-time player, so it must be Sean O'Neill. Sean loves sports and uses ball games as a major source of diversion. Whether baseball, basketball or football, in person or on TV, it's all great entertainment to him especially when it's the Iowa State Cyclones or 'anybody' beating the Hawkeyes.

As a 1989 graduate of Iowa State, Sean was more concerned with finding a job close to Ames than he was with staying close to his hometown of Holstein, Iowa. Fortunately the Sac

Road Apples

Congratulations Pocahontas County on your new Roadside Program!

FOR SALE or TRADE-for-seed, 2 AC Model 66 Harvesters. Buy one, take the other one for parts. Contact: Guthrie County Roadside Program (515)755-3061.

1994 UNI Roadside Conference: August 11 & 12 hosted by Lee and Des Moines Counties.

14th North American Prairie Conference July 12 -16, 1994. Manhattan, Kansas. For registration information call (913) 532-5566.

Iowa Heritage Expo June 10 & 11, 1994. A festival of exhibitions, live entertainment and workshops exploring Iowa's cultural heritage. For more information contact: Lynda J. Wessel (515)281-5229.

County position kept him close to both. Since taking the job in March of '91', O'Neill has made several return visits to Iowa State keeping up with old friends from the dorm and contributing to the wild home court advantage at Hilton Coliseum. He attends Iowa State football games as well, which makes it apparent that for Sean winning is secondary to the pure enjoyment of competition and remaining loyal to the alma mater.

For someone like Sean who thrives on athletic competition, what is exciting about watching grass grow in a roadside? An imaginative sports fan/biologist sees the roadside as a stadium-shaped universe filled with far more activity than is readily apparent to the average motorist just passing by. He sees a grandstand in the grass stand and a playing field alive with symbiotic relationships: displays of teamwork with some plants and animals, and competition between others as they struggle to find their niche along the side of the road. A roadside manager becomes both player and coach, improving habitat and maintaining the balance for as many organisms as possible. O'Neill is putting his Fisheries and Wildlife degree to good use developing roadsides for both protection and production of wildlife.

As far as the daily routine of the roadside manager position goes, Sean appreciates the amount of playing time the situation affords. "I'm the only full-time employee in the Sac County Roadside Department. I'm responsible for just about everything that gets done, not just all the technical aspects, it's planning, ordering, working with the public, writing, and being my

As far as the daily routine of the roadside manager position goes, Sean appreciates the amount of playing time the situation affords. "I'm the only full-time employee in the Sac County Roadside Department. I'm responsible for just about everything that gets done, not just all the technical aspects, it's planning, ordering, working with the public, writing, and being my

I'm responsible for just about everything that gets done, not just all the technical aspects, it's planning, ordering, working with the public, writing, and being my own mechanic.

Bargain Books

Going Native: A Prairie Planting Guide by Loren Lown. Send two 29 cent stamps to:

Polk County Conservation Board
Jester Park
Granger, IA 50109

Chapter on Prescribed Burning by Paul Bockenstedt written for the IRVM Technical Manual available soon from the UNI Roadside Office (319) 273-2813.

own mechanic. It's a lot more than just drilling seed." However seed-driller may be his favorite position. "It gets me out of the office, away from the interruptions, the busywork and the more political aspects of the job. Being able to go out and plant prairie and drill native species is very satisfying." It really softens the old game face.

Besides planting prairie, burning prairie roadsides is another favorite assignment. "This year will be the first year we get to do extensive burning of our own seeding projects. There were a few I noticed that were doing especially well."

The Sac County Roadside Program may not have a full-time assistant. But it does have a mascot. For three years Sean has been providing maintenance for a beagle known as Tye. Beagles do not have the most athletic image. But they are known to put their nose down in the roadside and disappear for hours while lost in the excitement of a good chase.

Sean's program is unique for having its own newsletter. "Tales from the Roadside" goes out with the County Conservation Board newsletter and keeps the public informed on what's happening in roadsides and prairie around the county. To receive a copy contact: Sac County Roadside Program

Hagge Park 2970 280th Street
Sac City, IA 50583
(712) 662-4530

Little Bluestem *Schizachryium scoparium*

(pronounced skits-ah-KEER-ee-um skoh-PAIR-ee-um)

By Carole Kern

Little bluestem is native from the Rocky Mountains east to the Atlantic Ocean, from north of the Canadian border to south of the Mexican border. Its ability to grow in soil conditions varying from moist to dry and its excellent drought resistance may partially account for this wide distribution.

In Iowa little bluestem can be found in prairies, open woods, dry hills, fields, and roadsides. Its dense, five to eight foot deep root system makes it an excellent candidate for roadside erosion control. According to Peter Schramm, prairie biologist at Knox College in Illinois, little bluestem is very slow to establish, and in a new roadside planting should be mixed with species that can establish more readily, such as Indiangrass and big bluestem. When he wants to assure a showy flower display, Schramm backs the big grasses way off and uses a lot of little bluestem.

As a warm season perennial, little bluestem's first blue-green shoots may not appear until late spring. Through the growing season the slender leaves are light green and somewhat hairy. As autumn approaches, flowering stems two to five feet tall emerge. The color of the leaves deepens to a rich display of bronze, russet, and maroon.

The fluffy white plumes of seeds sparkling iridescent in the sun ripen between October and

November, providing a lovely contrast to the fall foliage. The seeds provide a

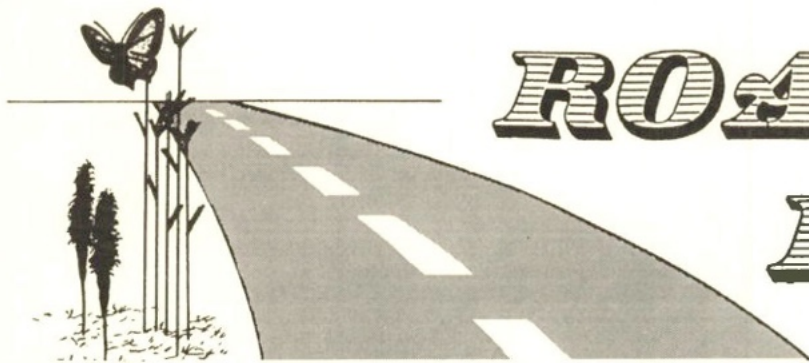
food source for several species of small birds which spend the winter in the grasslands. When young and tender, little bluestem makes a nutritious pasture grass. When more mature, the plant makes a fair to good forage and can produce 3/4 to two tons per acre.



Little bluestem undoubtedly was used by Native Americans long before European settlement of the continent.

Little bluestem undoubtedly was used by Native Americans long before European settlement of the continent. According to Kelly Kindscher, author of *Medicinal Wild Plants of the Prairie*, the Kiowa-Apaches used bundles of little bluestem as switches in the sweat lodge. They believed that switching one's arms, neck, and shoulders would cure aches and pains and drive away evil spirits." Whether or not it drives away evil spirits, ones spirits are certainly lifted by the sight of it in roadside plantings.

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



ROADDER'S DIGEST

Vol. 6 No. 2 July 1994

Newsletter of the Office for Integrated Roadside Vegetation Management at the University of Northern Iowa

WEED CONTROL PROBING THE COUNTY SEAT

BY KIRK HENDERSON

In the spring of 1993 this office surveyed Iowa counties for roadside vegetation management practices. With 74 counties reporting, only 4 counties designated blanket spraying as the method of choice for roadside herbicide application. The other 70 counties have reduced their right-of-way herbicide use by adopting some form of spot-spray program. This is good news and represents a lot of progress from just ten years ago when most counties still lowered the boom and sprayed every roadside from one end of the county to the other. Whether the reduction in spraying grew out of concern for the environment or concern for the budget, the results are equally encouraging for groundwater quality and for prairie broadleaves living in our ditches.

Since the Iowa legislature's passing of the 1986 Groundwater Protection Act and the ensuing demise of blanket spraying, counties are finding that selective, well-timed spot applications provide better weed control with less herbicide. According to the 1993 survey, counties are working with several different kinds of spot-spray applications. The methods include backpack sprayers, truck-mounted tanks with a hose and spray wand, bumper-mounted nozzles with control panels inside the cab and some very sophisticated spray injection systems featuring computer-controlled application rate.

These methods share one advantage. They enable the operator to see what plants are being sprayed either by walking into the roadside or by putting the operators up high where they can look out over the roadside.

(continued on page 2)

1994 UNI ROADSIDE CONFERENCE

August 11th & 12th

Roadside Diversity, Cultural Adversity: Restoring a Tradition

Conference Schedule

August 11

- Wilson Lake Park, Lee County**
- 11:00 am** Registration, Equipment Display & Exhibits
 - 12:00 pm** Lunch
 - 1:00 pm** Prairie Plant ID Walking Tour
Group Leaders: Paul Christiansen, Rich Pope, & Bill Pusateri
 - 3:00 pm** Break
 - 3:30 pm** Regreen demonstration planting, walking tour
 - 4:30 pm** Selective Weed Control in Today's Environment,
-Mark Crowell
 - 5:00 pm** AFIRM Business Meeting
 - 5:30 pm** Social Hour
 - 6:00 pm** Supper
 - 7:00 pm** Pzazz Hospitality Suite

August 12

- Pzazz Conference Facility, Des Moines County**
- 7:30 am** Breakfast Buffet- Pzazz Dining Room
 - 9:00 am** Welcome, Introduction & a word on Hydroseeding - Don Dahl
 - 9:20 am** Weed Identification - Rich Pope
 - 10:00 am** Pheasant Biology - Jim Woolly
 - 10:30 am** Break
 - 10:45 am** Discussion Panel- IRVM County Programs, Structure & Stress
Moderator: Steve Holland
 - 12:00 pm** Lunch: Pzazz Dining Room
 - 12:40 pm** Program - Prairie Restoration through the Eye of the Artist - Jim Spring
 - 1:00 pm** Bus Tour
 - 3:30 pm** Adjourn

Registration fee is \$35.00. This includes four meals.

For more information contact:
Professional and Educational Seminars and Institutes
University of Northern Iowa
Cedar Falls, IA 50614-0223
(319)273-6855 or (800)782-9519
FAX: (319)273-2872

Fireline

BY CAROLE KERN AND
KIRK HENDERSON

Tension exists over the use of fire in prairie management. One side fears the loss of butterflies. The other side fears the loss of habitat. On Sunday, March 20th The Des Moines Register unwittingly took sides when they printed the following headline, "Fire dies out as best way to manage prairies". This headline did not represent the opinion of anyone quoted in the article. Nor was it the intended conclusion of the author. The editor's prophetic im-

sition served a higher purpose. It showed what might happen if prairie ecologists continue to disagree instead of joining forces and pushing for the obvious solution. Research. We need more data to better understand the effects of fire on small pieces of prairie.

As Paul Christiansen, prairie biologist at Cornell College, put it, "We have not made the commitment to research in Iowa. For a decade or more the State Preserves Advisory Board and prairie ecologists in Iowa have realized that baseline data is not available to assess various management procedures because the Department of



Natural Resources does not have the funds to commit to the effort. We need more dedicated research in fire management including studying its effect on insects, plants, and animals. Ecological theory tells us that Iowa's small islands of

prairie will not be able to maintain the full diversity of the original tall-grass prairies of

Iowa. Only our most careful monitoring and management can preserve a substantial part of that diversity."

The State Preserves Advisory Board recently approved funding for a compilation of existing literature on invertebrates, fire and prairie management. This will provide a starting point and help define specific directions for future research. In the mean time hopefully logic will prevail regarding fire and prairie management.



WEED CONTROL: PROBING THE COUNTY SEAT

(continued from page 1)

Walking into the roadside provides the best view. Staying in the cab reduces exposure to chemicals. Truck-mounted equipment enables smaller crews to visit more sites during the optimum spraying time. All of these methods permit judicious application by conscientious operators who care about what is being sprayed. Private contractors are catching on to what counties want and are starting to provide similar services.

The survey also shows differences in weed control objectives from one county to the next. Some counties try to provide a weed-free appearance. A few counties accept a less well-kept appearance and don't spray at all. Many counties spray only in response to complaints from private landowners. Other counties seek a balance between responsible weed control and the awareness that there will always be some weeds.

In spite of the reduction in the use of herbicides it sounds like chemicals still provide the first line of defense in weed control. The Iowa Weed Law states: "spraying for control of weeds shall be limited to those cir-

cumstances when it is not practical to mow or otherwise control weeds." The "otherwise control" portion of the Iowa county experiment includes: 1.) prescribed burning to kill weeds and woody invaders where prairie species exist, 2.) species competition through the planting of native grasses and wildflowers as those plants most adapted to this area and best able to outcompete weeds and 3.) working with landowners to prevent disturbances to roadside vegetation. Disturbances result in bare soil and provide openings where weed seeds germinate and grow.

Like most long-term solutions, these non-herbicide methods of weed control are slower to take effect but are more permanent in nature. Most importantly they offer a chance for further reducing chemical dependency. Counties exploring the alternatives to blanket spraying gain strength from knowing they are part of a growing effort. They also benefit from sharing information with other counties about the different methods being investigated. Coordination keeps the momentum behind our positive direction.



IRVM Vol. ,No.
July 1994

Kirk Henderson
Director
Tammy Turner
Office Manager
Carole Kern
Special Projects

Roaders Digest is a quarterly newsletter reporting the activities of and providing information 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 the 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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University of Northern Iowa
Cedar Falls, IA 50614



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BY CAROLE KERN

High summer, a time of great beauty on Iowa's lush prairies. The hum of bees and the fluttering of butterflies fills the air as they journey from flower to flower in search of nectar or pollen. The multi-colored blooms of prairie larkspur, ox-eye daisy, prairie cinquefoil, wild indigo and purple coneflowers dance in the breeze.

While the loveliness of the prairie provides a feast for the soul, some of its plants may provide a cure for ailments of the body. One prairie species well known for its medicinal qualities is *Echinacea*. Though *Echinacea* was used by native Americans long before European settlement, documentation for its medicinal use in North America dates back to 1762. Since that time *Echinacea's* reputation and use has spread world-wide.

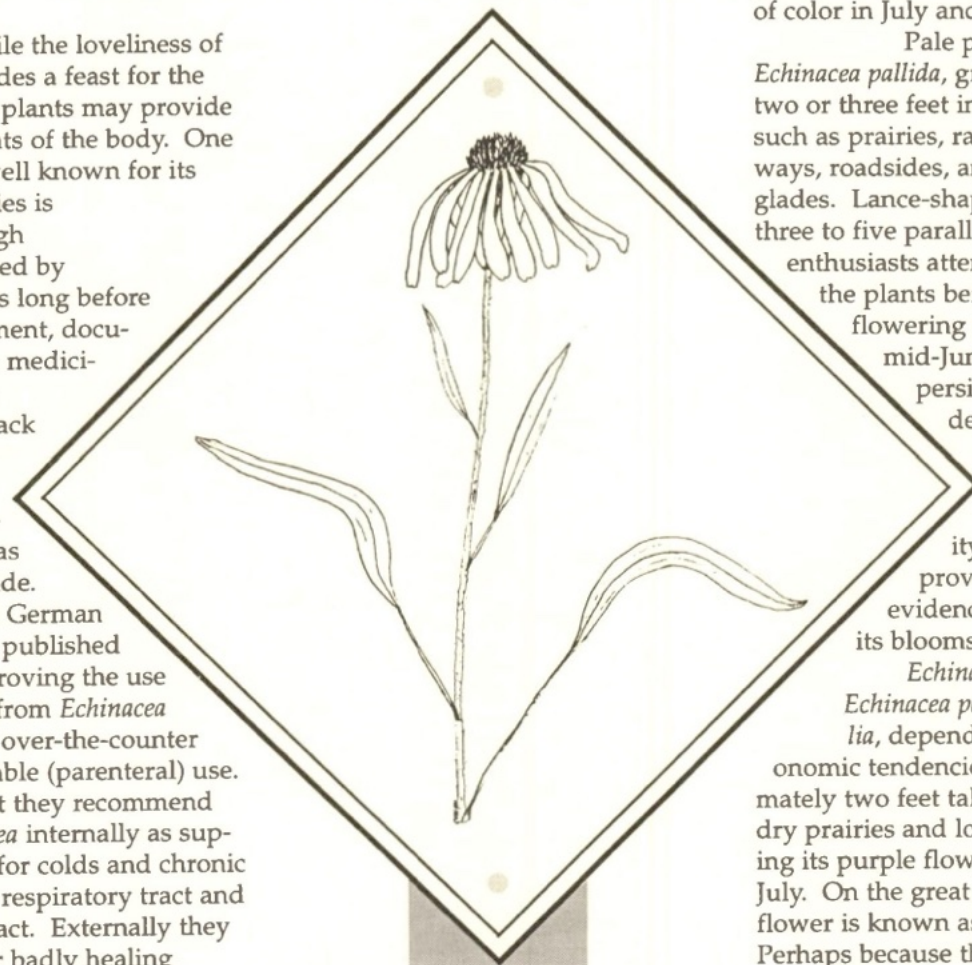
The German government has published a document approving the use of pressed juice from *Echinacea purpurea* leaf for over-the-counter (oral) and injectable (parenteral) use. In this document they recommend *Echinacea purpurea* internally as supportive therapy for colds and chronic infections of the respiratory tract and lower urinary tract. Externally they say it is good for badly healing wounds and chronic ulcerations. *Echinacea* use has been shown to stimulate the immune system, causing an increase in white blood cells.

Because it is so popular for its ability to aid wound healing, stimulate the immune system and act as a mild anti-biotic, wild populations of *Echinacea* have been over harvested. Reportedly over 100,000 pounds of wild *Echinacea* have been harvested and shipped overseas. If we hope to keep wild populations of this colorful healer, there needs to be increased cultivation to satisfy commercial demands and wild harvesting must be kept to a minimum.

Plundering native popu-

MEMBER OF THE ROADSIDE COMMUNITY

IOWA'S ECHINACEA



lations is not only unethical, it is unnecessary because *Echinacea* is so easily established from seed. By wrapping the seeds in moist peat moss, placing them in a plastic bag and putting the bag into a refrigerator for two to four months the percent germination of *Echinacea* seed can be increased. Both seeds and plants are readily available from most nurseries, as *Echinacea* has become a desirable landscaping perennial. Mature plants can be divided into several smaller plants by cutting the crown into large pieces.

If you're wondering which species of *Echinacea* are native to Iowa, you'll be pleased to know that we have three. *Echinacea purpurea*, commonly known as purple coneflower, may be found in Iowa's moist woodland edges and prairie openings where it can grow to a height of three or four feet. The flower has wide, reddish-purple ray petals and joins the prairie's panoply of color in July and August.

Pale purple coneflower, *Echinacea pallida*, grows to a height of two or three feet in dry open places such as prairies, railroad right-of-ways, roadsides, and limestone glades. Lance-shaped leaves with three to five parallel veins aid floral enthusiasts attempting to identify the plants before the graceful flowering stalk appears in mid-June or mid-July. The persistence of its slender, lavender petals through August and the spiny seed-head's tenacity for the achenes, provide late-comers evidence of the bounty of its blooms.

Echinacea angustifolia (or *Echinacea pallida* var. *angustifolia*, depending upon your taxonomic tendencies) grows approximately two feet tall in western Iowa's dry prairies and loess bluffs unfolding its purple flowers in early June or July. On the great plains this lovely flower is known as black sampson. Perhaps because the persistent stem and seed head turns brownish-black after the fading petals have dropped. Its fleshy dark taproot can grow to a depth of eight feet, giving it excellent drought tolerance.

Echinacea are native to the United States, beautiful, drought resistant, easily cultivated, and have healing properties. What more could we ask of one humble flower?



ROAD WARRIOR



BY TAMMY TURNER

It's late afternoon. Dust and July heat surround a secondary roads crew in Johnson county. A pick-up truck racing down the gravel road barely slows down as it passes. Something flies out the window. The parched crew stands dumbfounded and one member hops out of the way as a cold 12-pack of Mountain Dew bounces and scrapes to a halt. The rude roadside manager strikes again. "Never let them know you're a nice person." Even in an act of kindness, Russ Bennett's philosophy for survival comes through. As Johnson County's first and only Roadside Manager, Russ has plenty of advice for anyone pursuing a career as Roadside Manager. "Knowledge of prairie ecology is important. Organizing management activities and keeping good records is vital. But my greatest asset is the ability to be rude and obnoxious." Some will say that being obnoxious is a skill that few Roadside Managers have mastered to the degree that Russ has. At the same time Russ points out it is important to know when to be personable and willing to talk to anyone about anything. It doesn't hurt to be stubborn and of course, you must believe in what you are doing.

It all began on a farm near Maquoketa in Jackson County. Russ grew up surrounded by an 'attitude' of conservation. His parents were ecologically-minded people and set aside areas on the farm specifically for wildlife. This aura of conservation remained with Russ as he attended Clinton Community College and then graduated from the University of Dubuque with an Environmental Sciences degree. In his first position as an environmental health consultant, he worked with water-testing programs and wrote ordinances and laws adopted by sev-

eral Wisconsin health departments. Past jobs include: steel worker, meat cutter, truck driver, farmer, book binder, ranger for the Corps of Engineers, Soil Conservation Service Surveyor, and college lab instructor. With this wide-ranging background, it's obvious Russ was destined for a career in roadside vegetation management where versatility and flexibility are so essential.

Since beginning as Roadside Manager with the Secondary Roads Department in May of 1990, Russ has spent a lot of time involved with politics and public relations. (I guess this is where being obnoxious and yet somehow personable comes in handy.) Helping people accept new ways of solving old problems can be time-consuming, but is best accepted as an important part of the job. The general public and government officials will appreciate a more environmentally sound approach to roadside vegetation management if given a chance to understand what it is all about.

A frustration shared by many Roadside Managers involves dealing with various forms of encroachment. It seems that Russ is always finding cattle or hay bales in roadsides or discovering trees that people have planted in the right-of-way. Russ feels that public involvement and education would help to solve many of these problems. In the past year Russ has tried to focus on education in Johnson County and tries to work prairie into everything he talks about. An important part of Russ' education effort involves helping area schools establish prairies for outdoor classrooms. Russ talks to the students about the history of the tallgrass prairie and tries to make sure they understand the significance of the plantings.

BARGAIN BOOKS

Common Legumes of the Great Plains by J. Stubbendieck & E. Conard
University of Nebraska Press
Normally \$37.00, recently this hard-bound volume with good line drawings has been available at \$1.98. Limited Availability. Contact U of Nebraska Press at 1-800-755-1105. County Roadside Managers will receive a free copy at the conference.

A Country So Full of Game: The Story of Iowa Wildlife.
by James J. Dinsmore
This well-researched book by Iowa State wildlife ecology professor documents the wide variety of wildlife that has existed in Iowa from the arrival of Euro-American explorers to the present day. Dinsmore discusses native species, introduced species and the future of wildlife in Iowa. U of Iowa Press, Iowa City 52242 \$14.95 for paper, \$32.95 for cloth

Whether he's supervising a new prairie roadside planting or giving a public program, Russ spends about eleven months of the year away from the office attending to projects and roadside management responsibilities. These include brush clearing, seeding, and an aggressive prescribed burn program. Even for a well-rounded, jack-of-all-trades, the responsibilities of County Roadside Manager are often too much for one person. For that reason the addition of Kelly Williams, Russ' first roadside assistant, has been a real plus for the program. After being mostly a one-man team for the past four years Russ is enjoying this extra help.

When this 'obnoxious' Roadside Manager is not out controlling 'noxious' weeds he likes to spend his free time traveling with his wife, keeping up with two teenagers, fishing for small-mouth bass, researching prairie ecology and visiting old prairie cemeteries.



ROAD APPLES

The traveling IRVM table-top display has a new header featuring the name of your county instead of UNI. Call to reserve.

JUNE 30th is the deadline for Living Roadway Trust Fund applications.

The 14th North American Prairie Conference will be held July 12-16 in Manhattan, Kansas. Call: 913-532-5566.

The Minnesota Roadside Conference will be held in Bemidji, Minnesota August 4 and 5. For more information contact Cathy Fouchi at 507-359-6034.

The UNI Roadside Conference, Des Moines & Lee Counties hosting: August 11 and 12. Contact the IRVM office at 319-273-2813.

The Iowa State University Extension downlink video conference on weed control is October 19th offering Category 2 and 6 certification.



PRESERVE IOWA ECOTYPES

Donations of Big Bluestem (*Andropogon gerardii*), Rattlesnake Master (*Eryngium yuccifolium*) and Stiff Goldenrod (*Solidago rigida*) seed are being sought in the ongoing effort to make commercially available a basic seeding mix comprised of Iowa Ecotypes. According to project coordinator Paul Bockenstedt, "It's difficult for one person to get all the way around the state collecting seeds during the time the seeds are ripe. Collections sent in by volunteers really help fill the gaps." Collections of one to three ounces are best and will be included in plots maintained on the UNI campus. Reminders: Seeds of all three species ripen in mid to late October. Seeds must be from a local prairie remnant. Leave at least half of the seed behind. Get permission before collecting on preserves or private property. Send seed to this office by December 20, 1994.



STUDY NATIVE GRASSES AND WATER QUALITY

They outcompete weeds. They control soil erosion. Perhaps "prairie-purified" will be on the label of bottled drinking water some day. Cathy Zeman of UNI Environmental Programs and the UNI office for Integrated Roadside Vegetation Management have proposed a study to determine the ability of native grasses, with their extensive root systems, to reduce non-point source pollution. The low point in the drainage of an 80-acre cornfield was recently planted to five, 50 foot grass strips. Water samples and soil conditions will be analyzed for pesticide and nutrient levels. If reductions in pesticide levels are found, further analysis will be performed to determine whether compounds were broken down or are being stored in the plants. Of course, standard prairie establishment patience must be applied towards study result anticipation. The project is sponsored by Ed Brown, Director of UNI Environmental Programs.



UNI TO OFFER PRESCRIBED BURN WORKSHOP THIS FALL

UNI Biology Professor, Daryl Smith, is making plans for a workshop on the use of fire in prairie management. It will be either a one-day or two-day event and will be held at UNI and possibly three other locations around the state depending on the response to this announcement. Continuing Education Units or college credit may be offered and cost will be approximately \$50.00. Those interested are requested to return this coupon indicating a preference for a one-day or two-day workshop. Weather permitting, the workshop may include participation in a prescribed burn.

Please cut out and return

Circle preference: ONE DAY TWO DAY

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.....

Phone.....

UNI Roadside Office
1268 McCollum
Department of Biology
University of Northern Iowa

ROADSIDE VEGETATION MANAGEMENT Roadside Diversity, Cultural Adversity

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Home Phone _____

Please add my name to your mailing list.

REGISTRATION OPTIONS

Roadside Vegetation Management
Conference _____ \$35.00
Membership _____ \$15.00
Exhibitor _____ \$25.00
Total Due _____

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

**REGISTRATION
DEADLINE
AUGUST 1
1994**

MAIL TO
Roadside Vegetation Conference
Continuing Education and Special Programs
University of Northern Iowa
Cedar Falls, Iowa 50614-0223

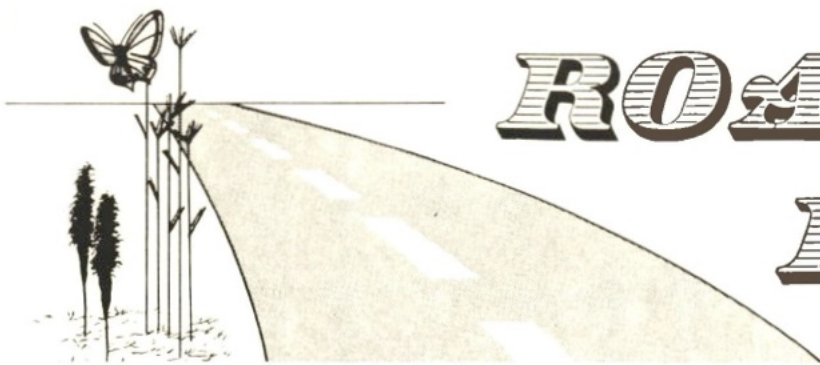
Make checks payable to UNI Continuing Ed

SPECIES TO COLLECT

- ① BIG BLUESTEM
- ② STIFF GOLDENROD
- ③ RATTLESNAKE MASTER

FOR THE IOWA ECOTYPE PROJECT (DETAILS ON PAGE 5)

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



ROADDER'S DIGEST

Vol. 5 No. 3 August 1993

Newsletter of the Office for Integrated Roadside Vegetation Management at the University of Northern Iowa

Travel to Fayette County for: The 7th Annual UNI Roadside Conference - August 19th & 20th

This year's roadside conference takes place in beautiful Fayette County where the prairie meets the trees and the rolling hills of Iowa start rolling a little faster. Host Jon Steege has been orienting his roadside activities towards this event for about two years and promises, "there will be no thistles on the bus tour."

The conference is a major event for those involved in roadside vegetation management giving them a chance to come together and share ideas with others pioneering this approach to right-of-way management. Program offerings are designed to have equal appeal for the prairie enthusiast. A warm welcome is extended to all IRVM and non-IRVM counties.

The registration fee has been lowered to \$20.00 thanks to a subsidizing grant from the Living Roadway Trust Fund and includes four meals, break food and field trip. IRVM T-shirts designed with original roadside art work are available for an additional \$10.00.

Conference Schedule

August 19

9:30 Registration, Fayette County Recycling Center
10:00 Welcome and Introduction-Jon Steege
10:15 Review of Fayette County's IRVM Program-Jon Steege
10:45 IRVM and Iowa DOT-Steve Holland
11:45 Bus Tour and sack lunch
6:00 Seed and equipment display (social hour), Gilbertson Conservation Education Area
7:00 Program
7:30 Hog Roast
9:00 Return to Wildwood Nature Center by bus

August 20

7:45 Breakfast, Garbee hall, Upper Iowa University

9:00 Roadsides and Ecological Restoration-Daryl Smith
9:30 Iowa DOT Seeding Mixes-Ole Skaar
10:00 Everything A Seed Could Want-UNI Plant Physiology Instructor Virginia Berg
10:30 Break
10:45 Roadside Manager's Seeding Panel Presentation
12:00 Lunch, Garbee Hall
12:45 Keynote address-Paul Gruchow
1:30 Old Routes, New Roots-Pauline Drobney
2:10 Break
2:15 The Other 61 Counties-Kirk Henderson
2:25 Roadside Manager's Smorgasboard
3:15 Self-Guided, Homeward Bound Roadside Tour

To register contact: Professional and Educational Seminars and Institutes, University of Northern Iowa, Cedar Falls, IA 50614-0223 (319)273-6855 or (800)782-9519 FAX: (319)273-2872

Iowa Ecotype Project, 1993:

- **Indiangrass**
- **Little bluestem**
- **Prairie blazing star** (*Liatris pycnostachya*)

Volunteers are needed to collect the seeds of these three species from counties all across the state. The best time for harvesting is early to mid-October. Paul Bockenstedt will be traveling around the state collecting seed. He will not be able to reach every county during this brief period. Make sure your county is represented in the genetic make up of the released seed by collecting seeds of these species and sending them to this office by mid-December.

When collecting please be careful to leave at least 70 percent of a given population unpicked, obtain permission

before collecting from preserves and private property and be careful not to send us seed from a reconstruction (presence of good prairie indicators or a wide variety of species helps insure you are on a true prairie remnant.) Please include your name and address, county, and site location (be as descriptive as possible).

We appreciate collections of any size. The more seed we collect (suggested size, about a pint) the sooner the seed will be ready for release. Your efforts are helping to preserve Iowa's native plant material.

Roadsides as Rare Plant Habitats

by Bill Watson, *freelance Botanist doing rare plant surveys and preserves design work for government agencies and conservation organizations the world over*

Fireline

It is often assumed that rare plants are found only in pristine habitats. This is not the case however and numerous species are known to inhabit Iowa's roadside ditches. Two examples of these roadside rarities are the small white lady's slipper *Cypripedium candidum* and the western prairie fringed orchid *Plantanthera praeclara*.

Both are known to occur in roadside ditches of northern Iowa and are indeed very uncommon in the state. One occurrence of the lady's slipper orchid in a roadside ditch is easily explained by its proximity to a natural area. This natural area has acted as a reservoir for colonization and contains numerous other small white lady's slippers. The western prairie fringed orchid on the

other hand occurs in the bottom of a shallow ditch along a secondary gravel road, a location that is not so easily explained. A single plant was discovered by a Roadside Manager who will remain unnamed to protect the plant and the site. This surprising occurrence of one of Iowa's rarest species in a roadside ditch remains somewhat of a mystery and points out the value of a pair of sharp eyes and a knowledge of plant identification when it comes to vegetation management along Iowa's roadways.

The knowledge that rare plants inhabit roadsides has an impact on the way these areas are managed. In the "dark ages" of roadside management, boom-spraying of vegetation was often the tool of choice in a county's attempt to control their weed problem.

Probably the most notable of these weeds was Canada thistle *Cirsium arvense*, considered public plant enemy number one. In the past the public has been indoctrinated to the belief that all thistles

are weeds and need to be controlled. The fact is that several thistles are native prairie species and two of them- Hill's thistle *C. hillii* and wavy leaved thistle *C. undulatum* are part of Iowa's rare flora.

Today, while herbicide applications are still necessary to control problem species such as Canada thistle, a more judicious approach to herbicide application, such as selective spot-spraying, is the preferred management policy in most cases and is beneficial to the rare plants inhabiting the roadways of Iowa.

Editor's note: Bill asked that I include the following reminder. Many of the rare plants which may be located in the roadways appear on the state's threatened and endangered list and are thereby protected by state law. These species cannot be disturbed, collected or harvested for seed without an authorized permit from the Department of Natural Resources. When in doubt consult someone who knows.

Field Notes

R. Linn Reece, Resource Coordinator, Webster County

As Roadside Manager it is important that I keep my efforts in perspective. Mother Nature will ultimately prevail. Rather than just get out of the way, I try to help bring out her full potential. One way I can help is through spot-spraying.

With three spray crews deployed through Webster County's 20 townships, I have the opportunity to try different herbicides and equipment. Traditionally we had three trucks with booms that swing out over the ditches, a big boom for wide ditches and two smaller ones for gravel roads. I replaced one of the smaller booms with a skid-mounted unit that slides into the back of a 3/4-ton pickup. It has a 200 gallon tank and 200 feet of hose for reaching into the roadsides. We switched to 2,4-D amine because the odor from 2,4-D ester had caused some complaints.

This spring I tried Tordon 22K for our leafy spurge problem. We started early and so far it's doing a really good job. We'll evaluate next year. After the Tordon we switched to Telar and went after thistles. Telar is a little different to

get used to because it acts slowly. Landowners have called and said, "I thought you sprayed out here." Upon visiting the site I discover we had been there. The plant dies a slow death requiring three to four weeks for signs to show.

Since each county has different attitudes towards spraying roadsides, there is no one combination that will work for everyone. In Webster County, like most others, intracounty attitudes range from the flatland farmer who wants every single thistle destroyed to the Des Moines River valley resident who panics at the sight of a spray truck.

The roadside ditches with the most favorable vegetation are those where herbicide use, and human-related disturbances in general, have been very limited. Disturbances can be as obvious as regrading projects or as subtle as slight overspray from farming operations. Either type can lead to less than desirable vegetation. The juggling act is to keep the "bad" plants controlled without harming the "good" plants while remaining sensitive to people's needs and Nature's plan.



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April 1993

Kirk Henderson
State Roadside Specialist
Kathy Traeger
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.

For a free subscription and additional information, contact:

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Control Association



Road Warrior

Gerry Vande Vorde



Shifting our ears into high gear, this month we visited Buchanan County's Gerry Vande Vorde, Iowa's fastest talking Roadside Manager. We were careful not to do any unconscious hand waving or eye-brow raising because besides his full-time Roadside Management responsibilities, Gerry works as an auctioneer selling everything from expensive horses to Amish pies.

Buchanan County's Roadside program has benefitted from Gerry's rapid fire communication skills. Gerry became weed commissioner in 1988. He was skeptical when the county adopted IRVM a year later. He soon became a believer in IRVM and applied his speaking ability to furthering the program.

Besides verbal communication accurate records contribute to Buchanan County's success. "Everything is documented- seeding, burning, spraying and brush removal." Computers haven't reached his office yet, "The three-ring binder method works fine. "I have proof of what we have been doing, my books are open and I am always willing to take a citizen for a ride along the roadsides to show what we've done."

Historically, brush removal has been a big project in Buchanan County Roadsides. "We don't have brush in our county, we log. There's always job security with brush," Gerry teases. His relationship with the citizens of Buchanan county is maintained with sincere collaborative efforts. "Trees are a

sensitive subject in certain areas. If we decide to cut further back in the roadside, prior to cutting, we ask."

With the help of a generous Living Roadway Trust Fund grant, Gerry is gearing up for seeding twice as hard this year. He has access to a drill, also uses a four wheel ATV and sometimes resorts to hand seeding.

"We didn't get a chance to get much burning done last year, but where we did burn...oh my goodness...we really loved what we saw. We've got another three-ring binder mapped with areas we want to burn. We can't wait to get started. Our goal is to burn at least two miles in every township."

Gerry plans to reward his six-student crew with a trip to this year's roadside

conference. He likes to take his crew to the Annual Roadside Conference because it is a great opportunity for them to gain the understanding of why certain approaches are used along the roadsides. "Everyone is trained to do everything. They know how the records are kept and they know how I want the job done."

Otherwise, without taking a breath, Gerry says, "I'm a farm kid, a Buchanan County native with a double major in farm operation, and agricultural mechanization."

"I live in Hazleton, one mile east of the 18th century. I farm with my father and brother and raise hogs and cattle. I'm a member of Buchanan County Trees Forever, I work for the roadside department and...I'm an auctioneer."

Historic Iowa Ecotype Seed Release Meeting

On July 16th, 1993 some aptly suited, aptly assembled individuals met in the Biology Department of the University of Northern Iowa and pioneered the first official release of native Iowa plant material. According to Robert Dayton, State Agronomist for the Soil Conservation Service in Des Moines, "this seed release puts Iowa ahead of other states in protecting its native plant material." Jimmy Henry, Director of the U.S.D.A. Plant Materials Center in Elsberry, Missouri announced, "enough Canada wildrye, sideoats grama and roundheaded bushclover has been produced to provide at least one commercial grower in each of the project's three zones seed for establishing viable production plots."

John Reid, Plant Materials Specialist of the Columbia, Missouri Soil Conservation Service office outlined the process by which seed in the Source-identified (not altered genetically) category is released. Robert Lawson of the Iowa Crop Improvement Association in Ames furnished details on standards for certification of the new seed. Mark Masteller, Chief Landscape Architect and Ole Skaar, Agronomist for roadside seeding specifications represented Iowa Department of Transportation concerns regarding obtaining bids for seeding projects. Also present were Steve Holland, Coordinator of the Iowa Department of Transportation's Living Roadway Program that has provided the funding for the project, Paul Christiansen, Biology Professor at Cornell College and

Chair of the Living Roadway Trust Fund Advisory Committee, Kirk Henderson, Director of the Office for Integrated Roadside Vegetation Management at UNI and Daryl Smith, Biology Professor at UNI and founder of the Iowa Ecotype Project. After the meeting the group proceeded down the hall to where representatives of several native seed companies were waiting. The group included- Ion Exchange, Nature's Way, McGinnis Tree & Seed, Heyne Custom Seed, Allendan, Iowa Prairie Seed, Prairie Grass Unlimited and United Seeds. The meeting results were presented to the group after a presentation on the history of the project by Dr. Smith. A healthy discussion followed.

Once the availability of the seed is officially announced to all dealers through a mailing and advertisement in trade journals, interested parties will have three months to apply. The seed will be awarded based on the producer's ability to grow, harvest and market the material.

Bargain Books

How to Know the Grasses by Richard W. Pohl of Iowa State University. This classic has been reprinted and is now available from William C. Brown Communications for \$21.75. 2460 Kerper Blvd. Dubuque, IA 52001 1-800-338-5578. (IRVM Roadside Managers will receive a copy of the book at the upcoming Roadside Conference.)

Roadside Community Member

A song by Bob Dylan reminds us that "All that's gold does not shine." This is an important lesson but does not apply in the case of roadside community member Golden Alexanders. According to botanist Carole Kern, "The neat thing about Golden Alexanders is the real distinctive leaf edges. They are kind of shiny...ish, reflecting the light a little better than the rest of the leaf. They look like they have sort of a halo. That's what I notice first."

Golden Alexanders *Zizia aurea*, was named for Johann Baptist Ziz, German botanist of the late 18th and early 19th centuries, an honor probably bestowed on Professor Ziz by a former student.

Preferring moist soils of open areas, this member of the Parsley family and desirable roadside species, is found in tallgrass prairie, sunny meadows and thin woods. Found in both the northern and southern tiers of Iowa, it is the earliest of this family to bloom, blooming in late May and early June.

Golden Alexanders (why is there an 's' on the end of this name?) are graceful and delicate, growing only one to three feet tall in opposition to most members of its huge family who are large and coarse.

Golden Alexanders (early meadow parsnip and golden meadow parsnip are two other common names) holds erect its graceful umbels of bright golden tiny flowers. The umbel becomes a bouquet as separate heads of the flowers spread and grow on thin stems.

Golden Alexanders (Alexander the Great was also known as Alexander the



Golden according to UNI Plant Systematics instructor, Dr. Kay Klier) may mark a native prairie area. Following is an association list of plants that have been found growing with the Golden Alexanders based on field observations. If three or four species are found in a given area, a reasonable assumption can be made that the area has a rather high degree of native integrity (this list is not exhaustive or complete).

Yarrow
Bastard Toadflax
Wild Morning Glory
Shootingstar
Alumroot
Yellow Stargrass
Hoary Puccoon
Prairie Phlox
Mountain Mint
Yellow Coneflower
Blackeyed Susan
Pale Blue-eyed Grass
Rigid Goldenrod

Road Apples

7th Annual UNI Roadside Conference- August 19 & 20, Fayette, Iowa. For details see front page.

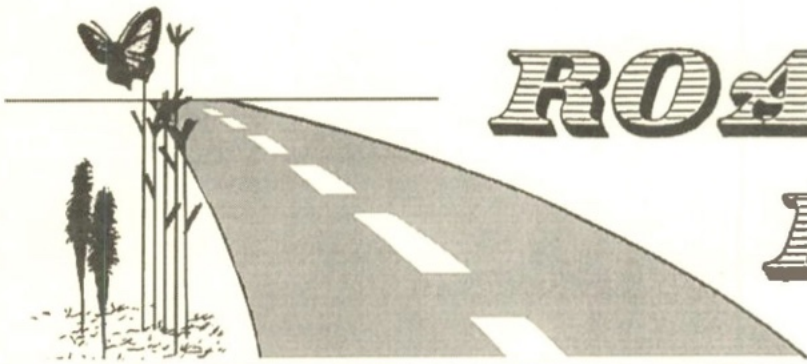
Fall Prairie Celebration- and Annual Meeting of the Iowa Prairie Network October 2nd and 3rd at Camp Wyoming in Jones County, Wyoming, IA. Contact- Phyllis Kiburz PO Box 221 Monticello, IA 52310 (319)465-5855. Registration deadline 9/10/93.

5th International Symposium on Environmental Concerns in Rights-of-Way Management September 19-22 Montreal, Quebec. Contact Dr. G. Jean Doucet (514)985-7269.

Roadside Weed Management Video Conference- October 20.

IRVM T-shirts with original roadside art work can be ordered with conference registration \$10.00. A pyro-botanist T-shirt will be available at the conference.

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



ROADER'S DIGEST

Vol. 6 No. 3 Nov. 1994

Newsletter of the Office for Integrated Roadside Vegetation Management at the University of Northern Iowa

FROM WALMART TO THE AIR FORCE,
THIS LAND WAS MADE FOR NATIVE PLANTS.



BY KIRK HENDERSON

Over the past two years Iowa's roadside program has been written up in a dozen magazines, several with nationwide distribution. Each time that happens we get a few more letters and phone calls from around the country. After Sheila Daar of the Bio-Integral Research Center in Berkeley, California featured Iowa's roadside program in the latest issue of "The IPM Practitioner," this office received several calls. They were information requests from such places as Tyndall Air Force Base Florida, Ministry of Natural Resources Ontario, San Francisco Waterworks, New York Committee for Alternatives to Pesticides, Noxious Weed Advisory Panel Englewood, Colorado, Agricultural Resource Center Carrboro, North Carolina, Kansas Department of Transportation and a Landscaper from Texas designing 100-acre runoff retention zones for Walmart's huge new distribution centers. All of these people, each for their own reason, were interested in the use of native vegetation.

Use of natives for all kinds of landscaping has been growing steadily for 25 years. Lately the line on the progress chart seems to have taken a sharp curve and is now soaring straight up. A recent memo from President Clinton for the Heads of Executive Departments and Agencies encouraged **Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds**. Federal agencies are to lead the country by example, implementing practices which include the use of regionally native plants. Bonnie Harper-Lore, previous head of Minnesota's Roadside Wildflower program, is now the Roadside Vegetation Coordinator for the Federal Highway Administration. Widespread interest, a Federal Memorandum and a new National Roadside Coordinator are confirmation for our efforts in Iowa.

Having a great time. Wish you were here!

The climate for enjoying Integrated Roadside Vegetation Management (IRVM) in Iowa has never been better. The outside appreciation expressed for IRVM reminds us of our

good fortune. People from other states aspire to have programs similarly backed by excellent legislation, a focused public education campaign and state funding to help counties plant and manage roadside prairies.

The counties that got involved early-on are enjoying great success with their plantings and have reaped many benefits besides planting prairie roadsides. Some counties have established wildflower plots and purchased seed-processing equipment and are producing their own seed. Some do extensive harvesting of prairie remnants with the help of local volunteers. Roadside Managers work with landowners to implement conservation practices that reduce farming impacts on roadside vegetation. And many Roadside Managers work with schools giving presentations and helping plant prairies as outdoor classrooms.

To take full advantage of the opportunities afforded by IRVM:

- * Hire or designate someone in your County Conservation Board or Secondary Roads Department as the county's Roadside Manager.
- * Get their name on the list to receive informational mailings from the UNI Roadside Office.
- * Send them to the Annual Roadside Conference and have them attend meetings of the Association For Integrated Roadside Management in Iowa (AFIRM Iowa) to learn what other counties are doing.
- * Submit applications for Living Roadway Trust Funds to bring to your county money for roadside seeding projects, roadside equipment and roadside inventories.

The land occupied by roadsides is a resource whose value still exists mostly as potential. Nowhere else in the country are conditions better for realizing that potential.

**Living Roadway Trust Fund
Application Deadline 12/31/94**

Fireline

By John E. Averett, Ph.D.,
Director of Research,
National Wildflower Research Center.

Urban island habitats: How big is big enough?

Reprinted from the May/June 1992 issue of "Wildflower," the newsletter of the National Wildflower Research Center in Austin, Texas.

Approximately 40 percent of the world's population is urban, and that proportion is expected to grow to nearly one-half by the next century. Since just 1950 the world's urban population has almost tripled in numbers of individuals. This century's rapid urban growth created enormous social, economic, and environmental problems.

We probably are more aware of the socio-economic consequences of urbanization and environmental issues related to water and air quality in our cities than we are of the effects of fragmented, highly disrupted habitats and the resulting loss in overall biodiversity in urban areas. However, the impact is well documented and immense.

The National Wildflower Research Center, from its early origins, has promoted the concept of replacing, where it has been lost, some of our natural heritage of native plants. We also promote initial conservation and enhancement of natural and semi-natural areas. All of these efforts, in addition to preserving plant species, enhance wildlife habitat by providing food and nesting sites for animals that often are adapted specifically to particular native plant species or plant com-

munities.

A number of cities have established what are known as greenbelts, natural or semi-natural areas in and around the metropolitan area. These typically were established before expansion related to urban sprawl and represent steep slopes and canyons, or perhaps inland waterways that could not be built on. A number of cities now are attempting to establish such areas in a more systematic fashion for the purpose of habitat preservation, but how large they should be is a continuing question.

In the last several years, interest has developed in an area of study known as island biogeography and its relation to conservation biology. On a number of islands a smaller number of species is found than in a comparable, adjacent continental area. It's been noted that on these islands there are constant local extinctions, reintroductions, and new colonizations, the rates of which are related to the size of the island and its distance from the source of colonization. On small islands, extinction rates are higher and recolonization and new colonization rates are lower. At some point, the extinction rate and colonization rate reach equilibrium and the number of species remains relatively constant, although there is some flux in the individual species that make up that number.

How does this relate to conservation biology? Essentially all of our natural biological diversity—especially that in the urban regions of the world—is being

maintained as "islands" of various-sized greenbelts and preserves in a sea of agricultural and urban development.

Questions about the necessary minimum size of a reserve intended to preserve the biological resources of an area, and how closely spaced such preserves should be, remain unresolved. Clearly, we must continue setting aside greenbelts and natural area preserves, and they must contain as large a representation of local plant diversity as possible. Further, we must practice sound land-management techniques that maximize the ecological stability of the preserves. As continued research focuses on these issues, the appropriate size, number, and relative proximities of such urban preserves can be more precisely determined.

Editor's Note:

Roadsides as greenbelts or linear habitats cover a wide range of soil types and moisture regimes, providing suitable conditions for numerous species of plants, insects and animals. Despite their extensive borders and the constant pressure from activity on both sides, roadsides have sustained populations of native plants for decades and are potential corridors for the movement of species and genetic material.



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Resources



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IRVM Vol. 6 ,No. 3
Nov. 1994



Kirk Henderson
Director
Carole Kern
Special Projects
Jill Dundee
Resource Assistant

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Field Notes: Hydro-seeding Natives

By Don Dahl, Des Moines County Roadside Manager

Many landscapers have written off hydro-seeding as an effective means for establishing warm-season grasses. A view commonly held is that, at best, hydro-seeded prairie grasses take several more years to establish compared to grasses seeded with a native grass drill. Those working in county rights-of-way know that after the road work and final grading are complete, the vegetation manager is often faced with a roadside that is too steep and narrow or too wet to access with tractor and drill. Hence the appeal of hydro-seeding, a method that allows seeding without putting equipment on the slopes.

In 1991 our IRVM department purchased a 500-gallon hydro-seeder through Midwest Land Supply and the Bowie Corporation out of Bowie, Texas. Since that time we have seeded approximately 150 sites at various times of the year. (Last year we were able to do a lot of seeding in December and January.) We now have many 2 and 3-year-old plantings that are looking great making us strong advocates for hydro-seeding as a means of planting prairie in roadsides. It has gotten to the point that we now use the hydro-seeder on a lot of sites that could be drilled.

The rough grade is usually good enough so reduced seedbed preparation is another advantage of hydro-seeding. When it's time to seed, a three-step process, hydro-seeding, straw-mulching, hydro-mulching has been very effective for our operation. Instead of expensive commercial mulches, we use recycled paper purchased from the city at \$1.00 per 50-pound bale. The paper comes shredded in large flakes, 2 to 3 inches in diameter. After being swirled with water in the hydro-seeder tank, the paper breaks down and forms a nice slurry.

The first application is a mix of seed and paper applied moderately at a uniform rate. Next we typically mulch the area with straw using our Finn straw blower. Over the top of

the straw we hydro-mulch another layer of recycled paper causing (when dried) a papier mache' effect. One full tank with the 500-gallon unit is capable of covering an eight to ten thousand square foot area.

Our mix per tank full includes:

- 1.) 3 lbs. PLS prairie grass seed (little bluestem, big bluestem, Indiangrass and sideoats grama)

- 2.) At least 1/4 pound wildflower seed (27 species)
- 3.) 7 pounds oats or annual rye
- 4.) 3, 50-pound bales of recycled paper

4 to 5 loads are required to cover one acre. We apply 12 to 15 lbs. pure live prairie grass seed per acre.



ROAD WARRIOR



BY CAROLE KERN

Linn Reece has been in charge of the Webster County Roadside Program since its beginning in 1991. Experience on a Hardin County family farm, a degree in Fisheries and Wildlife (ISU Class of '71'), and 15 years with the Indiana DNR including eight years as Assistant Property Manager provided a solid foundation and continue to contribute to the success of his program.

Reece's Indiana wildlife management burns often covered several hundred acres at a time. With this experience and help from whomever he can enlist when Spring's temperamental weather will allow, Reece loads the Smeal Brushwacker fire-fighting unit in the back of his truck and heads off to burn roadsides and other areas managed by the county.

The success of his spring burn program and the reduction of roadside spraying are reflected in the increased presence of native forbs. Bottle gentian has shown up where it was previously unnoticed. This return of diversity is augmented by a joint planting effort between the Roadside Program and the Engineer Department. As a County Conservation Board employee, Reece makes a point of maintaining a good relationship with the Engineer's office. This cooperative effort offers a lot of opportunity to get natives started in new areas and makes planting less of a hit and miss operation. Whenever reshouldering or regrading work exposes the soil it is planted back to native grasses and forbs.

With some of his first plantings

starting to come into their own, people are starting to see what this Road Warrior has been saying all along. It takes time for the natives to establish, but once established they will take up available spaces and reduce the need for weed control. He says there is still a lot of work to be done changing people's idea of what a roadside should look like and changing the kinds of activities that go on in roadside ditches.

His struggle to educate people away from farming into the ditches, mowing everything and haying the ditches continues. Working with the County Supervisors, County Engineer and the County Attorney, Linn has authored an ordinance governing all activities that impact roadsides. Any activity in the right-of-way including burning and drainage alteration would require permits and violations could result in fines. Linn expects enforcement to be necessary in isolated cases only and hopes it is his plantings and the return of native plants that help the people of Webster County learn to value roadsides and appreciate them for their natural beauty and wildlife habitat.

Roadside Community Member BY TAMARA TURNER

Because they are one of the few truly diurnal mammals, 13-lined ground squirrels are a familiar sight along our roadways. Frozen in an upright stance or playing rushin' roulette in highway traffic, they seem to survive by a combination of slight-of-body and pure dumb luck. These mini-otters appear to enjoy life so it is hard to view them as sad victims forced into a degraded environment. As true natives of the prairie, 13-lined ground squirrels have adapted well since the loss of their original habitat and now flourish on mowed borders, road shoulders, golf courses and cemeteries. Their preference for grassy areas abundant with seeds, insects, baby birds, mice and some carrion is well-served by Iowa's roadsides.

Several physical characteristics have added to their success. Their striped coat of 13 lines, (give or take a few) allows them to blend in well among the grasses. The lens of their eye is light orange in color, which permits sharp vision in the sunlight. And their slender bodies and long claws allow them to dig underground, creating individual burrow systems.

They are relatively solitary animals,

but live in close proximity to others, forming a colony. Each burrow has a main entrance with several side ones, all of which are hard to find because they stuff their cheek pouches with dirt as they burrow and scatter the excavated earth far from the opening.

The depth of the burrow allows thirteen-lined ground squirrels to be one of few true hibernating animals. Curled in a tight ball, body temperature dropping more than 50 degrees, their heartbeat slows from its normal 200-350 beats per minute to an incredible 5 beats per minute. Even at this rate they still lose up to half of their body weight as they hibernate from October through April.

When they wake up, mating begins. Females usually have one litter per year with 8-10 offspring. The young ground squirrels are particularly curious and tend to use their tail as support as they rear up to look around. They keep their front

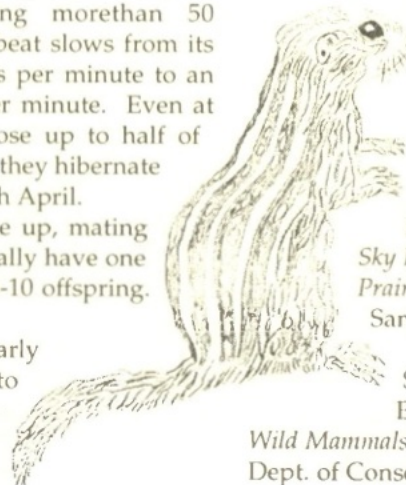
paws close to their body and can remain motionless for long periods of time. This behavior led to their nickname "Picket Pins". The name comes from their similarity to short stakes or pins used by cattlemen to tether their horses on the prairie.

Other stories recall how thirteen-lined ground squirrels would dig out a settler's corn almost as fast as he planted it. Even though some also eat heads of ripe oats and other grains, it is thought that their feeding on insects and mice and aeration of the soil offsets any potential damage done to crops.

References

Madson, John. *Where the Sky Began: Land of the Tallgrass Prairie*. Sierra Club Books, San Francisco, 1982.

Schwartz, Charles and Elizabeth Schwartz. *The Wild Mammals of Missouri*. Missouri Dept. of Conservation. 1981



ROAD APPLES

For Sale: Cylinder bars for Allis-Chalmers combine models: 60, 66 or 72. Contact Arland Lepper, 16474 280th St. Hubbard, IA 50122. (515)899-7934.

For Sale: 1983 Tiger Boom Mower, 2500 hours. Contact: Muscatine County highway Department, 3610 Avenue West, Muscatine, IA 52761. (319)263-6351.

The 3-ring binder IRVM Technical Manual is available at no charge to Iowa County Engineers and Conservation Boards. If your office has not yet received one, they can be obtained by calling (319)273-2813.

The 1995 edition of the IRVM calendar/poster will be available in December. (319)273-2813.

BARGAIN BOOKS

Restoring the Tallgrass Prairie, By Shirley Shirley. \$16.95 paperback (Holiday special \$10.15) from U. of Iowa Press. Toll-free (800)235-2665. A gracefully illustrated step-by-step guide to reconstructing the natural landscape of Iowa and the upper midwest. Shirley's sketches show plants in three stages: seedling, flower, seedhead with seed as well as the entire plant. Included are chapters on propagation, germination and harvesting for more than a hundred species.

Plants of the Chicago Region, By Swink & Wilhelm. 4th Edition. \$35.00 from the Morton Arboretum, Lisle IL (708)719-2459. 921 pages. Not an illustrated field guide. 2530 species listed alphabetically by genus with information on their habitat and a list of their associated species. Also included are: Definitions of the different habitats, criteria for evaluating the quality of natural areas, a key to plant families, glossary and drawings of terms including a page with 60 little drawings of surface features (how many ways can you say hairy?).

Fire Management Workshop

Saturday, December 3, 1994

8:00am to 3:30pm

This program is being offered as an introduction to the use of fire in natural areas management. Material to be covered includes:

Fire behavior
Planning a prescribed burn
Conducting a prescribed burn
Demonstration ignitions (weather-permitting).

Instructor: Daryl Smith, Professor of Biology & Certified Fire Instructor.

Registration: \$35.00 (includes lunch)

Sponsored by:

UNI Roadside Management Program
Center for Energy and
Environmental Education
University of Northern Iowa

Call (319)273-2813 for more information.

THE TUFT OF FLOWERS

By Robert Frost

I went to turn the grass once after one
Who mowed it in the dew before the
sun.

The dew was gone that made his blade
so keen
Before I came to view the levelled
scene.

I looked for him behind an isle of trees;
I listened for his whetstone on the
breeze.

But he had gone his way, the grass all
mown,
And I must be, as he had been, alone,

"As all must be," I said within my
heart,
"Whether they work together or apart."

But as I said it, swift there
passed me by
On noiseless wing a bewil-
dered butterfly,

Seeking with memories grown
dim o'er night
Some resting flower of yester-
day's delight.

And once I marked his flight
go round and round,
As where some flower lay
withering on the ground.

And then he flew as far as
eye could see,
And then on tremulous wing
came back to me.

I thought of questions that have no
reply,
And would have turned to toss the
grass to dry;

But he turned first, and led my eye to
look
At a tall tuft of flowers beside a brook,

A leaping tongue of bloom the scythe had
spared
Beside a reedy brook the scythe had
bared.

I left my place to know them by their
name,
Finding them butterfly weed when I
came.

The mower in the dew had loved them
thus,
Leaving them to flourish, not for us,

Nor yet to draw one thought of ours to
him,
But from sheer morning gladness at
the brim.

The butterfly and I had lit upon
Nevertheless, a message from
the dawn,

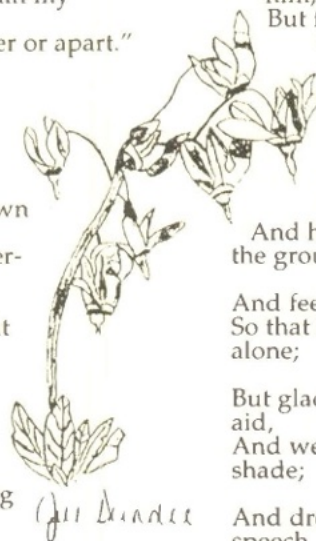
That made me hear the wakening
birds around,
And hear his long scythe whispering to
the ground,

And feel a spirit kindred to my own;
So that henceforth I worked no more
alone;

But glad with him, I worked as with his
aid,
And weary, sought at noon with him the
shade;

And dreaming, as it were, held brotherly
speech
With one whose thought I had not hoped
to reach.

"Men work together," I told him from the
heart,
"Whether they work together or apart."



YOUR CONTRIBUTION OF SEED WILL BE GRATEFULLY ACCEPTED BY
The Iowa Ecotype Project.

Big Bluestem (*Andropogon gerardii*)
Rattlesnake Master (*Eryngium yuccifolium*)
Stiff Goldenrod (*Solidago rigida*)

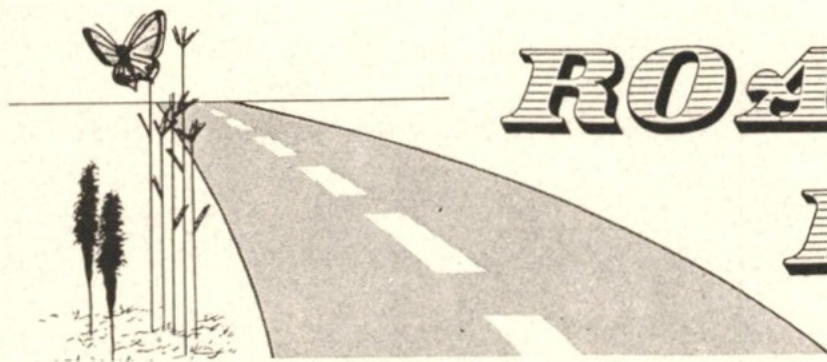
If you are a collector and can spare an ounce or a few ounces of seed from these species, please send it to UNI Roadside Program, 113 CEEE, Cedar Falls, IA 50614-0293. Your contribution insures that your local prairie genes are represented in the eventual plant material release. Seed must be from an actual, native prairie remnant. Leave at least half of the seed behind. And get permission before collecting on preserves or private property. Please send your seed and a description of the collection site to this office by December 20, 1994. Thank you.

Change of Address

The UNI Roadside Office has moved to the newly constructed **Center for Energy and Environmental Education**. The building was funded through a grant from the U.S. Department of Energy. Its mission: to nurture an environmental ethic and develop environmental literacy.



Roaders' Digest
113 Center For Energy and Environmental Education
University of Northern Iowa
Cedar Falls, IA 50614-0293



ROADER'S DIGEST

Vol. 7 No. 1 April 1995

Newsletter of the Office for Integrated Roadside Vegetation Management at the University of Northern Iowa

1995 UNI/AFIRM Roadside Conference

"Partnerships in Roadsides: Connecting the Links."

by Rob Roman

Mark your calendar! Wednesday, August 23rd and Thursday, August 24th, 1995 are the dates for the Ninth Annual University of Northern Iowa Roadside Vegetation Management Conference. This year's conference, hosted by Linn County, promises two days of programs covering all facets of roadside vegetation management. Day-one's activities are at Squaw Creek Park on Highway 13 just south of Marion. The events of day-two take place at the Longbranch Motor Inn, 90 Twixt Town Road NE in Cedar Rapids.

A major feature of Day 1 is the equipment and materials exhibit which includes demonstrations of what's new in seeders, mowers, sprayers and materials. The field trip, also on Day 1, touches on a variety of interests. Stops include the Cedar Rapids Construction Site Erosion Control Project, a demonstration type project for builders, developers, engineers, contractors, and government officials to learn more about erosion control for construction sites. We will also travel some newly graded state highways where you'll learn about Iowa Department of Transportation practices for erosion control, permanent seeding and landscaping along new grades.

Our tour will stop along a 1 1/2 mile stretch of road that was newly graded and seeded with warm-season native plants in 1971. We'll see what a native planting looks like after 24 years and what effect it has on safety, drainage, weed control, aesthetics, wildlife habitat and maintenance costs.

When the traveled portion of the right-of-way is no longer functional, we repair or replace it. We'll evaluate the untraveled portion, looking at drainage and vegetation from a similar standpoint.

Focal points also include tree maintenance, noxious weed control and establishment of native, warm-season grasses and forbs into existing non-native, cool-season roadsides using burn management and herbicides.

Finally, we'll tour a new, 12-acre road maintenance shop facility landscaped with native plant material. Of special interest is the use of Buffalo grass, in place of Bluegrass, for turf. The landscaping on this project was funded by the Living Roadway Trust Fund (LRTF).

The LRTF helps counties afford to do more for local residents. Find out more about what's available.

Day 2's exciting and informative topics include a maybe, (cont'd on back page)

Conference Agenda

Wednesday August 23, 1995

Squaw Creek County Park

9:00 am	Registration
10:00 am	Welcome and Introductions
10:15 am	<i>History of Prairies on Roadsides</i> Paul Christiansen
10:35 am	<i>North Washington Street Project</i> David Lyon
11:00 am	<i>The Overseeding Alternative</i> Paul Christiansen
11:30 am	Lunch (Catered)
12:35 pm	<i>Erosion control, and Revegetation: Practices along Iowa's State Highways</i> Ole Skaar
1:15 pm	<i>Iowa's Living Roadway Trust Fund</i> Steve Holland
1:40 pm	Bus Tour
4:00 pm	Equipment and Materials Exhibits/Social Hour
6:00 pm	Steak Fry (Linn County Cattleman's Association)
8:30 pm	Entertainment at the Longbranch

Thursday, August 24, 1995

Longbranch Motor Inn

7:30 am	Breakfast Buffet at the Longbranch
8:00 am	AFIRM Business Meeting (at breakfast)
8:55 am	Welcome and Introduction
9:05 am	<i>Biological Control of Canada Thistle</i> David Johnson
9:45 am	<i>Iowa Ecotype Project</i> Daryl Smith
10:15 am	Break
10:30 am	<i>Growing Native Grasses for Seed Production</i> Dave Stock
11:15 am	<i>Potential Role of Tree Buffers in Rights-of-Way</i> Louis Licht
12:00 pm	Lunch
1:00 pm	<i>More Than Just Wildflowers</i> Judith Rogers
1:45 pm	<i>Roadside Vegetation Practices in Illinois</i> Charles Gouviea
2:30pm	Break
2:45pm	<i>Right-of-Way Tree Management</i> Eric Faaborg
3:20 pm	<i>Volunteers and Right-of-Way Enhancement Panel discussion: Trees Forever, Iowa Prairie Network, Pheasants Forever, Sierra Club</i>
3:50 pm	Adjourn

When to burn?

By Kirk Henderson

By waiting until April, you may be burning daylight.

Fireline

For promoting warm-season natives, mid-April to mid-May is the best time to burn. Soil temperatures are rising. Warm-season grasses will soon start growing. Fire-blackened ground absorbs solar energy and hastens the process. Burning removes the physical obstruction of old plant material and permits sunlight to reach new plant growth. Timing the burn becomes critical because these benefits are enjoyed by all plants. Burning too far ahead of the time warm-season grasses are due to come up means cool-season grasses such as brome will have these favorable conditions all to themselves. -- These rules of thumb govern the timing of most burns. They make sense; but strict adherence to these rules greatly limits the amount of burning Roadside Managers accomplish in one season.

Iowa counties average 1,000 miles of roads. Roadside Managers would like to burn 50 miles per year. Immediately after burn season it's time for roadside seeding and spraying. If we have a wet April, the burn season gets squeezed out. In order to extend the burn season, some Roadside Managers start burning as soon as ditches are dry. In southern Iowa this happens as early as February. Critics say burning this early helps brome and defeats the purpose of burning. If you pass up some good dry weather waiting for the proper time to burn and then get rained out, the burning question becomes: **Which is worse, early burning or no burning?**

(1.) Warm-season grasses are stimulated by fire. They produce more leaf tissue above and rhizomes below ground level. They also produce more seed stalks which results in more seed if moisture levels remain adequate. UNI Biology Professor Daryl Smith says, "It's very unlikely these benefits would be entirely lost because the burn was conducted too early." (2.) Peter Schramm, Biology Professor at Knox College in Galesburg, IL says in an article from the 12th North American Prairie Conference, "There is only one time to burn - early spring. There are usually several days to a week or more of

ideal burning weather during March and one must be poised and ready. If you miss it, you can run into trouble getting the burn done later. Occasionally, these ideal conditions occur in February, but you need some sunny conditions, warming, and moderate breeze to burn efficiently. We like to have all burning completed by mid-April."

(3.) Regarding the effect of fire on non-prairie species, Schramm goes on to say, "There is some suppression, but the main effect of a properly timed fire, is to stimulate the prairie species which then outcompete the non-prairie species. This misconception about fire suppression of non-prairie species has led people to burn later in the spring or in early summer, believing they are killing cool-season, non-native forbs and grasses when, in reality they are stressing the warm-season natives that are just entering peak growth."

(4.) Controlling woody plants is another important objective of roadside burning. A good fire can seriously damage trees and shrubs regardless of the time of year. Burning young deciduous trees in late spring right after they have leafed out and expended winter reserves may cause them the most harm. Cedars look especially dry and vulnerable in late winter before sap starts rising.

(5.) IRVM promotes biodiversity for healthy vegetation. To that end it is important to burn at different times so you don't favor the same species over and over. Wildflowers bloom at different times. Some would benefit from an early burn. Those blooming in spring and early summer would be hurt by a late spring burn. Fall burning might lend an additional aspect of diversity.

(6.) In his article, "Morphological Characteristics of Smooth Brome Used to Determine a Prescribed Burn Date," from the *Proceedings of the Twelfth North American Prairie Conference*, Gary Wilson, National Park Service, Omaha, NE finds, "Burning smooth brome in mid-May, when tillers were elongating, and in late May, at tiller heading, reduced fall tiller density by about 50% as compared to unburned plots." Wilson and others feel strongly that brome is set back significantly if burned at a late enough date. (Don't forget to spread some prairie seed afterwards.)

(7.) Most naturally occurring prairie fires probably took place in late summer when plants started to dry out and there was still plenty of lightening. Is there some special effect on diversity produced by disturbances at this time of year? In the *Proceedings of the Ninth North American Prairie Conference*, the article,

"Characteristics and Management of Missouri's Public Prairies," Solecki and Toney say late-July haying maintains relatively high plant diversity. (8.) Some people look to the fall as a way of getting in some additional burning, most likely after the first frost. Will litter removal at this time favor spring brome any less than a March burn?

The above evidence and testimonial make it difficult to argue against early burning. We can still use more data. So record and share what you observe in the field.



IRVM Vol. 7, No. 1
April 1995

Kirk Henderson
Editor
Carole Kern
Special Projects
Jill Dundee
Resource Assistant

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

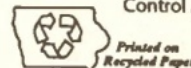
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University of Northern Iowa
Cedar Falls, IA 50614-0293

Member, International Erosion
Control Association



Study Bolsters Value of Species Diversity

by William K. Stevens

Conservationists widely believe that the more species an ecosystem contains, the more robust and stable it will be. If that is true, they say, the steady reduction of biological diversity now taking place around the world could in time undermine the ecological foundation of human existence.

A counter argument holds that richness of species is unimportant to ecosystem stability as long as one or two species exist to carry out each of a number of vital functions like photosynthesis, pollination, plant-eating, predation and decomposition of waste. If that is true, the case for preserving biological diversity, the touchstone of conservation in the 1990's, loses one of its major props.

For a long time there was little or no scientific evidence on the question. But now scientists have produced some, and it supports the view that biological diversity is indeed important to the functioning and stability of ecosystems.

Dr. David Tilman of the University of Minnesota in St. Paul and Dr. John A. Downing of the University of Montreal studied the behavior of prairie ecosystems for seven years. They found that the grassland plots with the greatest diversity of plant species lost far less of their vegetative cover as a result of the worst drought in 50 years, and recovered much more quickly, than the plots with the fewest species. The loss of each additional species resulted in a sharper reduction of the ecosystem's resistance to drought, the study suggests.

The more species an ecosystem has, Dr. Tilman explains, the more likely it is that some will be resistant to drought, disease, insect plague or any other stress that can threaten it. These resistant species spread and take the place of those harmed or killed by the stress. "This is a process that could apply to any ecosystem," he said, which makes it important to preserve biological diversity "because it's nature's insurance policy against catastrophes."

The evidence runs directly counter to the rival hypothesis, advanced by Prof. John Lawton, a British ecologist, not out of personal conviction but as a devil's-advocate scientific test. As a result of the Tilman-Downing work, Professor Lawton appears to be gravitating to the view of

those who say species diversity matters.

The work of Dr. Tilman and Dr. Downing, reported in the current issue of the British journal *Nature*, "shows that a variety of species tend to buffer an ecosystem against extreme events," said Professor Lawton, "and that's a very important finding." On top of that, he said, his own work, carried out in a controlled laboratory setting, is also revealing that species diversity is important: even on an everyday basis, with no catastrophe looming, species-rich ecosystems tend to function more robustly than species-poor ones.

The emerging evidence is bringing a measure of clarity to a subject largely characterized by hazy speculation. Many scientists are convinced that if whole classes of vital organisms - invertebrates, for example - were somehow eliminated, the global ecosystem would collapse and most other species would disappear, humans included.

Many researchers have believed that species losses short of this extreme case could undercut ecosystem functioning, and that if enough ecosystems are affected the functioning of the biosphere at large - humanity's life-support system - could be seriously impaired. It is not necessary for species to go extinct globally for an ecosystem to crash, they fear, but only for enough species to disappear within that ecosystem. And while these scientists have been convinced that an ecosystem will collapse if certain keystone species disappear, they have had no clear idea of when an ecosystem begins to disintegrate.

What they do know is that humans are rapidly eliminating habitats and introducing exotic species that choke out native ones, both of which reduce the diversity of ecosystems.

The Tilman-Downing findings emerged from a long-term study of the factors affecting species composition, dynamics and diversity in Minnesota grasslands that began in 1982. The drought of the 1987-88, the fourth worst since records have been kept in Minnesota, provided a fortuitous test of

resistance to and recovery from stress among native plant species growing on the study's 207 plots.

For each plot, the researchers calculated the rate of change in biomass, or dry weight of plant material above the ground. They found that during the drought, the plots with the most species produced about half their pre-drought biomass, while those with the fewest species produced only about one-eighth. By 1992 the species-rich plots had recovered their predrought biomass, while those poorest in species still produced significantly less than before.

The researchers found that species-rich plots were more likely to contain some drought-resistant species. These plants stepped up their growth to compensate partly for the decreased growth of other species.

"We're greatly surprised by the clarity of the response we saw," said Dr. Tilman. "We expected there to be a relationship between biodiversity and stability, but we did not expect the relationship to be as strong or as clear as it turned out to be."

The findings could have special meaning for the emerging art and practice of ecological restoration.

Reviving only a handful of species may not be sufficient to restore an ecosystem's essential functions. "It doesn't say how many you need, but it does say you better put some variety in there if you are going to cope with the normal run of extremes or perturbations," said Dr. Peter Vitousek, an ecologist at Stanford University.

Is there a threshold above which an increasing number of species no longer makes much difference to ecosystem stability?

Dr. Tilman and Dr. Downing found that once there were 9 or 10 plant species, there was no longer a significant effect on ecosystem functioning. But since the researchers did not have many more than 10 species in their samplings, they do not know whether this constitutes a threshold. That question, which may have different answers for different ecosystems, (cont'd on page 4)



Road Warrior

by Kirk Henderson

The old 10-mile-hike-through-blinding-blizzards-barefoot has given way to a new generation of student frustrations. Butler County Roadside Manager Dave Steere's educational experience was so 'educational', he might prefer coping with harsh climate to dealing with "the system." Nevertheless, it seems like he got where he was supposed to go.

"I always wanted to be a wildlife biologist, ever since grade school. I sort of grew up to it, lived as a river rat for many years. Got clams, turtles, fish, furbearers, ginseng, every day. When I attended my college classes I was amazed. What I took as a given, I learned a lot of people didn't understand. As an undergraduate we would take a field trip and the professor would say, "Dave, you know about this. You take this group." I showed them how to identify trees, pointed things out about fish and mammals, showed them this and that. We did birds, all kinds of nature stuff, things I knew before I got to college."

"At the University of Missouri I was teaching labs, doing research and jumping ahead taking graduate level courses. After two years my major course work was complete." It came as quite a shock when they informed him he still needed 3 semesters of general education courses. It seems after transferring to Missouri, the university never properly evaluated his transcripts. Two years later they were telling him that much of his previous coursework, classes taken at Mankato State, North Iowa Community College and Northern Iowa did not transfer. UM admitted the oversight but offered little compensation. Out of frustration Dave returned to UNI, took 10 semester hours and graduated with a degree in Biology. His course work is primarily Fisheries and Wildlife.

The road to Dave's biology degree took a detour of another sort as well. People warned him from the start that in wildlife biology, "jobs are hard to find and the money is poor." Working his way through school, he had a job with a road construction crew. Things went well. They called him a working engineer and offered to pay his way to a degree in civil



engineering, an offer too good to refuse. So Dave switched his degree program, took basic engineering courses at UNI and eventually was supervising 30 people on a 13 million dollar project. Sounds promising. But something was missing. After three years of that, Dave decided, "there's no way I'm going to be an engineer. I don't care what they pay me. I don't care how hard it is to find jobs. I'm going to be a wildlife biologist. So I basically wasted 3 years of college." (Wasted? You did say "road" construction didn't you?)

Dave grew up on a farm west of Greene on the border between Butler and Floyd counties. He now lives in Allison, is married and has an 18-month old son. "So I grew up in part of the area that I'm working right now. We're a small county. We don't have a "big" city. Believe it or not, we don't

even have a stoplight in Butler County. So, what we put into roadsides is not a lot when compared to many counties."

After completing his bachelors degree, Dave was considering his options, graduate school, some DNR openings. That was spring of 1990, also the time a Biologist position opened up with the Butler County Conservation Board. "They offered me the position right after the interview. I work with roadsides, wildlife areas and with landowners developing whatever they want... windbreaks, trees for habitat, farm ponds and prairies. The thing I really have with this position is that I get to do it all myself. When I work with prairies, I write the plans. I choose the species. I do the planting. Same thing for trees and farm ponds. Afterwards I do followup work, monitoring and writing management plans for the landowners to follow through on."

"The prairies, as far as individual landowners, have really taken off. Last year we planted 14 or 15. I give them plant identification books and say, "pick out what you want. Here are the soil types you have on your land. Don't pick something wet when you live in a dry area. Usually they get their ground ready. I write a detailed plan, exactly what they should do for maintenance.

"...we don't even have a stoplight in Butler County. So, what we put into roadsides is not a lot when compared to many counties."

You have to be very precise. If you have enough fuel, burn it and start mowing earlier. Don't wait til' it's four feet high and them mow it all off."

"I'm a one man band on a lot of things. I have to try to be good or as good as I can be at everything. And I like that. You wind up putting in a lot of overtime. Lot's of overtime. Still I don't make a lot of money so I supplement what I make doing private timber work in northeast Iowa. It might be clearing. Maybe they just did a harvest and it was severe and nothing left is valuable. Or nothing will grow and be valuable unless you do something about the weedy species of trees, setting them back or cutting them off. They might have a nice stand of walnut or oak but in between those are weedy species providing competition, sucking sunlight, moisture and nutrients. They'll win this race if you let them go."

"I'd rather be hunting and fishing. But I don't know. I kind of got into it and I kind of like it and I'm one of these guys, I wind up working 14 hour days anyway just because I like it."

The future for IRVM in Butler County? "I would like to see the county as a whole adopt IRVM more fully, the supervisors and engineer. It hasn't really happened yet, but seems to be going in the right direction. Originally there was little cooperation. I seldom knew of ditch cleanouts. The times I did know about them I reseeded them. They noticed I was doing it and started relying on me to do more seeding, an old landfill, bigger regrade projects. Instead of bidding jobs out they gave them to me. Now they are already letting me know about bridge projects for 1996 and 97, asking for seeding specs. I'm better informed on regrades and cleanouts too." (One has to suspect the engineering courses and road work are paying off.)

"The plantings are still in the early stages with lots of yellow: ratibida, rudbeckia, coreopsis. Other species are still in the green stage. I'm very anxious to see them this year."

Under Dave's guidance things appear to be headed in the right direction. A 10% budget cut looms for this year making support from the Living Roadway Trust Fund all the more important. This year's grants include money for seed and the purchase of a hydroseeder to be shared with Hardin County. The number of roadside projects may be on a smaller scale than some counties. Thanks to dedication and broad knowledge, IRVM is alive and well-cared-for in Butler County.

The Roadside Community

Ragweeds, friend or foe?

by Carole Kern

Ambrosia artemisiifolia Annual.
Common Ragweed Reproduce by seed.

Ambrosia psilostachya Perennial.
Western Ragweed Reproduces by seed or rhizome.

Ambrosia trifida Annual.
Giant Ragweed (Horseweed) Reproduces by seed.

Natives to the United States.
Emerge: Late April to May.
Flower: July to October.
Seed: Late July to October.

Control: Competition, Hoeing, Pulling, Cutting, Mowing.
Prevention: Eliminate Disturbance.

Though ragweeds are often considered a nuisance (or to hayfever sufferers a curse), ragweed seed is high in oil content and highly nutritious. The seeds are a valuable food source for wild turkey, quail, pheasant, many songbirds and a few small mammals. Dense stands of ragweed also provide valuable winter cover, especially if it is growing with other annual plants.

Native Americans collected and even grew giant ragweed. The giant ragweed they cultivated had much larger seed than what we commonly see in disturbed areas today. The stems of giant ragweed were also used for their strong fibers by some tribes. The leaves of common ragweed were used medicinally for nausea and to reduce swelling. Western ragweed tea was used for cramps and colds.

Ragweeds are an excellent indicator of the health of the land. They are one of the first colonizer species to return to an area that has been disturbed. Large stands of ragweed in ditches usually indicate the adjacent land is losing topsoil into the ditch or that the vegetation formerly growing in the ditch was subject to herbicide drift or run-off. Abandoned hog lots or over-grazed pastures are prime habitat for giant ragweed. Common ragweed can often be found growing along the edges of roads where grading and winter plowing remove or disturb shoulder vegetation.

Ragweeds are easily identified in the late summer and early fall by their spikes of male flowers. At the top of each plant are spikes covered with numerous male flowers which produce great amounts of pollen. The pollen is carried by the wind to female flowers which are often concealed behind clustered bracts (small modified leaves) on the lower portion of the plant.

Common ragweed and western ragweed are very similar in appearance. However, common ragweed can be distinguished from western ragweed by its finely divided, fern-like leaves which are deep green above and light green below. The leaves of western ragweed are somewhat sticky and more toothed than dissected.



Another way of distinguishing amongst ragweeds is to look at their root systems. Both giant and common ragweeds are annuals with simple taproots. Western ragweed is a perennial which spreads by rhizomes and has a fibrous root system.

If you are a hayfever sufferer or simply dislike weeds, ragweeds can be kept in check. Young ragweed plants do not compete well with vigorous established vegetation. So keeping the land covered with a healthy plant community will keep ragweed down to a minimum. If established vegetation is lacking, be sure to scatter seed of an aggressive species to compete with any ragweed seeds that may be present.

Annual ragweeds can easily be eliminated by pulling or hoeing when young. If the ground is hard, clayish or rocky it may help to soak the soil with water for easier pulling. As annual ragweed matures, the taproots grow deeper and become woody, making them more difficult to pull. In this case it is best to sever the plant from the taproot with a sharp spade. Be sure to get them before the flowers open to prevent pollination and seed set. The plants may grow back if enough of the root system is left, so it is important to return to the site to remove return growth or new seedlings.

Cutting or mowing can control ragweed if the site is checked several times during the growing season for regrowth. If any grow back they should be cut again or removed.

As long as there are soil disturbances, there will be ragweed. Unless you are one of the lucky ones to be free of hayfever, it will be worth your while to keep it away from your house and nearby ditches. Help a fellow hayfever sufferer. Cut ragweed down in its tracks and don't give it a place to start.

Prairie Workshop

University of Northern Iowa Biology Seminar Series

Three evenings in McCollum Science Hall: April 20, 27, & May 4; 7:00 to 9:00 pm. Discover the subtle beauty of prairie and the importance of preserving our native plants. Topics include: History of the tall grass prairie, Prairie reconstruction and restoration, Site selection and design, Species selection, Planting methods, and Management plans. Registration is \$30.00 payable to UNI Biology Seminar Series.

Send to:

Ron Camarata
2438 McCollum Science Hall
University of Northern Iowa
Cedar Falls, Iowa
50614 - 0421

Bargain Books:

The Vascular Plants of Iowa An Annotated Checklist and Natural History by Lawrence J. Eilers and Dean M. Roosa. The first annotated checklist of Iowa plants. University of Iowa Press. \$29.95 in hardback or \$14.95 in paperback. 2,000 species names, common names, distribution, habitat, abundance and origin. At bookstores or (319)335-2000.

Tree Finder, identifies native and introduced trees,

Winter Tree Finder, identifies trees by their twigs, buds and bark by May Theilgaard Watts. \$2.50 each. Nature Study Guide Publishers, PO Box 10489 Rochester, NY 14610-0489.

Fruit Key and Twig Key to trees and shrubs by William M. Harlow.

\$3.95 Dover Publications, (516)294-7000.

What Tree Is That? The National Arbor Day Foundation, 100 Arbor Ave. Nebraska City, NE 68410, Free (402)474-5655.

Living Roadway Trust Fund Application

Deadline: 6/30/95

This much-needed and well-used application and award process supports city, county and state IRVM projects. It is funded through REAP, Road-Use Tax Fund, and Utility Right-of-Way Fees. These revenues are allocated in the following manner: 47.5% for state projects, 32.5% for county projects, and 20% for city projects. The Living Roadway Trust Fund is losing \$500,000 by action of the Iowa legislature. Another \$250,000 may be shifted to other programs. These are serious losses that will be felt.

Road Apples

- April 29 Iowa Native Plant Society, Backbone State Park Deb Lewis, (515) 294-9499
- June 2-4 Loess Hills Prairie Seminar, Western Hills AEA (712) 274-6083.
- June 3 Operation Wildflower, LaPorte City, IA. Marion McNabb (712) 296-4920.
- June 30 Living Roadway Trust Fund Application Deadline
- July 22 Iowa Prairie Conference, University of Northern Iowa Daryl Smith (319) 273-2238
- August 6-9 Soil & Water Conservation Society Annual Meeting, "Celebrate, Anticipate, Innovate: 50 More Years of Partnerships," Ankeny, IA 1-800-The Soil (8437645). Ext. 18, Nancy.
- August 18-20 Iowa Prairie Network Annual Meeting, Red Oak, Ia Dave Carlisle (712) 623-5197.
- August 23-24 UNI/AFIRM Annual Roadside Conference, Long Branch Motor Inn, Cedar Rapids, (319) 377-6386.
- September 6-7 Minnesota Roadside Conference, "Erosion Control with Native Plants", SE Minnesota (612) 779-5087.
- September 14-16 Society for Ecological Restoration, Seattle, WA (608) 262-9547.
- September 27-29 Midwest Oak Savanna and Woodland Ecosystem Conference, Springfield, MO

County Grants Approved at the February IRVM Advisory Committee Meeting

County	Grant Amount	Category
Audubon	\$13,095	Seed
	\$ 9,185	Equipment
Butler	\$ 1,415	Seed
	\$ 4,921	Equipment
Cerro Gordo	\$11,498	Seed
Clayton	\$10,628	Seed
Clinton	\$ 6,938	Seed
	\$23,604	Equipment
Crawford	\$ 5,469	Equipment
	\$ 2,000	Equipment
Fayette	\$ 3,278	Research
	\$25,939	Equipment
	\$ 546	Plants
Greene	\$ 1,608	Equipment & Education
Hardin	\$ 361	Research
	\$ 4,921	Equipment
Linn	\$ 7,000	Seed
	\$ 3,480	Seed
	\$ 1,000	Seed
Page	\$27,907	Equipment & Seed
Pocahontas	\$ 730	Equipment
	\$ 8,500	Equipment
Pottawattamie	\$ 6,946	Seed
Sac	\$ 5,000	Seed
Woodbury	\$ 4,500	Inventory

Conference cont'd...

soon-to-be-released biological control for Canada Thistle that fits nicely into the vegetation managers' integrated tool chest. There will be an update on the Iowa Ecotype Project and some insight on the use of roadside vegetation as bufferstrips to reduce non-point source pollution in the Iowa landscape.

Integrated Roadside Vegetation Management is taking off throughout the mid-west. Find out what Illinois is doing in their rights-of-way. Learn how to use private organizations and volunteer groups as resources for right-of-way enhancement. Pick up some ideas from the city of Cedar Rapids' model forestry program. And finally, a chance to absorb knowledge from two speakers representing companies with a total of 77 years' experience in the establishment and use of native, warm-season vegetation. You won't want to miss their presentations.

We hope this year's conference is a learning experience for everyone, an exchange of ideas and perspectives on the right-of-way environment. As roads connect people and communities throughout this state, the annual UNI Roadside Conference serves as a network for knowledge and experience in the field of roadside management. If you haven't been to a roadside conference in a couple of years, you need to get to this one. If you've never been to a roadside conference, you need to find out what it's all about. Things are changing rapidly: be a part of that change! We are all important links in the integrated roadside vegetation management chain.

For more information contact the UNI Roadside office, 319-273-2813. The Cedar Rapids area has a wide variety of hotels and motels. A block of rooms are being held at the Longbranch Motor Inn, the site of all Day 2 activities. Reservations can be made at that facility by calling (319) 377-6383. Be sure to tell them you are with the UNI Roadside Conference to receive the special conference rates.

Roadside Conference Registration form:

"Partnerships in Roadsides, Connecting the Links"

Name _____
Organization _____
Address _____
Phone _____

Registration Options

- Conference.....\$40.00
(includes 4 meals & bus tour)
- AFIRM Membership.....\$15.00
- Exhibitor.....\$25.00

Mail to: Roadside Vegetation Management Conference
Continuing Education & Special Programs
University of Northern Iowa
Cedar Falls, IA 50614-0223

Make checks payable to: UNI Continuing Education

(The registration fee is so low because the conference is supported by a grant from the Living Roadway Trust Fund.)
This information is being solicited to register you for this conference. All information is confidential to the extent provided by law and will not be released to third parties. *All items are required; therefore incomplete forms cannot be processed.*

Roaders Digest
113 Center for Energy and
Environmental Education
University of Northern Iowa
Cedar Falls, IA 50614 - 0293

Fireline

Using native plants in a roadside is not the same as recreating a prairie. Roadside plantings involve considerations and objectives making them distinct from prairie reconstruction efforts. The distinctions render some species inappropriate for roadside plantings, while forcing other species into larger roles. It's very exciting to be using roadsides to recapture some of our prairie heritage. But we must be careful not to unleash all of our prairie frustrations into that narrow habitat along the side of the road lest we endanger the entire roadside prairie movement with unnecessarily expensive plantings which do not live up expectations. Some of us would like to bring back the entire ecosystem all at once. But we must remember roadsides are also the domain of engineers, politicians and, taxpayers. A pragmatic approach is, therefore, in everyone's best interest.

That does not mean we can't have at least some fun along the way. The prairie ecosystem, well known for its effusive palette, is also an extraordinary supplier of engineering and construction materials. The range of products is broad enough to fit every situation. Our art is not to use every plant each time we go out. Our art, our source of pleasure is to know the plants and be familiar enough with them that we can select the right ones to serve

in each situation and create a mix that achieves each planting's given objectives. Since State and County Highway Departments cannot afford a prairie's full compliment of 200 or 300 species of plants, our goal is a healthy, sustainable planting made up of 20 to 30 carefully selected species. The challenge entails deciding who's in and who's out, paring the list to an affordable level. Include plants that satisfy the important functions. Omit those that serve no apparent practical purpose. Here's a short list of criteria to help begin the process of elimination:

- Sometimes dealers must charge more for seed that is particularly hard to find or hard to handle. These species do not belong in most roadside plantings
- Some species establish very slowly and do very poorly under weedy conditions. Use only if they are showy enough to make them worth the wait.
- Then there are those species that are hardly noticeable even if they do survive. If these plants are not majorly feeding, building or holding the soil, leave them out, too. For roadsides we have to assume that the benefits of plant diversity can be achieved without the "weanie" component.
- Some plants (switchgrass) are so aggressive (switchgrass) that they will eventually overrun (switchgrass) the entire planting. If the goal is species diversity, leave them out.

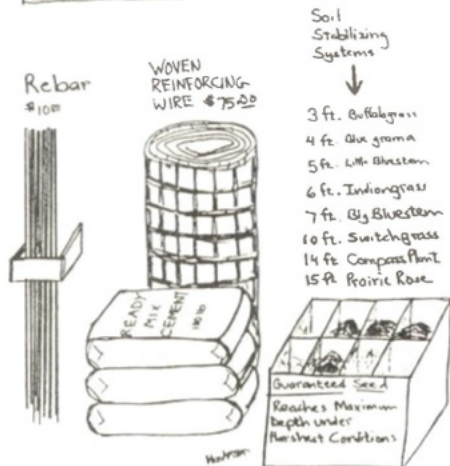
What to include:

- Erosion control is the primary objective dictating which species are appropriate for roadsides. Erosion control is an important consideration in prairie reconstruction as well; but rarely to the extent encountered in roadsides where nearly the entire planting area involves steep slopes created at great expense to safeguard the structural integrity of the roadbed and carry large amounts of water during major runoff events. For this reason, a large component of native mixes for roadsides must be those species that establish easily and withstand intense weedy competition. Some annuals and short-lived perennials that will temporarily blanket the surface and help reduce erosion include: Canada wild rye, Blackeyed Susan, Partridge pea, Sideoats grama, and Rough or Tall dropseed. After a couple seasons, these species will give way to the more permanent species that remain competitive over time.
- By the time a roadside construction project reaches final grade, we are often left with rather poor soil. For this reason, legumes become another important component in roadside seeding mixes. Fortunately, many legumes are also fairly

quick to establish. These include: Partridge pea, Round-headed bush clover, Purple prairie clover, White prairie clover, White wild indigo, Cream false indigo, Illinois bundle flower, and Showy tick trefoil. The nitrogen-fixing capability of these plants helps improve the soil. At the same time their structure and seed production greatly enhance the planting's wildlife value.

- It is becoming more and more of a priority to exploit roadsides for their beautification potential. In selecting species for the purpose of adding color to our surroundings, we must keep in mind that most people do not get out of their cars and walk the ditches. Seedings, therefore, should include species showy enough to be visible at 55 mph. Some that are both showy and quick to establish include: Blackeyed Susan, Yellow coneflower, Purple prairie clover, Butterfly milkweed, New England aster, Stiff (see *Fireline* p.3)

CONSTRUCTION SUPPLY CO.





IRVM Vol. 7, No. 2
November 1995

Kirk Henderson
Editor

Carole Kern
Special Projects

Lora Zahrobky
Layout & Design

Roaders' Digest is a quarterly 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.

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:

Roaders' Digest
113 CEEE
University of Northern Iowa
Cedar Falls, IA 50614-0293

Member, International Erosion Control Association
Member, Society for Ecological Restoration
Member, Natural Areas Association
Member, National Wildflower Research Center



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Fireline con't...

goldenrod, Cup plant, Horesemint, Rattlesnake master, Ox-eye sunflower, and Spiderwort. Some others that are slower to establish but are worth the wait include: Pale purple coneflower, Prairie blazing star, Rough blazing star, and Compass plant. It complicates the seeding process, but if these wildflowers can be planted in concentrated patches, they become even more noticeable and, in my opinion, a lot more interesting than an even blanket spread over the entire right-of-way. Concentrated patches achieve the "mosaic effect" described by Peter Schramm in his article, *Prairie Reconstruction, a 25-year Perspective on Establishment and Management*, from the Proceedings of the Twelfth North American Prairie Conference.

• As a final consideration, roadside prairie plantings must include a set of species

SEED DISAPPEARANCE REPORTED

Information is being sought in connection with the disappearance of seed from the prairie at Wilson Lake Park in Lee County. County officials returned to the prairie for annual seed harvesting and found someone had beaten them to it. "It's all gone," said Mike Saltzgaver, Lee County Roadside Vegetation Manager. "This is pretty discouraging. Wildflower seed is expensive. The Roadside Program counts on this prairie for some of our seed." What is especially discouraging is that whoever did this probably knows better. People who dig native wildflowers for their own yards often do so out of ignorance. They don't know the plants are rare. They see them in bloom and only know they are pretty. Whoever harvested the seed knew what species to take, knows the value of the seed to have spent so much time in covert removal and probably knew better than to harvest a natural area so extensively. Saltzgaver adds, "We lost the seed and the prairie lost some of its ability to sustain itself. People must obtain permission before collecting on county property." Anyone with information as to the whereabouts of this seed contact (319) 463-7673.

that are long-lived and provide long-term, low-maintenance vegetative cover. In this function the grasses play the starring role. Spreading by rhizomes, stolons, or tillers these blue-color members of the prairie community fill in the gaps, hold the soil, and prevent weedy invaders. In the fall these unsung heroes grab a little of the spotlight as they turn rich shades of gold, burgundy, and brown. The mainstays of this component are: Big bluestem, Little bluestem, Indiangrass, Sideoats grama, and sometimes Switchgrass (sparingly when used in a mix). Depending on the habitat and how diverse you want to get, others that might be included are: Prairie cordgrass, Porcupine grass, Prairie dropseed, Western wheatgrass, and Sand lovegrass. How much of each component to include varies widely depending on the situation. A simple, basic guideline or formula of pounds per acre might be along these lines: two to four pounds quick-establishing, two to four pounds legumes, two to six pounds wildflowers and eight to twelve pounds prairie grasses. One last note: Prairie seed dealers make excellent consultants when putting together a seeding mix.

Prairie Seed con't...

QUESTIONABLE SPECIES:

- *Achillea filipendulina*
Gold Yarrow
- *Achillea millefolium*
Yarrow
- *Cheiranthus allionii*
(Siberian) Wallflower
- *Chichorium intybus*
Chicory
- *Chrysanthemum leucanthemum*
(*Leucanthemum vulgare*)
Ox-eye Daisy
- *Chrysanthemum maximum*
Shasta Daisy
- *Coreopsis tinctoria*
Plains Coreopsis
- *Coreopsis tall*
Tall Coreopsis
- *Coreopsis dwarf*
Dwarf Red Coreopsis
- *Coronilla varia*
Crownvetch
- *Cosmos sulphureus*
Yellow cosmos
- *Daucus carota*
Queen Anne's Lace
- *Delphinium ajacis*
Rocket Larkspur
- *Dianthus barbatus*
Sweet William

- *Digitalis purpurea*
Foxglove
- *Dimorphoteca aurantiaca*
African Daisy
- *Gaillardia amblyodon*
Red Gaillardia
- *Gaillardia aristata*
Blanketflower
- *Gaillardia pulchella*
Indian Blanket
- *Gaillardia*
Blanket Flower, Firewheel
- *Gaillardia*
Showy Gaillardia
- *Gypsophila elegans*
Baby's Breath
- *Gypsophila muralis*
Baby's Breath
- *Hesperis matronalis*
(Sweet) Dame's Rocket
- *Iberis umbellata*
Candytuft
- *Linum lewisii*
Blue Flax, Lewis Flax
- *Linum rubrum*
Scarlet Flax
- *Lobularia maritima*
Sweet Alyssum
- *Lotus corniculatus*
Bird's Foot Trefoil
- *Lupinus texensis*
Texas Bluebonnet

- *Lychnis chalconica*
Maltese Cross
- *Melilotus alba*
White Sweet Clover
- *Monarda didyma*
Bee Balm, Oswego Tea
- *Papaver nudicaule*
Iceland Poppy
- *Papaver rhoeas*
(Red) Corn Poppy
- *Papaver*
(Red) Shirley Poppy
- *Papaver*
Flanders Poppy
- *Phacelia campanularia*
California Bluebell
- *Phacelia tanacetifolia*
Purple Tansy, Lacy Phacelia
- *Ratibida columnifera* 'red'
Mexican Red Hat
- *Rudbeckia 'Gloriosa daisy'*
Gloriosa Daisy
- *Rudbeckia missouriensis*
Missouri Coneflower
- *Salvia coccinea*
Scarlet Sage
- *Salvia nemerosa*
Salvia
- *Silene armeria*
(Sweet William) Catchfly
- *Silene regia*
Royal Catchfly
- *Trifolium incarnatum*
Crimson Clover

1995 Iowa Ecotype Project Species

Rough Blazingstar *Liatris aspera*
Horesemint *Monarda fistulosa*
New England Aster *Aster novae-angliae*
• Compass plant is also being collected for planting on campus in anticipation of next year's collection.

Contributions of seed for these species are being sought in the ongoing effort to make a basic seeding mix comprised of Iowa Ecotypes commercially available. By sending an ounce or two of seed to this office by December 20, 1995 you will help assure there are no gaps in regional representation. Seeds must be from a local prairie remnant. Leave at least half of the seed behind. Also, don't forget to request permission before collecting on preserves and private property. Include an accurate location description along with the seed.

Thanks for your contributions. We hope to release three more species in spring 1996.

PIRATES A THREAT TO ROADSIDE FLOWERS

By Larry Stone
Des Moines Register Staff Writer

The bit of unspoiled Iowa along a deserted Crawford County roadside had intrigued Glenn Pollock for several years.

A colony of ladies'-tresses orchids, with miniature flowers spiraling up tiny stems, clung to a prairie remnant that had been spared by the road-builders.

But now thieves have destroyed what highway engineer did not. Pollock, a Vail native who lives in Omaha, recently found holes where 17 orchids had been dug up.

"This person probably single-handedly virtually wiped out a population of ladies'-tresses orchids...obliterated them," lamented Pollock, who is president of the Iowa Prairie Network.

Plant piracy happens. And some Iowa natural areas may suffer.

"With some species that are locally rare, collecting even a few plants could be significant," said John Pearson, a botanist with the Iowa Department of Natural Resources.

Paul Bockenstedt visits many natural areas as manager for the Iowa Ecotype Project, which certifies the origin of seeds to use in prairie restoration.

"I've seen holes in different roadsides and prairies," he said. "There seems to be a general consensus that there's a problem, in particular with orchids."

Bockenstedt fears a "genetic bottleneck" in some species if too many plants are taken from a site. If only a few plants remain, they might not be diverse enough to survive or reproduce.

"It would basically doom that population," Bockenstedt said.

"The gut feeling is this is really a serious problem," he said.

State Rep. William Witt, D-Cedar Falls, who is a nature photographer and orchid enthusiast, concurred. He told of one case where 54 white

lady's slipper orchids had been dug from a railroad right-of-way. Other orchids were taken from a state preserve.

Witt blames some thefts on ignorance.

People say "let's take some of these pretty flowers and put them in our rock garden," he said.

But the flowers -- especially orchids -- almost never survive, because the new site doesn't have essential nutrients, fungi, acid balance and shade conditions found in the wild.

Worse yet, thieves may sell orchids to foreign collectors, Witt said. Even plain, non-showy species are vulnerable.

"They're just nondescript little green things," he said. "Why would anyone steal something like that?"

Loren Lown, natural resources specialist for the Polk County Conservation Board, has seen several cases of roadside plant theft, perhaps by people seeking pretty blossoms.

"Everybody wants wildflowers," Lown said.

But it's better to establish flowers with seeds or plants from a reputable nursery than to dig plants from the wild, Lown said.

Many prairie species have deep roots and are hard to transplant, he explained.

What's more, people may dig plants when they're in bloom and under stress, making survival even less likely.

DIFFICULT TO STOP

Although state laws forbid disturbing public property, officials concede it's difficult to stop digging of roadside plants.

Will Zitterich, director of maintenance services for the Iowa Department of Transportation, said it is illegal to remove any plant from a public right-

of-way. But DOT officials sometimes grant permission to collect seeds along highways, he said.

Rick McGeough, chief of law enforcement for the Department of Natural Resources, said officers seldom deal with cases of plants taken from rights-of-way. But offenders could be fined up to \$100 and receive jail sentences of up to 30 days, he said.

In Minnesota, laws are clearer, said Bob Djupstrom, supervisor of the state's scientific and natural areas program. A 60-year-old law protects orchids and a few other species, while all other plants have blanket protection. Plant pirates can be fined about \$140, then assessed the costs of replanting or restoring the affected species.

People can expect to "pay through the nose" if they steal native plants, Djupstrom said.

No matter what the law says, plant piracy hurts Iowa's natural heritage, Joel Hanes of Mason City, who owns a native prairie and is a member of the State Preserves Advisory Board.

"It's akin to buffalo hunting," said Hanes. "After awhile, they're gone."

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ALL COUNTIES MUST RESUBMIT IRVM PLANS

The Iowa Department of Transportation is requiring updated IRVM plans from all counties that wish to maintain their eligibility for Living Roadway Trust Fund monies. New plans should reflect changes in personnel, philosophy, and management activities. If there have been no changes, submit your plan in its original form. The deadline is December 31, 1995. Send plans to:

Steve Holland, Coordinator
Living Roadway Program
Iowa Department of Transportation
800 Lincoln Way
Ames, Iowa 50010

ROAD WARRIOR

by Kirk Henderson

It is said that you don't need signs to know when you have entered Crawford County. Just cross the county line, take your eyes off the road and look at the roadsides. It's readily apparent you have entered a new jurisdiction. The ditches are cleaner, there are fewer weeds, and there is less brush. It's obvious someone is caring for these roadsides. Blake Deiber, Crawford County Roadside Vegetation Manager, is hard at it watching over the county's 1,200 miles of roads and 7000 acres of ditches. The program is aggressive, well organized, and not just "cut and kill". As roadside programs go, this one is fully integrated. The roadside crew plants 150 acres of prairie and conducts twenty roadside burns per year.

As we all are, Blake is conscious of his legacy. When our watch is over, what will remain as testimony to our effort and the time that was entrusted to us? Did we create anything? What did we build? The beauty of prairie is that it will be here long after we are gone. Preserving and restoring remnants, planting the tall grasses, the Crawford County roadside program is leaving its mark. Prairie roadsides will be the historical record documenting a

period of enlightenment in roadside vegetation management.

Blake may be at the center of roadside activity for Crawford County, but he is quick to acknowledge a dedicated crew "for making me look good" and the Conservation Board, Engineer, and Board of Supervisors for their ongoing support. Since the program began, weed complaints have all but disappeared dropping from several dozen per year to "maybe one". Lack of complaints does not

mean all the weeds are gone. Lack of complaints comes from public perception that the county has a very good weed program. In other words, someone is selling the program.

Some of Blake's success is due to having a healthy operating budget. Programs need the resources and cooperation to do things in a timely manner. Beyond that the program supplements its resources with grants from the Living Roadway Trust Fund (LRTF). Over the years, the county has obtained 120,000 LRTF dollars for seed and equipment including purchase of a hydro-mulcher, herbicide unit, Flail Vac Harvester, truck-mounted fire units, straw mulcher, and seed processing equipment.

Blake's love for equipment goes

beyond buying power. The program has saved money and increased efficiency by building or modifying equipment on their own. They have the right tool for the right job thanks to resourcefulness and the Living Roadway Trust Fund.

Going on like this about the Crawford County program gives Blake a lot to live up to when he hosts next year's roadside conference. The program will be on display. As Blake might say, "no problem, we'll be ready."

Besides his work in roadsides, Blake is active in a number of organizations and serves on several committees. These include Crawford County Pheasants Forever Treasurer, Crawford County Fair Board, Iowa State Extension Council Chairman, and Roadside Manager representative on the Living Roadway Trust Fund Advisory Committee. His educational background is mechanical agriculture, agronomy, and animal biology. Speaking of education, I'm reminded of Blake's one tragic flaw. He attended the University of Nebraska and is an incurable "Big Red" fan. Oh well, I hear they have prairie, too.



Bargain Books

• Prairie Grasses Identified and Described by Vegetative Characters: From Agriculture Canada. This is a 240-page book with good line drawings and descriptions of 114 grass species most of which are native to Iowa. Contact Diane Schenier at (819) 956-4802. \$29.85 U.S. dollars.

• "Proceedings of the Conference on Savannas and Barrens," (1994). A 407-page document available from:

Dan Lawson, US EPA
Great Lakes Program Office
77 West Jackson Blvd.
Chicago, IL 60604-3590
(312) 353-2000

• "Midwest Oak Ecosystem Recovery Plan." This is a 112-page document distributed at the Midwest Oak Savanna and Woodland Ecosystems Conference, September 1995 in Springfield, MO. It includes: goals, classification system, definitions, Oak Ecosystem Ecology, biogeography, current state-by-state status, recovery plans and processes, and a list of indicator plant species of recoverable oak savannas. Available free from the previously cited US EPA address.



NOVEMBER 15-17

ISAC Fall School of Instruction
Davenport, Iowa.

DECEMBER 31

Living Roadway Trust Fund
application deadline.

FEBRUARY 2

Association for integrated Roadside
Management in Iowa, Winter
Meeting. McFarland Park, Story
County.

FEBRUARY 5-7

Springbrook, IACCBE Annual
Workshop. Will include a session on
prescribed burning. Russ Bennett of
Johnson Co., presiding.

MARCH 7-8

Weed Commissioner's Conference

MARCH 13-14

Native Warm Season Grass
Conference & Expo. University
Park/Holiday Inn, West Des Moines,
Iowa. Contact Alan Teel, Iowa Forage
and Grassland Council, at
(515) 342-3316.

ROADSIDE COMMUNITY MEMBER

Compass Plant *Silphium laciniatum* L.

by Carole Kern

High upon their stout, rosin covered stalk, the brilliant yellow, saucer-sized flowers of compass plant proclaim prairie was once the sovereign of the land. Compass plant has nearly been extinguished from most farmland. They are considered to be the ice cream plant of grazing animals. If cattle are on the land for long they graze compass plant to extinction for its highly palatable and nutritious leaves.

Its presence reminds me of the abundance of species once present in a land thought to be barren by pioneers because of its lack of trees. For me, compass whispers of these former companions, some of whom may still be holding on in nearby fence rows, cemetery corners, rights-of-ways, lightly grazed pastures and native hay fields.

Compass plant's remarkable appearance makes it one of the best known and easiest to recognize prairie flowers. The base of its flowering stalks are surrounded by a crown of foliage. Each leaf can be over a foot long and up to eight inches wide. They resemble rough and waxy Red Oak leaves.

To conserve moisture the leaves orient so that the thinnest portion of the leaf is exposed to the sun during the hottest time of day. This means that the leaf edges point North-South, making them useful guides for travelers. Hence the common names compass plant and pilot plant.

Many Native American and pioneer children had a more playful interest in the plant. During flowering, the upper portion of the stalk exudes a resinous sap (especially where damaged) which the children chewed as gum. It is best to let the sap dry some before chewing it or it may stick to your teeth. The sap has a

pleasant spearmint flavor. It's gift of a chewing treat earned it the common names rosinweed and gunweed.

Not everyone was pleased to see this prairie flower. One young girl feared it was evil because of its rough toothy appearance. Runkel and Roosa tell how the Omaha and the Ponca Native Americans avoided camping where it grew in profusion because they believed that such places were struck by lightning more often. They would burn the dried roots of compass plants during electrical storms to ward off lightning strikes.

The roots of compass plant can grow to a depth of 14 feet. These thick tap roots penetrate deep into the subsoil. During flowering the roots shrink, creating spaces for humus to seep into. This enriching process was important in the development of Iowa's famous deep black prairie soils.

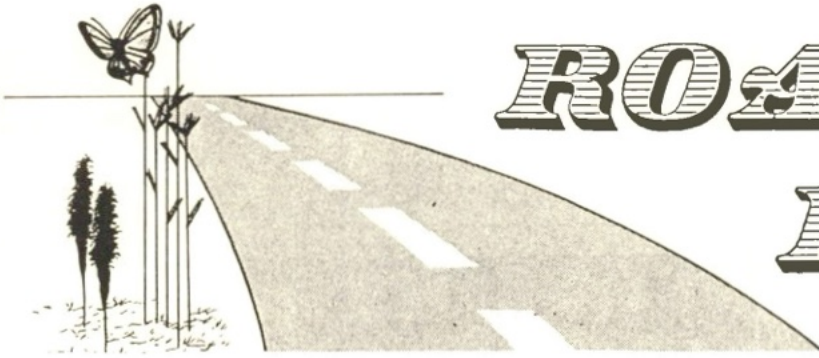
Besides being a soil builder, compass plants are used for food and shelter by many types of wildlife. This and their esthetic value make them a natural for roadside plantings and prairie reconstructions.

Compass plant is readily grown from seed. The seed is produced by the ray flowers (the flat yellow outer petals). Some seed collectors have commented that individual plants may only flower every other year.

Seeds can be collected in late summer or early fall or may be purchased from most prairie suppliers. Fall planted seed does not require special treatment. Spring planted seed will germinate more readily with a 60 day cold moist treatment.

The first year the leaves will be quite small and strap-like. Be patient, soon your plants will be enriching your soil as well as your view.

Roadside's Digest
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University of Northern Iowa
Cedar Falls, IA 50614-0293



ROADDER'S DIGEST

Vol. 8 No. 1 April 1996

Newsletter of the Office for Integrated Roadside Vegetation Management at the University of Northern Iowa

Visit Crawford County in Scenic Western Iowa for the: 10th Annual UNI/AFIRM Roadside Conference - August 21 & 22

Roadside Vegetation Management's main event is coming to Denison, Iowa taking western Iowan's ringside for a full contact encounter with IRVM's world champion combination of seeding and burning prairie roadsides. Those arriving from other parts of the state will be brought closer to Iowa's most cherished landform, the magical loess hills of western Iowa. Host Blake Deiber of the Crawford County Roadside program suggests, "Some people may want to stay over a couple days just to take advantage of being so close to this unique feature. Their beauty warrants a closer look. You have to drive right up into them to get the full effect." The historical society is offering a special tour of the McHenry House, another local attraction. The former residence of a 19th century cattle baron and banker is a nationally-registered, victorian style landmark restored to turn of the century condition. It is operated as a museum containing many period pieces and Donna Reed's oscar.

Conference Agenda

WEDNESDAY, AUGUST 21, 1996

YELLOW SMOKE PARK

- 9:00 Registration
- 10:00 Welcome and Introductions
- 10:15 History and Benefits of Fire
Daryl Smith, UNI
- 10:45 Prescribed Burning
Bob Stanton, Prescribed Fire
Consultants
- 11:30 Lunch
- 12:35 Burning Along State Highways
Bob Jacobson, MN DOT
- 1:15 Prairie Cemeteries
Glenn Pollock, IPN
- 1:40 Roadside Vegetation
Management Bus Tour

YELLOW SMOKE PARK

SOCIAL HOUR (4 - 6)

- 4:00 Equipment Display and
Grass Drill Demo, Jim Truax
- 6:00 Steak Fry
- 7:00 McHenry House Tour

THURSDAY, AUGUST 22, 1996

- 7:30 Breakfast at Cronk's
Restaurant
- 8:00 AFIRM Meeting, Cronk's

DENISON FINE ARTS CENTER

- 8:55 Welcome and Introduction
- 9:05 Species Selection
Bob Jacobson, Minnesota DOT
- 9:45 Seed Ordering and Production
Dan Allen, Allendan Seed
- 10:15 Break
- 10:30 Seed Processing
Steve Bruckerhoff, U.S.D.A.
Plant Materials Center
- 11:00 Roadside Manager's Seeding
Panel
- 12:00 Lunch
- 1:00 Cover Crop Research Project
Russ Prichard & Carole Kern
- 1:30 LRTF & ISTEAF funding
Steve Holland and Lynn Rose

ROADSIDE PRAIRIE SURVEY

by Carole Kern

Five hundred survey forms asking for the locations of roadside prairie plantings and roadside prairie remnants were recently mailed from this office. Once collected, the information will be used for two projects.

The first project is the compilation of a set of county maps showing roadsides that have been planted to prairie. When the information is available, the maps will include establishment year and species diversity. These maps will

enable the public to enjoy plantings paid for with public funds. The maps will also afford officials from prospective cities and counties a chance to see what prairie plantings look like.

The second project is to compile a registry of roadside prairie remnants. The registry will be maintained in a secure database at the UNI Roadside Office and will be available to the Iowa Department of Natural Resources and Iowa Department of Transportation for purposes of planning and protection. Roadsides contain a high number of remnants, both high and low quality. All are worth registering.

So far the response has been pretty good. Twenty-seven counties have submitted an average of five sites each. There is still time to submit additional sites for inclusion. If you know of roadside plantings or remnants, call this office to obtain survey forms. Plantings and remnants immediately adjacent to the right-of-way are also being included. We would like to hear from one or two people in every county so this listing will accurately reflect activity around the state.

To receive roadside prairie survey forms, contact Carole Kern at (319) 273-2813.

NEW THREAT TO PRAIRIES

by Roxana Currie

Fireline

Our remaining native prairies have withstood many pressures, from the pioneer's quest to turn the sod through modern agriculture's quest for more and more acres. The steel plow made farming possible in Iowa. Herbicides made it easier. As a result, prairie dwindled to less than 0.1% of a state that was once covered and protected by it. In recent years many have cried "save the prairies". Ironically, heeding those cries has produced possibly the greatest pressure the prairie has yet encountered: intensive seed harvesting.

Some of this pressure is from entrepreneurs. Seeing a ready market for high priced seed, many a quick thinker has turned a few weekends of work into a second income. But by far the greater pressure is from within the prairie community itself. Two ideologies have come together to create an environment that has never before existed.

The first idea is the concept of using only local ecosystem seed. The theory concerns protection of the Iowa seed bank from genetic corruption. We don't know what difference there is between Iowa prairies, and Kansas prairies, and Illinois prairies. And until we do, it would be wise to keep them separate. An Aldo Leopold quote is pertinent: "If the Land mechanism as a whole is good, then every part is good, whether we understand it or not. If the biota... has built something we like but do not understand, then who but a fool would discard seemingly useless parts? To keep every cog and wheel is the first precaution of intelligent tinkering." (The Round River Essay)

The idea of protecting the local seed bank is also well supported by mistakes from the past. For example, when switchgrass from Nebraska was imported as wildlife cover, it turned out to be a much more invasive plant than Iowa switchgrass. Who knew it would become it's own threat to Iowa's prairies?

Until recently, most of our seed for restoration projects has come from companies in Kansas and Nebraska.

(Those states do have something Iowa doesn't; abundant prairie to harvest seed from.) The pressure to plant Iowa ecotype seed in Iowa has taxed our Iowa prairies considerably over the last several years, especially when combined with the other new idea on the landscape: Walnut Creek. Walnut Creek is restoring acre after acre of prairie, a commendable project, lauded by nearly every naturalist in the State. But the pressure of collecting seed for the Walnut Creek project is vastly changing both the amount of seed collected in the state and the way it is collected.

For the first time in history, prairies are being harvested by machine. What is that doing to our prairies? Maybe nothing, but we don't know.

For the first time in history, prairies are being intensively harvested by hand. What is the result when the conscientious collector, who takes only 30% of the seed is followed by another conscientious collector who takes only 30%, who is followed by another collector, who because of getting a late start and not finding much, collects the rest? What happens when 100% of the seed is collected? Maybe nothing, but we don't know.

This fall we had a constant stream of harvesters. In the past there was an etiquette among seed collectors as among hunters, where permission to harvest was asked, resulting in a loosely held control. The pressure to harvest large amounts of seed, combined with high prices, has set aside both the etiquette and the control. What is the result of even the increased traffic and disturbance? Again, maybe nothing, but we don't know.

No one knows. There are some who may tell you they know; that there is no harm in mechanized harvesting, that there is no effect to the prairie in taking only the seeds, and that there is no injury from the constant stream of hand harvesters. (In fact, the pressure is so great even whole plants are being removed from prairies so out of the way there is no question the vandals are from within the prairie community.

But any one who says there is no

harm in our current harvest practices is adamantly hoping there is not, for the truth is, no one knows. And because no one knows, we are doing some very unintelligent tinkering! Prairie management is not a science that has been carefully documented over the past 150 years. Prairie management is not a science at all, but a best guess, modified over the years by apparent successes or failures.

I fear for the future of prairie in Iowa. Our small remaining fragments have been under attack for a century and a half by agriculture, cultural change, introduced species, and neglect. But this new attack, from within the prairie community, on an ecosystem already on the verge of extinction, may well be the most destructive of all. This is not a time to pretend we know, but a time to admit we do not, and to act with intelligence, self-control, and caution.



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Kirk Henderson
Editor

Carole Kern
Special Projects

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

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BURNING ENHANCES WARM SEASON GRASS SEED PRODUCTION AND GERMINATION RATES IN ROADSIDES, A FIELD TEST

Kurt A. Baker, Natural Resource Manager, Cerro Gordo County Conservation Board

Burning is an integral technique in managing grasslands and is a tool utilized by Roadside Managers to enhance plant vigor in rights-of-way (ROW). When initially promoting our roadside program, burning was looked at as an important management tool in biologically controlling noxious weeds.

However, the actual number of burn days during any given burn season varies greatly. O'Keefe (1995) reported that the average spring burn season in Des Moines, IA was nine days. Factor in other work objectives and non-working days (ie. weekends) the burning season becomes very short, resulting in a management activity that can be unreliable. Consequently, it is a rare spring that burning objectives and goals can be met.

Burning is implemented to achieve a specific result or desired change in vegetative form or type. Managers need to optimize efforts and burn areas that will provide the greatest returns. Consequently, on an annual basis, we specifically target native stands, not only for short and long term perpetuation of existing ROW vegetation, but, also for the short term benefits of enhanced seed production and germination.

Because we harvest all our grasses for roadside restoration work, we specifically wanted to look at how late spring burning impacted seed quantities and quality in ROW environments. To accomplish this, we

defined late spring burning as anything beyond 15 May. Burned and unburned sites were adjacent to each other being subjectively selected with both having visually similar vegetative composition. All sites contained native prairie. All seed was collected within a one meter wide strip running from the mowline to the top of the backslope.

RESULTS

For combined 1994 and 1995 data, the mean weight collected from burned plots was 108.9 grams (range = 77.75 - 140.0 g) and 6.5g (range = 1.05 - 23.25g) for unburned plots (Fig. 1).

Fig. 1. Comparison of sample weights between burned and unburned plots.

Mean pounds of seed produced per acre is 158.7 (range = 108.3 - 223.3 lbs) and 9.8 (range = 1.05 - 35.8 lbs) for burned and unburned plots respectively (fig. 2).

Fig. 2. Comparison of seed yield on a lbs./acre basis in burned and unburned plots.

Seed germination tests were conducted on some of our samples. Only germination rates for big bluestem were available for both burned and unburned plots. Seed germination for big bluestem in burned plots was 71% vs. 28.5% in unburned plots (table 1).

Seed germination test rates are as follows:

Species	Germination Rates (%)	
	Burned	Unburned
Big bluestem	71	28.5
Indiangrass	---	26.0
Sideoats	---	53.0

DISCUSSION

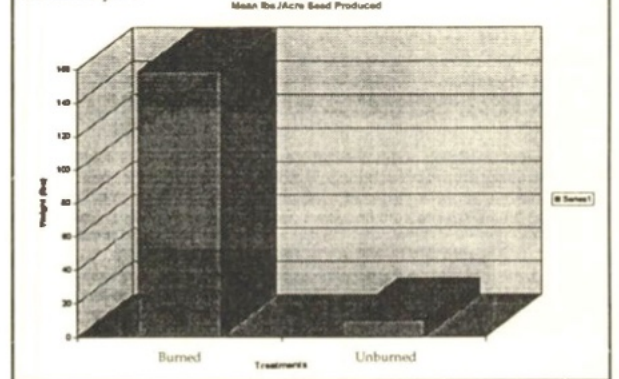
In roadside environments, our

preliminary work shows that there is a clear relationship between burning and enhanced seed production in native warm season grasses. Seed production in burned plots was 1775% higher than unburned plots. Likewise, on a pound per acre basis, burned plots out-yielded unburned plots by 1719%.

From an economic perspective, we can estimate bulk seed value on a per acre basis, estimating local eco-type seed cost to be \$20.00/lb. is approximately \$3174.00 on a burned site versus \$196.00 for unburned.

visually, in all sample plots, the contrast between burned and unburned plots was very striking. In all comparisons, a definitive line could be drawn between burned and unburned portions of the ROW. As represented by the data above, a sharp contrast

Figure 2 - Comparison of seed yield on a lbs./acre basis in burned and unburned plots



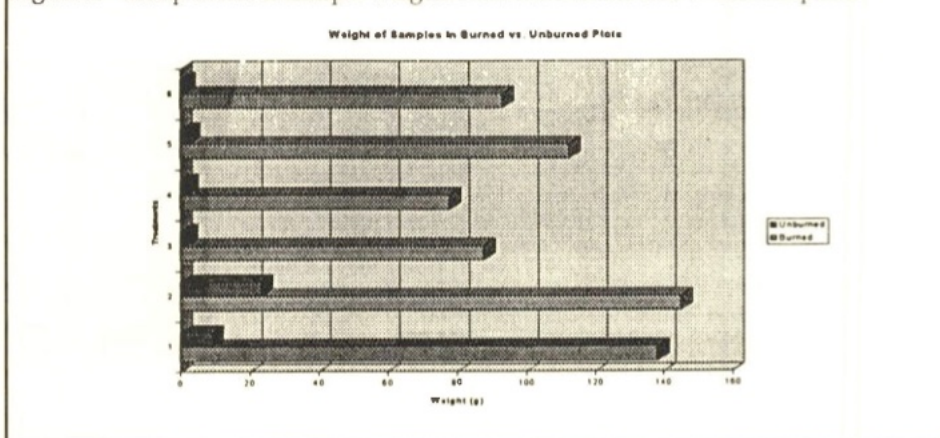
existed between the number of flowering stalks present when comparing burned vs. unburned plots.

Management Implications

Most county roadside programs manage at least 900 miles of ROW encompassing approximately 4000 acres of land. Developing aggressive burn management plans for these acres can be challenging when considering weather limitations and other spring work activities. The reality of short burning seasons has forced managers to critically evaluate and prioritize burn locations.

For agencies involved in seed harvest for restoration purposes, late spring burning targeted toward remnant prairies can significantly enhance seed availability and quality, especially with some native grasses. The role roadsides could play in providing seed nurseries has not been discussed in the literature. However, see *BURNING* p. 5...

Figure 1 - Comparison of sample weights between burned and unburned plots.



LIVING ROADWAY TRUST FUND OUTLOOK

by Kirk Henderson

The fund that has helped so many county IRVM programs purchase seed and equipment over the last six years has not been its reliable old self of late. As of February 1996 the Living Roadway Trust Fund (LRTF) was showing a negative balance of \$349,000.00. This was the deficit projected after honoring all grants awarded through June 30, 1995, the last time applications were processed. The resulting bad news is that processing of the grant applications submitted December 31, 1995 has been postponed.

Counties that depend on this funding source are wondering whether there will be enough money to process those grants by the next application deadline of June 30, 1996 and whether additional applications for funding will be accepted and processed at that time. Steve Holland, who administers the Living Roadway Program for Iowa Department of Transportation, says there is still some doubt. Holland encourages counties to send in their applications as usual. But cannot yet guarantee they will be processed on schedule. According to Holland, "money is coming into the trust

fund enabling them to pay bills. It is not known at this time whether the fund will be built back up enough to process another round of grants. If it is, all applications received through June 30, 1996 will be ranked together with no priority given to those sent in earlier. The goal, as always, is to fund the best projects."

The current financial problems are the direct result of action taken by the 1995 Agriculture and Natural Resources Senate Appropriations Subcommittee which transferred \$319,300.00 from the Living Roadway Trust Fund. The money was redistributed as follows:

- \$ 89,300.00---Department of Agriculture and Land Stewardship
- \$ 90,000.00---Iowa State University
- \$100,000.00---Department of Natural Resources
- \$ 40,000.00---Lewis and Clark Rural Water System

Members of the Subcommittee transferred the funds because of a perceived surplus in the Living Roadway Trust Fund. They did not recognize that the money showing up in the trust fund was already obligated. A surplus existed on paper because many bills for current projects had not yet been submitted.

The Living Roadway Trust Fund will eventually get back on track. This is assured by its three sources of funding. The LRTF receives \$250,000.00 per year from Road Use Tax Fund. It gets \$75,000.00 per year in Utility Rights-of-way fees. And it receives a 3% share of the Resource Enhancement And Protection (REAP) fund. With the additional income from the sale of license plates, in 1995 the REAP share amounts to \$256,000.00. The total from the three sources is \$581,000.00. This money gets divided three ways. 47.5% is for state projects. Cities receive 20% for Gateway projects. The remaining 32.5% is divided among County IRVM programs to pay for prairie grass and wildflower seed, roadside vegetation inventories, vegetation management equipment and educational programs and publications.

The interruption in funding has caused a lot of disappointment, delaying city projects and putting some county programs a year behind. Hopefully there have been no permanent losses. The Living Roadway Trust Fund will rebuild and by this time next year resume its role as the backbone of Iowa's Integrated Roadside Vegetation Management program.

ROAD WARRIOR

by Kirk Henderson

"You might think you have a failure. But two years down the road it will look like gangbusters." That's Mike Saltzgaver expressing satisfaction and perspective that comes after several years on the job. Mike took over managing Lee County roadsides in 1990. Brad Woodson held the job for a short time prior to that. "Prairie grasses planted early on are really starting to show up. I'm sure Brad would be proud of some of the stuff he did the first year," says Mike.

Mike and his assistant Greg Smith are natives of Lee County. Their knowledge of the area has really paid off. That was one of the reasons he hired Greg. "I didn't want someone I had to send out with a 911 map. It gives us pretty good rapport with the landowners too. Any landowners I don't know, Greg knows. That's one of my biggies. We try to eat dinner in the coffee shops and talk to people. If they want their roadside burned or brushcut, we put them on the list and then get to them."



Mike's philosophy on seeding is very direct. "It won't grow in the damn bag! You get it out there. Mother nature drops seed year round. Why not you? We use a Marliiss seven foot no-till. And what we can't get on with the no-till we put on with a Truax wildflower seeder behind a four-wheeler. And if we can't get on it with that we seed by hand. We don't really rake it in. Just throw it down."

According to Saltzgaver, they seed about 20 acres of roadside per year, varying the seed mix depending on the site. "Intersections we always go with little bluestem, something small. We don't want to block visibility with Big bluestem or Indiangrass. We've had real good results with little bluestem. That's one of my favorites. Tall

dropseed's a good one too. We have a lot of dropseed in Lee County."

"We hand collect almost all of our flowers, Purple coneflowers, Blackeyed Susans. We go a little heavier on Blackeyed Susans. If I could afford it, we'd use it almost as a cover crop. It comes where anything else won't." They also use Evening primrose, Grayheaded coneflower, Partridge pea, Butterfly weed, Wild bergamot, Blazingstar, Ironweed, Compass plant and New England aster. Then he adds, "I have never had any Blazingstar show up. I talked to a man at Shimek Forestry Field Days and he said It takes 5 to 6 years for that. The last 2 or 3 years we've had real good luck with Cardinal flower. We've got it in several roadsides now."

In 1993 the Lee County Roadside Program did a 4-acre prairie planting on a Van Buren County school yard. The Living Roadway Trust Fund paid for the seed which wasn't planted until August 12th. "I was kind of leary of it. Then it turned out to be a tremendous success.

see ROAD WARRIOR p. 5...

**ROADSIDE COMMUNITY
MEMBER
SPOROBOLUS... NOT JUST WEEDS
by Carole Kern**

Land which has been disturbed is an invitation for early succession species to take root, but not all early succession species are weeds. Some of these early colonizers should be considered healers which hold the soil in place until a more stable plant community can take hold.

Sporobolus species have evolved to take part in all stages of succession. Small rush grass (*Sporobolus neglectus*) and sheathed rush grass (*Sporobolus vaginiflorus*) grow in the first stage of succession. These two annuals can often be found growing together in disturbed compacted soils such as parking lots, old roadways and footpaths. Because of this habitat preference many states consider them weeds. However, they quickly disappear as a more stable plant community establishes and cannot be considered a threat to most agriculture as they are easily controlled by cultivation.

The second stage of succession includes sand dropseed (*Sporobolus cryptandrus*) and rough dropseed (*Sporobolus asper*). These species are short-lived perennials which decrease soil erosion in new prairie plantings. Sand dropseed has been held in high esteem by soil conservationists for its ability to stabilize dry sandy soils. In areas which are intermittently wet, Rough dropseed may be more abundant because it will thrive in drought, but survive better in wet periods.



In the final stage of succession is prairie dropseed (*Sporobolus heterolepis*). This deep rooted, long lived perennial forms large low growing clumps. Its attractive shape and fine textured leaves make it a good choice for highly visible plantings which need to be low growing. Its mounds of foliage provide cover and food for small mammals and ground nesting birds.

No matter what stage of succession an area is in, *Sporobolus* species should not always be considered weeds. Their niche in the prairie scheme of life is to provide a stabilizing ground cover and produce an important source of food and shelter for game birds and small mammals.

Road Warrior con't...

Now a lot of people call from Van Buren County wanting to know where to get wildflowers. It's been a real helpful tool for us, getting people excited about wildflowers in our roadsides.

Being in the most southern part of the state has advantages when it comes

Burning con't...

based on the data presented here, seed production could be significant on a regional scale. ROW's with adequate warm season grass populations can provide a reliable seed source if managed correctly. This in turn can save government entities money by producing high quality abundant seed. Also, since most of the existing ROW prairies are native, managers are assured of utilizing local eco-type seed when harvesting and restoring other areas.

LITERATURE CITED

O'Keefe, Michael A., 1995. Fitting in fire, a statistical approach to scheduling prescribed burns. *Restoration and Management Notes* 13(2):198-202.

to the use of fire. "We started burning March 18th and we never burn into May. We burn as much as we can. My uncle was a pyro-biologist. So I'm just carrying on a tradition. We single out areas that we have seeded in the last two or three years and try to get those.

Job satisfaction? I work seven days a week. On the weekends when I'm driving gravel roads I see things that need to be done. That's kind of how I run my program. I like to seed nice looking roadways. I like to see the flowers bloom. I like to feel like I'm protecting what I grew up with.

Mike recently moved onto 188-acres and will be getting married April 6th. "We're going to have a blues bash. Any Roadside Manager is welcome to come.

Bargain Books

• Weeds of Nebraska and the Great Plains \$25.00. This edition was released just over a year ago with 544 pages of excellent color photographs and botanical information including many native plants. Nebraska Department of Agriculture 301 Centennial Mall South P.O. Box 94756 Lincoln, NE 68509 (402)471-2394.

• Flora of Missouri \$84.95. For the serious botanist this classic by Julian Steyermark was recently reprinted due to popular demand. Over 1600 pages with well-illustrated vegetative key, habitat and plant association information and distribution maps. Only a few of the 450 copies remain. Iowa State University Press (515)292-0140.

Road Apples

- May 31- June 2 Loess Hills Prairie Seminar Onawa (712) 274-6083
- June 8 Operation Wildflower Mapleton, Marian McNabb (712) 274-6083
- June 30 Living Roadway Trust Fund Application deadline.
- August 15-17 Midwest Environmental Education Conference, UNI (319) 273-2301
- August 21 & 22 UNI/AFIRM Roadside Conference, Denison (319) 273-2813

- August 24 Iowa Native Plant Society Annual Meeting, McFarland, Ames, (515) 294-9499
- September 12-13 Native Warm Season Grass Conference, West Des Moines (515) 342-3316
- September 20-22 Iowa Prairie Network Annual Conference, Clear Lake, (515) 424-5254
- October 16-18 National Roadside Vegetation Management Association Conference Minneapolis (319) 273-2813
- October 23-28 North American Prairie Conference & Natural Areas Conference St. Charles, Illinois (314)878-7850

Roadside Conference Registration form:

Name _____ Registration Options
 Organization _____ Conference.....\$40.00
 Address _____ (includes 4 meals & bus tour)
 Phone _____ AFIRM Membership.....\$15.00
 Exhibitor.....\$25.00

Mail to: Roadside Vegetation Management Conference
 Continuing Education & Special Programs
 University of Northern Iowa
 Cedar Falls, IA 50614-0223

Make checks payable to UNI Continuing Education

A block of 20 rooms is being held at the Best Western and Rath Inn motels. These motels fill up so book early.

		Single	Double
Best Western	1-800-428-0684	\$31.50	\$39.90
Rath Inn	1-712-263-2500	\$36.75	\$49.35
Budget Inn	1-800-462-8883	\$26.00	\$33.60

The Roadside Conference is supported by a grant from the Living Roadway Trust Fund. This information is being solicited to register you for this conference. All information is confidential to the extent provided by law and will not be released to third parties. All items are required; therefore incomplete forms cannot be processed.

Iowa Ecotype Project 1996 Collection Species

Showy Tick Trefoil
Desmodium canadense

Prairie Coreopsis
Coreopsis palmata

Golden Alexander
Zizia aurea

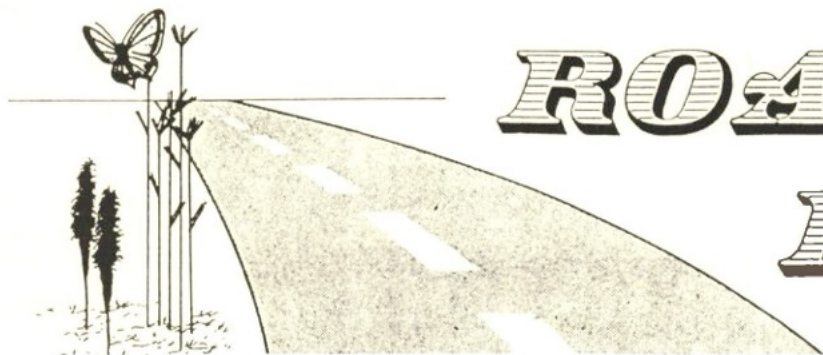
LIVING ROADWAYS ISTE A PROGRAM...A REFRESHING USE OF FEDERAL DOLLARS

The Living Roadway Trust Fund (LRTF) and Trees Forever have teamed up to make available some additional funds for highway plantings and entryway beautification. Since its introduction five years ago, the Intermodal Surface Transportation Efficiency Act (ISTEA) has proven to be rather slow and difficult to access, especially for smaller communities. It was not worth pursuing unless one had a \$100,000 project.

Now, thanks to the LRTF/Trees Forever partnership, ISTEA funds are available for projects in the \$5,000 - \$10,000 range. To qualify, communities must have populations under 10,000 and a 25 percent cash match.

To obtain a project application or for more information contact Lynn Rose at 1-800-369-1269. **Application deadline is April 26, 1996.**

Roaders' Digest
 113 Center for Energy and
 Environmental Education
 University of Northern Iowa
 Cedar Falls, IA 50614-0293



ROADDER'S DIGEST

Vol. 8 No. 2 October 1996

Newsletter of the Office for Integrated Roadside Vegetation Management at the University of Northern Iowa

IOWA ECOTYPE PROJECT FALL SEED COLLECTION UPDATE

THREE NEW SPECIES FOR 1996

Showy tick-trefoil

Desmodium canadense

Prairie coreopsis

Coreopsis palmata

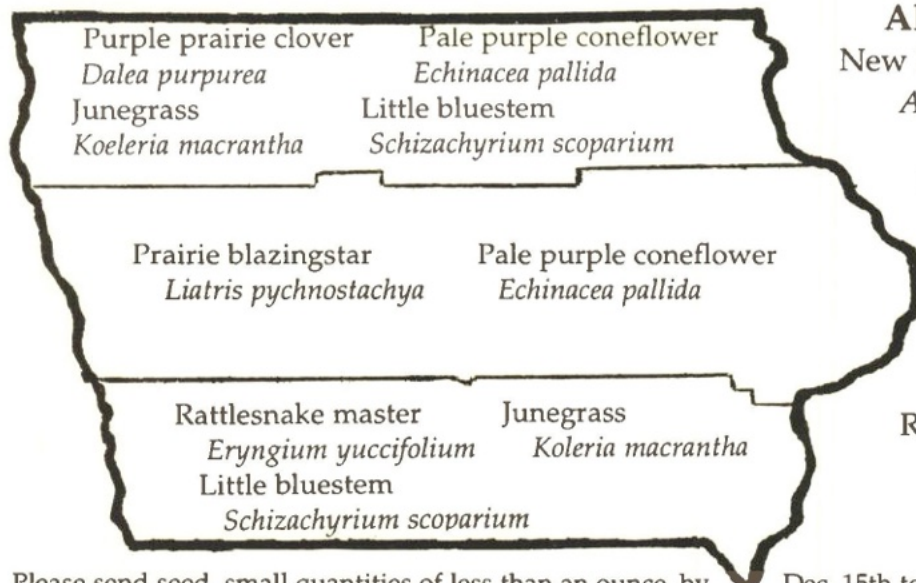
Golden Alexanders

Zizia aurea

The Iowa Ecotype Project began in 1990 with funding from the Living Roadway Trust Fund. The project mission is to make locally-adapted seed available in greater quantity at lower prices. To date, seventeen species have been collected. Of these, six have been released in at least one zone, with four more releases anticipated for 1997.

ADDITIONAL SEED FROM THE FOLLOWING SPECIES WILL SPEED THE INCREASE AND RELEASE PROCESS:

For zone indicated



All zones

New England aster

Aster novae-angliae

Horsemint

Monarda fistulosa

Compass plant

Silphium laciniatum

Rough blazingstar

Liatris aspera

Please send seed, small quantities of less than an ounce, by Dec. 15th to UNI Roadside Office, Attention: Greg Houseal, Ecotype Project Manager. Include site information such as, range, section and township or other directions for locating the site. Also include field notes on site moisture, elevation, degree of slope and associated plants.

PRIVATE SEED HARVESTING IN COUNTY RIGHTS-OF-WAY, A ROADSIDE MANAGER'S PERSPECTIVE

Kurt A. Baker, Natural Resource Manager,
Cerro Gordo County Conservation Board

Fireline

Harvest of wildflower seed from county roadsides is a problem of local and regional significance and is deserving of some discussion. Seed harvesting in the right-of-way (ROW) has increased substantially during the passed three to four years. This harvesting occurs on native roadside prairies as well as newly planted roadside prairies. I estimate that at least 75% of the sites we manage for seed production are subject to harvesting by private individuals either for their own use or for sale to commercial seed dealers.

Cerro Gordo County is continually establishing seed production plots that will, with time, be critical seed sources for our own restoration efforts. However, at the current level of private seed harvesting, these efforts will never be realized. They will only provide additional sites for private harvest.

For county roadside programs that harvest their own seed, unauthorized harvesting can cost thousands of dollars each year in lost seed. I estimate that in managed ROW's, native warm season grass yields can be worth as much as \$500 per acre. Wildflower seed prices can be significantly higher, typically ranging from \$90->\$300 per pound. This certainly provides economic incentives for private individuals to harvest on public prairies.

Section 317.11 of the Iowa Code says "Nothing under this chapter shall prevent the landowner from harvesting, in proper season, the grass grown on the road along the landowner's land **except for vegetation maintained for highway purposes as part of an integrated roadside vegetation management plan.**"

Iowa DOT Looking at Seed Collecting Policy

Steve Holland, roadside coordinator for the Iowa Department of Transportation, is studying a new policy on seed collecting along highways. Many people now harvest seeds in the rights-of-way, although they are supposed to get a permit first.

Holland may suggest rules requiring roadside seed harvesters to get permission from the adjacent landowner, as well as from the transportation agency. Seed collectors also would be required to leave some seed. Plots could not be harvested every year. If plant communities can tolerate it, some commercial harvesting rights might be sold to the highest bidder, Holland said.

*This is an excerpt from an article by Des Moines Register staff writer Larry Stone
Copyright September 1996. The Des Moines Register*

Section 319.14 of the Code says, "A person shall not excavate, fill or make a physical change within the right-of-way of a public road or highway **without obtaining a permit from the highway authority having jurisdiction of the public road or highway.**"

The issue of "no private harvest" based on Iowa Code has been discussed by our County Conservation Board and probably will be favored if current levels of uncontrolled harvest continue.

Cerro Gordo County's Roadside Vegetation Management Program is responsible for the management of all roadside vegetation. Consequently, private use of roadside vegetation needs to be monitored by the Roadside Manager. In order to effectively manage the removal of prairie seed from roadsides, we are looking at a permit system. Under the permit system all individuals harvesting prairie seed in county roadsides would need a permit. The permit would be issued by the Roadside Manager after the collector provided locations, species, quantities and dates for harvest. It would then be the responsibility of the Roadside Manager to evaluate the site and determine whether a permit would be issued. A permit might not be granted if the site was currently being managed as an IRVM seed production area. If permits were granted, the Roadside Manager could stipulate what percentage of the seed could be taken and that some of the harvest would be given to the county.

Roadside Managers do not plant prairies and manage existing native prairies for private exploitation. If ROW seed exploitation continues, it will

impact the ability of managers to harvest seed that is critically needed for future restoration work.

It is unclear how annual harvest effects long-term survival of a prairie. Ethical seed harvesting involves leaving the majority (usually at least 75%) of the seed for natural reseeding. Our observations of privately harvested sites typically reveal that all available seed is harvested. It is obvious that economic incentives outweigh concerns for perpetuation of that particular prairie site. After observing private seed harvesting in ROW's for a number of years, it becomes obvious that some sort of control or regulation needs to be implemented.

Editor's Note: Conversations with Iowa native seed producers indicate that harvesting in roadsides is on the decline. The trend is towards using locally-harvested seed to establish production areas.



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October 1996

Kirk Henderson
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Special Projects

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LOCAL ECOTYPE SEED COLLECTION GUIDELINES

by Pauline Drobney,
Refuge Biologist
WALNUT CREEK NATIONAL WILDLIFE
REFUGE

The once vast, tallgrass prairie and savanna landscape in Iowa has dwindled to less than 0.01% of its original area. In order to preserve a portion of these unique ecosystems, it is critical to carefully steward remnant plant and animal communities. It may be equally critical to preserve and expand local gene pools by using local ecotype seed (seed originating from local remnant populations of plants) in prairie and savanna plantings. This involves collecting seed. Local prairie and savanna remnants are living pieces of a formerly intact ecosystem and an irreplaceable portion of our natural heritage. They are also our ecological libraries and our restoration toolboxes. How does one collect seed without unduly damaging these living remnants? A number of things can be done to minimize potential for negative impact while collecting local seed important in prairie and savanna plantings. The following is intended to be a guide to responsible hand-collection of local ecotype seed.

KNOW YOUR SITE. Match your planting site conditions with the native plant community that would naturally grow on such a site.

IDENTIFY TARGET SPECIES. Know what plant species to collect and what they look like when producing seed.

GET PERMISSION. Private landowners, public land agencies, and land managers must be contacted and permission granted before entering a site to survey for potential seed harvest and certainly before any seed is harvested.

APPROPRIATE COLLECTION SITES.

Low traffic sites: If possible, collect on sites that are not used or are minimally used as collection sites by others.

"New" prairie discoveries: Discovery of an overlooked prairie remnant in an out-of-the-way place could result in a seed collection site that is not being harvested by others. Collection pressure applied to well-known sites can then be reduced.

Planting a collection site: Careful documentation of the origin of seed planted on a site will allow accurate representation of local origin so that in

approximately one to three years, your planting can be used as a local ecotype seed source.

Contamination by non-local plants: Be alert to potential contamination of a local site resulting either from an "enhancement" overseeding with non-local ecotype seed or from interbreeding between a remnant plant population and a nearby non-local planting.

AVOID RARE SPECIES.

Listed species: Do not collect seed of species listed on State or Federal Endangered or Threatened Species lists.

Report listed species: Contact the Iowa Department of Natural Resources if you think you have spotted a new site for a listed species.

Local rarity: Do not collect seed of species that are rare on a site even if they are common on another site. If only one, to a few plants of a species exist, pass it by.

PROTECT SENSITIVE ANNUAL AND BIENNIAL POPULATIONS.

Some species depend on annual or biennial seed dispersal for survival. Species that are uncommon on a site, such as the Indian paint brush (*Castilleja coccinea*), can be eliminated on a site by overcollection. Know what species fall in this category and either avoid or collect sparingly; take no more than a third of the seed. Be sure some ripe seed is scattered on the site.

HARVEST IN SEASON.

Timing per species: Most seeds of native plant species ripen for a limited period of time somewhere between late spring and late fall. Propagation guides can be used to indicate a general time of seed ripening for a given species.

Timing per geographic location: Seeds ripen differently in different places. Watch for timing in your area.

Timing per season: Seasons vary, and so does the precise time of seed harvest. Resist the urge to harvest too early; remember, seed harvested too early doesn't grow.

COLLECT RIPE SEEDS.

Color and texture: Ripe seeds are usually brown, black or gray colored on a plant that feels dry or crisp to the touch.

Natural dispersal: If seed is naturally falling from the plant, it is probably ripe.

Filled seed: Firm, full seed is usually ready for harvest; pinch between thumb and forefinger to test.

Easy removal: Seed should strip easily from the seed head.

BE ALERT TO SITE DAMAGE.

Site damage due to collection: If you think collection in an area will result in site damage (such as muddying up a moist site), don't collect there.

Previous visitations: Trampling of vegetation and clipped seed heads indicates previous picking. If picking has been widespread, avoid harvesting the site.

Site damage by others: If you suspect damage to a site, report it to the landowner or land manager.

LEAVE SOME SEED "FOR THE POT".

Studies indicate that most of the seed produced by prairie species perishes and does not result in new plants on good quality prairies. Despite this information, it is best to err on the side of conservatism and leave some seed on site.

Amount to take: There are many possible approaches to guide the amount of seed collected. A rule of thumb; always leave a third of the seed on the site. To be sure the third you leave stays on the site, toss one seed on the site for every two seeds in the bag.

Restoring areas: Aim some of those seeds you throw back toward bare spots of similar soil and moisture characteristics to help restore degraded areas if they exist.

DRY SEED IMMEDIATELY AFTER COLLECTION.

Disease prevention: Prevent mildew and related reduction in seed viability by drying seed in an open area or container for at least two weeks after harvest.

Depth of seed: Spread seed in an open, flat area to a depth of a quarter- to a half-inch if possible. Cake pans work well for small lots.

Air circulation: Stir seed periodically. If the seed is deeper than a half-inch, stir or mix seed vigorously at least once daily.

SEED STORAGE.

Humidity: Dryer is better. Avoid moist or humid storage areas.

Temperature: Cool storage helps keep seed alive and healthy. If you must choose between dry or cool, choose dry.

Rodents: Rodents eat seed. Avoid rodent-prone storage areas.

IF IN DOUBT, DON'T.

(An all important rule-of-thumb)

Gain experience: Join a local conservation or preservation group that collects seed. Experience is the best teacher. See "Guidelines" page 5.

SEED COLLECTION AT ION EXCHANGE

by Howard Bright

Our goal at Ion Exchange is to have, ultimately, all of our seed collection from our nursery. 99% of our harvesting is by hand. We are adding more species each year to our nursery beds. It is much more economical to harvest from rows planted close to home than to travel collecting from remnant stands of prairie. Our collection season is driven by time constraints. We dedicate anywhere from one day to two weeks to each individual species. For example, we devote two weeks to collecting Wild Bergamot. We quit collecting, not because we run out of areas of Wild Bergamot, but because we cannot spend any more time than this. We have over two hundred species to gather. There is little time to work each species into our limited time of harvest. Other species, such as Prairie Loosestrife, we will only spend a partial day collecting because of limited demand. Most of our harvesting is done on land leased from private landowners and corporations.

In my opinion, we have been handling our prairies with kid gloves. We have taken the "do not touch" approach. Instead of protecting our resources, we end up destroying them. Fire management is only one of

the requirements of natural prairie. Unfortunately, our prairies are no longer natural because we have destroyed the grazing buffalo and other herbivores. By standing back with a "do not touch" approach, we are only preserving the unnatural prairie. *Man* was part of the prairie and interacted with plants. *Man* used the open expanses to manage buffalo herds. The buffalo constantly grazed and pounded the earth with thousands of hooves over thousands of years.

Are we hurting our prairies by removing seeds? I think not. A native prairie near Algona, Iowa has been hayed for over 50 years. Nearly all of the plant growth and seeds have been removed on a continual basis. We have leased this prairie for the passed three years. There is more diversity here than the nearby state-owned, protected prairie. Unknowingly, the owner has simulated the grazing buffalo. His management of "harsh treatment" has been more successful than our planned strategies of prairie management. I am not promoting this intensive haying. But somewhere we have forgotten that prairies are tough. They cannot only withstand periodic traffic and grazing; but may be of better quality if we were able to figure out nature's way. I do not know the best way to combine all of these factors.

In all of our years of hand-collecting, I have not been able to see

a corrolation of plant vigor, diversity or quantity based on the amount of seed removed. We are required in some instances to leave 30% of the seed. On managed land here at Ion Exchange, we have removed 95% of the seed from Cream Gentian for the passed 10 years. The stand has quadrupled in size and yields more seed than ever before. Our policy is to harvest seed from larger stands and take as much as we need.

In summary, I think the native seed collectors and growers have done far more to expand the native species than those who protect them by a hands-off policy. I admire those who want to protect our prairies. But I think we need to look to the future and see how we can increase those plants and ecosystems that have become so rare. We are proud to say that we are spreading the seeds once again. This is a way that we can fit into the natural world and share its wonder and beauty with you. It is true that our survival as a small business depends upon our seed collection. But my love of the land and the plants that grow there far exceeds the need to exploit mother nature for a profit.

Digging of live plants is not acceptable because we are removing a whole plant that will never be there again. Please do not dig live plants.

ROAD WARRIOR

by Kirk Henderson

On the bluffs of the Mississippi River north of Dubuque, you'll find Balltown, Iowa. According to Mike Britebach, the owner of Britebach's Country Dining and the oldest bar in the state, the town was named for John Ball who moved to the Iowa Territory in 1831 prior to the Black Hawk Indian War. Ball first settled on Ball's Island and later moved to the site of present day Balltown. He is believed to have been killed by Indians and buried close by the restaurant.

This town, ripe with pre-settlement history and set amongst some of Iowa's most beautiful scenery, is the childhood home of Greg Schmitt, Roadside Manager for Buchanan County. Across the valley below are floodplain woods, the Mississippi River and in the distance, Wisconsin. With this as his



outdoor stomping ground, Greg developed a passion for hunting, fishing and all kinds of wildlife.

On the first day of school at Iowa State, Greg met dorm-neighbor Sean O'Neill (Sac County Roadside Manager), living right across the hall. Greg first considered degrees in Engineering and Business. After two years of hearing Sean talk about his Fisheries and Wildlife Biology classes, the wildlife interest started showing up in Greg's career plans. The following year Sean and Greg met Joe Kooiker (Story County Roadside Manager) also

a student at ISU. Joe was working summers with Story County IRVM. From Sean and Joe, Greg learned that Game Warden was not the only Fisheries and Wildlife job. After working as a park ranger at Saylorville Lake for two summers, Greg wanted to manage vegetation, not people. Specifically, he wanted to manipulate vegetation for wildlife. He has since learned that it's impossible to avoid people management altogether, especially if the roadside position includes weed commissioner duties. But roadsides do offer a large area for management. Buchanan County has 4300 acres of roadsides, a lot of land that otherwise isn't put to much use.

Greg's first roadside job was with Story County, an eleven-month position as conservation technician working nine months roadsides and two months conservation board.

see ROAD WARRIOR p. 5...

GUIDELINES *cont'd...*

Some seed that is stored indoors for the winter may require cold treatment or other dormancy breaking activities to encourage maximum seed germination in the spring. Consult propagation and restoration books or someone knowledgeable about prairie planting to insure maximum success with seed you have collected. Be sure that the seed you collect is planted! This is the only way the potential of the precious seed you have collected can be realized.

Volunteer seed collectors are important players in the restoration of Walnut Creek National Wildlife Refuge, a landscape scale tallgrass prairie and savanna restoration located in Jasper County. There is no better way to learn about collecting seed than to do it while enjoying the last warm days of the season in the company of the other prairiephiles. Those who wish to join a guided volunteer seed collection effort in southcentral Iowa can contact the Refuge at 515-994-2415.

Road Apples

- October 15-16 Biological Control in the Midwest. ISU Memorial Union (515)294-8622
- October 16-18 National Roadside Vegetation Management Association Conference Minneapolis (319) 273-2813
- October 23-28 North American Prairie Conference & Natural Areas Conference St. Charles, Illinois (217)333-8495
- November 20-22 Iowa State Association of Counties Fall School, Des Moines (515)244-6397
- December 3-5 Engineer's Statewide Meeting, Scheman Center, Ames (515)244-6397
- January 1 IRVM Calendar/Posters available (319)273-2813
- February 3-5 IACCBE Annual Workshop, Springbrook.
- June 30 The Next Living Roadway Trust Fund Application Deadline.

ROAD WARRIOR *cont'd...*

Some of the county's wildlife areas had no formal management plan at that time so Greg approached the Conservation Board Director about making his job year-round using the additional time to write management plans. Most of the year he worked with Joe Kooiker who was in charge of field operations for the roadside program. "That was a lot of fun. Dave Webber and Joe Kooiker showed me the ropes. I kind of regretted leaving there. But I had to try for the full-time, be-my-own-boss, type of opportunity Greene County offered.

"I worked for Greene County from March of 1992 to August of 1996. My favorite part of the job was seeing the plantings do well and implementing a kestrel nestbox program. I helped the Conservation Board with programs, management plans, and prescribed burns. The people in Greene County were excellent to work with. I had the program all set up and most of the equipment I wanted. When I first got to Greene County, people weren't too sure about this *Integrated* approach to roadside management. Four years later you could see the change in attitude and a higher level of

Roadside Program Recognized by Sierra Club

The Roadside Management Program at the University of Northern Iowa received the Merit Award from the Iowa Chapter of the Sierra Club. The award was presented to Director, Daryl Smith and Program Manager, Kirk Henderson at the Annual Awards Banquet October 12th in Amana. State Representative Bill Witt made the presentation citing the program's leadership role in helping counties adopt an innovative approach to roadside vegetation management, reducing herbicide use and protecting and planting prairie along county rights-of-way. The award also recognized the contributions of Al Ehley and Carole Kern.

Loren Lown, Natural Resource Specialist for Polk County, received the organization's Public Service Award.

acceptance. That's what makes the job satisfying.

But Greg and his wife, Michelle, both wanted to live near their families in northeast Iowa. When Michelle received an offer for a speech pathologist position in Elkader, it was an opportunity they could not pass up. Greg resigned his job with Greene County. Two days later he heard about a roadside opening in Buchanan County. In moving from Greene to Buchanan County, he went from a conservation board position to one more directly under the Board of Supervisors located in secondary roads. Greg says, "ideally I would like to have two offices, one in the conservation board for doing public programs, news releases and keeping up to date on conservation issues and one in secondary roads close to the equipment and construction projects."

Now the Schmitts live out away from everything on the county pavement north of Winthrop midway between their jobs. When I'm not at home or at work, I'm usually hunting, fishing or camping. Now that we've moved I might miss showing Chad Paup (Guthrie County Roadside Manager) how to duck and goose hunt." But trading Greene County's wetlands and waterfowl for the woodlands and whitetail of Buchanan, is a fair exchange. And there will always be hunting for his "awesome pheasant dog, springer spaniel, P.J., Michelle's Princess Jasmine."

Bargain Books

• Iowa's Wild Places by Carl Kurtz
Carl secures his rightful place among the important naturalists of Iowa with this latest interpretive achievement. With over 200 pages containing 70 photographic gems and sensitive commentary, this book details Iowa landscapes and wildlife in a way that will make us better, more frequent watchers of nature. \$24.95. Iowa State University Press 1-800-862-6657.

• Prairie Plants of the Midwest: Identification and Ecology
By Russell R. Kirt, College of DuPage. This is a very nice little book with good drawings and descriptions of over 100 common prairie species. Glossary, index of common names and ecological notes make it a manageable introduction to prairie. Stipes Publishing 10-12 Chester Street Champaign, IL 61820

ROADSIDE COMMUNITY MEMBER

by Carole Kern

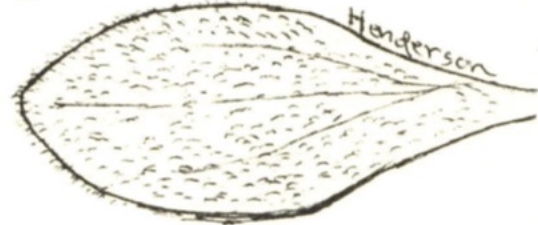
Throughout Iowa's roadsides, prairies, savannas and open woodlands can be found the lovely Black-eyed Susan (*Rudbeckia hirta*). It's ability to colonize and thrive in open or disturbed areas made it a natural for prairie restoration. This biennial or short-lived perennial establishes quickly and has abundant, yellow blossoms. In roadside plantings it provides early erosion control and bright color.

Early in the spring when the weather starts to warm the seeds, Black-eyed Susan will grow to form hairy, basal rosettes. Rosettes can also form in the early fall from freshly fallen or planted seed. The oblong, lance-shaped leaves making up the rosettes are covered with numerous long, stout hairs. These leaves help identify the plant before it goes into bloom. The hairs are reputed to help protect the stomata (pores through which the plants breath) from

dust and excessive loss of moisture.

Plants sufficiently mature will start sending up flowering stalks in early June. By mid to late June their golden rays unfurl around a brown to dark purple central disk. Each plant may have one or many flower heads. While the majority of its flowers will occur in June and July, some plants continue blooming sporadically through September.

After blooming, the flowers fade and the dark center expands as the nutlet seeds develop. These seed heads typically contain a high percentage of viable seeds, charcoal gray at maturity. As the seed heads turn gray, the seeds are more easily shaken from the head. Falling seed will extend the time that this lovely flower is found in the area. As the area becomes colonized with longer-lived plants, the Black-eyed Susans will become less abundant or disappear. Its seed will remain in the soil for the next opportunity to grow.



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