Native Prairie Roadsides: The Iowa Example

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"No doubt each of us relates to certain aspects of the prairie that have special meaning. For me, the plants of the prairie invoke feelings of awe and wonderment as well as continuity with the past. Nothing is more relaxing than lying on your back in late summer and viewing a deep blue sky through the outstretched turkeyfeet of bluestem." [1]

Most original roads in Iowa and Kansas followed existing trails and traversed the tallgrass prairie. As long as prairie was adjacent to the roadside, seed was available to maintain prairie vegetation in disturbed rights-of-way.

As the human population and agriculture increased, cropland replaced the adjacent prairies. When extensive roadbed construction eliminated many prairie remnants, seed sources were no longer available to reclaim the roadsides. Annual weeds moved in, and weed control by extensive mowing or broadcast herbicide spraying was expensive and inefficient. Iowa counties initiated Integrated Roadside Vegetation Management (IRVM) programs that combined native vegetation, reduced mowing, prescribed burning, and spot spraying of herbicides for roadside vegetation management. The Iowa Model of IRVM has gained widespread acceptance and national recognition since the 1980s. Kansas can learn a valuable lesson from a state that has lost most of its prairie.

Programs like Iowa's help control

BROADCAST SPRAYING
Michael Stubbs

invasive weeds, reduce water run-off and soil erosion, reduce snow-drifting, provide wildlife habitat and beautify rights-of-way. It is a win-win situation: the right thing to do at less cost. IRVM is based upon the establishment of diverse, perennial, native vegetation that resists weeds.

Some of the purest prairie remnants in Iowa occur on railroad rights-of-way. Where these are adjacent to roads, the quality of the remnants is usually greater. Prairie re-establishment via secondary succession was still possible as long as original prairie was nearby and/or remnant patches remained in the rights-of-way. However, as conversion to cropland expanded dramatically in the twentieth century, remnant prairies adjacent to roadsides disappeared.

The final demise of many roadside prairie remnants began in the 1920s. Iowa invested in an extensive farm-to-market road system and eliminated many roadside prairie remnants. Road construction erased most of the remaining remnant prairie vegetation. At the same time, almost all of the adjacent land was converted to agricultural crops. Few proximal remnants remained to provide seed for secondary prairie succession.

With increased soil disturbance from road construction and erosion from adjacent cropland, weeds became a roadside problem. Unless the roadsides were intentionally seeded, they became prime sites for early successional weeds. If the roadsides were seeded, the early seed mixes largely consisted of non-native species such as smooth brome, and in some cases, fescue. On certain soil types, weeds and woody species easily invaded the non-native grass plantings. The weedy patches were a visual blight and raised concern about their invasion into adjoining cropland.

Mowing programs were used to control these weeds. Initially, farmers mowed to manage roadside ditches adjacent to their property; then county and state agencies assumed increasing responsibility for mowing. Often rights-of-way were mowed from fence to fence, requiring a heavy investment in equipment. Ultimately this weed control technique proved to be too costly. As herbicides became available, they were used as an alternative weed control method.

Although costly, neither mowing nor herbicide spraying controlled weeds. In addition, the use of large quantities of herbicide in broadcast spraying increased the potential for ground-water contamination. By the middle of the 1980s, a more effective, cost-efficient and ecologically sound means of roadside vegetation management was needed.

Integrated roadside vegetation management (IRVM) provided a viable alternative for roadside weed control. As the name indicates, various techniques are combined to increase the

effectiveness of vegetation management. IRVM is based upon an application of the principles of ecology to roadside vegetation management. The Iowa landscape at the time of settlement was dominated by tallgrass prairie, and even in the more wooded areas, extensive prairie openings occurred among the oak-hickory communities. Therefore, Iowa IRVM programs include the establishment of native prairie vegetation to emulate the pre-settlement plant communities of the state. These stable, diverse native prairie communities maintain themselves and resist weedy invasion—reducing the need for mowing and chemical control. In addition, native prairies species help sustain roadside vegetation when stressed by drought. Species-rich prairie communities preserve and provide better habitat for wildlife; the extensive root systems of native vegetation effectively hold soil and prevent erosion; and the grasses and wildflowers add a rich aesthetic aspect to roadsides.

In the initial phase of a county IRVM program, roads are surveyed. The roadside manager then develops and initiates management plans to enhance the remnants and deal with weed trouble spots. Roadside mowing is limited to the verge adjacent to the shoulder and to certain locations, such as intersections, which require control of vegetation height for safety. Herbicides are only used to treat specific spots where invasive weeds are a problem, rather than spraying the entire roadside. Applications are carefully timed to coincide with the most vulnerable stage in the life cycle of the target species. Fire is also used in an IRVM program. Prairie vegetation is fire-adapted; so prescribed burning can enhance the vigor of prairie species while suppressing undesirable woody plants and non-native species.

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

Traditionally, roadside vegetation maintenance was viewed as a necessary evil and a financial drain on state and county budgets. However, agencies are increasingly viewing roadsides as potential space for a variety of uses. With so much of Iowa and Kansas land under cultivation, development and private ownership, roadsides are an opportunity for scenic roadways, increased biodiversity, prairie restoration, rare plant protection and wildlife habitat.

SKYLINE DRIVE
Michael Stubbs

"We need the prairie because it is part of our past. ... Not only is the physical impact of the prairie important, but man's psychological well-being may well rest upon recapturing the essence of the prairie." [2]

1-2 Reprinted from *"Mystique of the Prairie,"* presented by author at the proceeding of the 5th Midwest Prairie Conference, 1978.

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