

Prairie Plains

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Prairie/Plains Resource Institute is a nonprofit membership organization dedicated to the inventory, preservation, and restoration of native prairie and other unique native habitats in Nebraska, and to general education about the natural and cultural heritage of the state. The Institute began working in 1980 at the local, grassroots level to achieve these goals.

Board of Directors: Bill Whitney, Curt Twedt, Jane Dadey, Ann Billesbach, Teresa Stitche Fritz, Cliff Jensen, Jim Landon, Norris Alfred, Hal Nagel, Tom Bragg, Bill Lock, Charles Whitney

Editor: Jan Whitney

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Submitting material for publication:

Deadlines for contribution to *Prairie/Plains Journal* are January 15 for the Winter-Spring issue and July 15 for the Summer-Fall issue. Copy must be typewritten, double-spaced. Letters, essays, poetry, notes, book reviews, notices of events, black and white photographs, and artwork are welcome and encouraged. Suggestions of articles to reprint would also be appreciated. The subject matter should be relevant to prairie preservation, restoration, or landscaping; prairie-plains history, culture, or literature; or special issues and problems relating to natural or cultural resources in the prairie-plains region.

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## News & Views

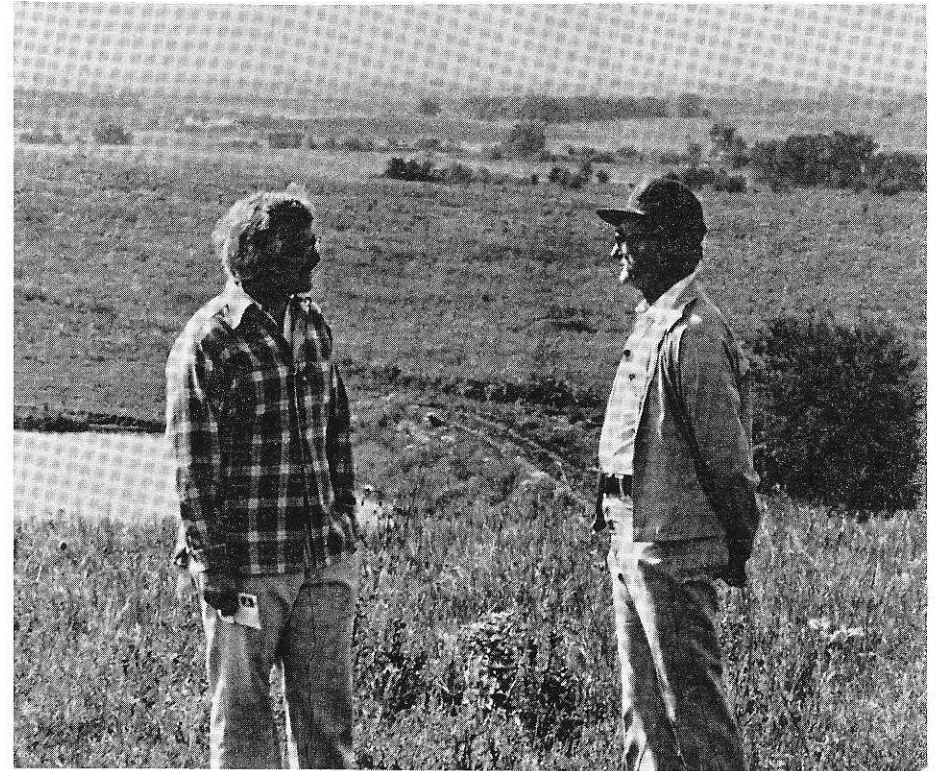
### Appreciating Prairie-

Eighteen people hiking through the Indian grass at Wilderness Park in West Point . . . prairie art work by sixth graders and native grass arrangements by seventh graders on display at the Loup City Community Center . . . a puppet show and talk on prairie landscaping at Homestead National Monument near Beatrice . . . a group of youngsters examining a soil profile along Lincoln Creek in Aurora . . . another group taking in the rich diversity of the Niobrara River . . . and over 100 persons of all ages experiencing the grandeur of Nine Mile Prairie on a beautiful autumn afternoon . . . these were all scenes from the second annual Prairie Appreciation Week, September 19-25, 1982.

The goal of Prairie Week is to awaken all Nebraska citizens to the immeasurable value of native prairie, and its significance as part of our natural and cultural heritage. Our means of accomplishing this are, as the activities mentioned indicate, diverse. Television and radio interviews, public service announcements, newspaper articles, special programs and field trips organized by sponsoring organizations are all used to deliver our message. Information about prairie and suggestions for activities for the Week were mailed to teachers, librarians, and conservation groups all over the state. This year's events also included a special ½-hour program, "Prairie: Our Natural Heritage," filmed on Nebraska's few remaining native prairies, broadcast on the Educational Television Network three times during the Week. A Prairie Appreciation Banquet at the Lincoln Hilton featured a presentation on "Beauty of the Prairie" by Dr. Gerald Tomanek, the last doctoral student of J. E. Weaver and president of Fort Hays State University.

We are indebted to the Gifford Foundation for supporting these activities through a grant to the Institute, to Hughes Brothers, Inc. of Seward for donating printing services, and to Ruth Thone, Nebraska's first lady, for her enthusiastic support and promotion of Prairie Appreciation Week as honorary chairman.

If we were to give an award to a Nebraska community for outstanding response to our declaration of Prairie Appreciation Week, it would go to Loup City. There, under the direction of librarian Lillian Kaslon, the public library, Shermanette Garden Club, public schools, and local Soil Conservation Service office all cooperated in presenting a Thursday afternoon program at the Community Center. The art work and grass arrangements mentioned earlier and additional grass and wildflower displays from the garden club decorated the Center, and Mrs. Kaslon provided relevant books and pamphlets from the library. The garden club showed two films about prairies and the early history of settlement in Nebraska and nearby states, and Bill Wester from the S.C.S. office also showed films urging things to do to keep some prairie and how to practice soil and water conservation. Finally, the garden club president, Marguerite Schwaderer, spoke briefly of the early history of the people on the prairie and then introduced the "Saga of the Prairie," a short and humorous old time melodrama.



*Jon Farrar*

Ty Harrison, left, visits with Gerald Tomanek on "Black's Pasture," where Dr. Tomanek did his doctoral research under the direction of noted grassland ecologist J. E. Weaver. Dr. Harrison, UN-L life sciences professor, has devoted much time and energy to research and preservation of local prairies, especially Nine Mile.

We mention Loup City's program here as an example of the type of response we'd like to achieve in communities all over the state during future Prairie Appreciation Weeks. Given the basic information and suggestions for activities, a community can tap its own local talent and resources to get the message across to its own residents. Thanks and congratulations to Loup City for being the model to follow.

The planning committee for Prairie Appreciation Week will be reorganizing soon to discuss next year's Week, and how to carry things out more effectively. Thoughts generated toward that end so far include the need for getting into the schools more, and providing more materials that could be used by teachers directly in lesson planning; developing a special "theme" for each year's events, e. g. landscaping with native plants, pioneer folklore, soil, etc.; and have a "weekend folk school" type event. We would certainly appreciate additional ideas from the rest of our members, so send them in!



## Lincoln Creek

A master plan for the Lincoln Creek restoration project outlining major and minor (including volunteer) projects, timetables and funding needs, is still in the making. Once completed, it must be presented to Aurora schools, service organizations, the business community, and the surrounding agricultural community. So far this has been done on a limited and conceptual basis only.

There is a firm foundation to build upon. P/PRI owns, through Wilma Aalborg's gift, a 6-acre parcel; the Nebraska Youth Leadership Development Center board is behind the concept and awaits a lease proposal, and there are about 2 acres of well-established diverse prairie restorations.



*Bill Whitney*

Two Aurora sixth graders enjoy the tall grasses along Lincoln Creek during a special prairie appreciation outing September 24.

There is a foundation of popular support based on the comments and interest of many people (case in point: a generous donation of machine and man hours in preparing and planting this year's three prairies.) If the local-rural concept of restoring and managing our diverse natural heritage is valid, then the restoration of the Lincoln Creek watershed may be one good example to follow.

Recent discussions among local members have centered on how to communicate the project through volunteer organization. Perhaps a crop of Prairie People T-shirts is called for!



*Jan Whitney*

Planting at NYLDC - Lincoln Creek

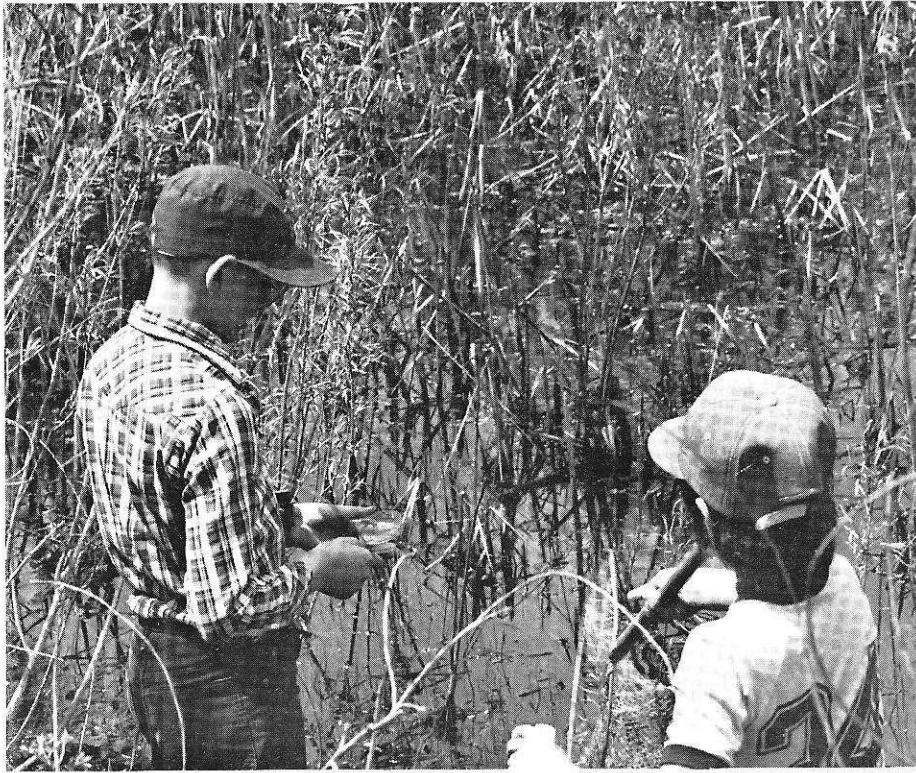
## Prairie Restorations

All of this year's plantings have yielded excellent results. After their first growing season it can be predicted that they will develop into predominantly big bluestem prairies with a nearly uniform distribution of mid- and short grasses (our local remnants have a considerable amount of side-oats and blue grama spread throughout) and legumes such as purple and white prairieclover, leadplant and Illinois tickclover. Other forbs establish-

ed from the seed broadcast include dotted gayfeather, aster, stiff sunflower, pitcher sage, slender and white penstemon (*Penstemon gracilis* and *P. albidus*) and serrate-leaf primrose. Weeds were not a problem with the scraped seedbed. The response of the native vegetation to the hard seedbed and abundant rainfall was phenomenal, with some species blooming heartily the first season.

#### Bader Park Natural Area Interpretive Project

We're drawing closer to the end of what we consider a great beginning of the Institute's program in the Natural Area at Bader Park, and we're looking forward to the December 18 Christmas Bird Count and 1983 tours. We definitely need to organize a volunteer group of people to work on Bader trails and bridges. The quantity of rainfall throughout the season made access through the accretion forest trails to the Platte River frontage impossible for anyone who wished to remain reasonably dry . . . hence the need for a few small bridges.



*Jan Whitney*

Aurora students studying marsh at Bader Park

A trail guide and the Bader Natural Area interpretive booklet describing the natural and cultural history and ecology of the area should be completed by next spring. It is hoped that these materials will greatly enhance the interpretive program and general public use of the area.

#### Eighth North American Prairie Conference

P/PRI was well represented at the biennial Prairie Conference held August 1-4 at Kalamazoo, Michigan. A presentation was given during the interpretive session that described the Institute and its goals and projects, especially Prairie Appreciation Week. The conference was an excellent opportunity to meet new and old friends from the entire North American grasslands region, to share ideas, and to see a part of southwest Michigan.

## Nine Mile

Imagine: You're finally headed out of town in the late afternoon of a warm autumn day. It's been a bit muggy downtown, so you're anxious to get out in the open country. You pass the last of the rows of identical houses, a few fields of corn and milo, and then go through - hurriedly - the place where the old bomb storage bunkers are, an ever-present paradox. And there she is. The rust and wine-colored blanket stands out abruptly from the surrounding pale yellow countryside - a sign of the Real Thing. This is Nine Mile Prairie in all her splendor - the wind blowing waves across her, reminding you of so many literary passages describing the ancient Sea of Grass. Next thing you know you plunge in, wading through a path that is actually more like a swaying tunnel, the grasses blowing around above your head. Then, looking down, you come across a clump of beautiful blue downy gentian. And another and another. As you come to the top of a rise there's an open spot - a glacial boulder left here thousands of years ago, where you can sit and view all of Nine Mile's 230 vibrant acres. To the west the sun is setting; to the east you can see the state's capitol building just six miles away.

If there was any way I could actually recapture the total experience at Nine Mile that day, I'd package it up and send it along with this Journal as a holiday bonus. However, I won't lament over this impossibility too much because, thanks to folks like Naomi Brill, Ty Harrison, and Ernie Rousek, the prairie has an excellent chance of being there in coming years for generations of us to experience firsthand. Just as I did that wonderful afternoon.

As was explained in the last *Prairie/Plains Journal* (see Ernie Rousek's "Spring at Nine Mile," pp 14-15), Nine Mile Prairie was a fenced buffer area around a bomb storage depot for the U.S. Air Force Base at Lincoln from 1940-1968. Since the base has been inactivated, the property has been assigned to the City of Lincoln Airport Authority. The Wachiska Audubon Society, especially Ernie Rousek, has led the effort to ensure permanent protection for Nine Mile. As anyone who has ever worked for the preservation of a natural area knows, there is a lot of time, frustration, and politics involved in the process. In light of this summer's breakthroughs for Nine Mile, we thought it would be appropriate to have its case history recorded. Again, we turned to Ernie himself, and he obliged by writing the following account.



*Lincoln Star photo by Randy Hampton*

Ernest Rousek on Nine Mile Prairie, his labor of love.

### The Process of Preserving a Prairie

Some efforts were made to preserve Nine Mile Prairie in the 1960's, but nothing came of them. In February, 1979 the Wachiska Audubon Society signed an agreement with the Lincoln Airport Authority to lease this prairie for \$20 an acre, the money coming from the sale of the hay. This leasing was done in order to give us control of the management of the prairie while we tried to figure out how to permanently protect it and make it more available for University research and field trips as well as limited use by the public. An adjoining 320 acres owned by the Airport Authority was badly mismanaged and overgrazing had nearly ruined it.

After the lease was signed I began talking with different members of the Airport Board as well as Director Rolland Harr and Airport Attorney Chauncey Barney, about the desirability of permanently preserving the prairie and if they were willing to sell it for this purpose. Dr. Ty Harrison of UN-L helped a great deal at this point by furnishing to the members of the Airport Board considerable material dealing with the research work conducted by the University since the 1920's and why the prairie should be preserved. All five members of the Board agreed with the preservation concept and explained that the Airport Authority purchased this land as



an investment in 1968 when the Federal Government declared it as excess property no longer needed to serve as a buffer area around the 100 acre bomb storage area. The Airport Board agreed that the prairie could be sold, but since it was in the flight pattern of the Lincoln Airport, the buyer would have to agree to an aircraft noise easement and not construct any residential buildings there.

In view of the restrictions, I suggested a purchase price of \$268 an acre, this being the amount the Airport Authority paid per acre for the entire 640 acres, which included the 100 acre bomb storage area with eighteen bunkers and eight above ground buildings. These structures had all been leased out for storage and were an excellent source of revenue for the Airport Authority, creating an income of about 10 times as much per acre than the \$20 per acre prairie lease. My reasoning was that if broken down by area, the amount they paid for the bunker area was much greater than the average \$268 per acre and the amount they paid for the prairie area was much less than the \$268 per acre, so my offer was not unreasonable.

I anticipated that if the sale was agreeable, National Audubon would hold title to it. Audubon Regional Director Ron Klataske indicated that of the \$61,000 purchase price, Audubon would make a no-interest loan of \$30,000. Additional funding would be sought from The Nature Conservancy, as well as various foundations.

The Airport Board had an appraisal made of Nine Mile Prairie in 1979 and this was \$1500 an acre. This appraisal was based on land which had no building restrictions on it. My \$268 offer was rejected by the Airport Board as being too low.

During my consultations with the Airport Board, I discovered that they would be willing to sell the prairie for preservation purposes at less than appraised value, except that Attorney Barney kept saying that to lower the price even for this purpose was the same as making a donation, which was illegal for a Nebraska governmental entity according to the Nebraska constitution. Donations cannot be made to railroads or private corporations and since Audubon was a private corporation, the price could not be lowered.

Ty Harrison and several others met with former Governor Robert Crosby, an attorney, to see what could be done. He suggested having a law passed which would make this prairie preservation sale an exception. Working with Crosby and Senator Sieck, we came out with LB58 in the 1981 legislative session. Mr. Crosby donated his time in working out the technical aspects of this bill, which was much appreciated. I made quite a number of phone and personal calls on both Crosby and Senator Sieck in working out this bill. I then contacted about 20 people to appear at the legislative hearing to testify in favor of LB58.

This bill was passed by the Legislature with only one dissenting vote.

I then tried to get an opinion from the State Attorney General as to whether LB58 was constitutional. This can be done only after a bill is passed. His opinion was inconclusive. Airport Attorney Barney claimed LB58 was not constitutional and it appeared that we would have to go to court to find out for certain. About this time it was felt that we could get around the constitutional problem by having another State institution purchase the prairie and get title to it. That institution would be the University of Nebraska. This proposal was made to individual members of the

Airport Board and it seemed quite acceptable to them. A couple of them were all for the prairie being preserved but were apprehensive about public criticism for "giving away the store." My rebuttal was that even if the purchase price was lowered substantially, they could invest it in the money market and make several times as much per year as they were presently making from leasing the prairie out. Furthermore, they could assure the public that a great piece of irreplaceable Nebraska heritage would be preserved.

Last April, following a considerable amount of publicity in the newspapers about Nine Mile, I met with two members of the Airport Authority Board. I was very surprised and pleased that a price of \$600 per acre was offered for the prairie, quite a reduction from their last appraisal of \$1250 per acre. I said that this was a much better price and that I would contact the University about this sale offer.

After I talked with Chancellor Massengale, Vice Chancellor Roy Arnold, and University Attorney Richard Wood a number of times, the Regents approved the idea of a purchase option for the prairie.

Meanwhile, the Airport Authority Board became concerned about Chancellor Massengale indicating that he was not for any purchase option which did not permit any building on the Nine Mile Prairie. Their concern was that we supposedly wanted to protect the prairie yet we were willing to have the University tear up the prairie and put up a bunch of buildings, which was not the case. However, it is possible that some storage building or nature interpretive building might some day be constructed. The day before the monthly Airport Board meeting I took one of the Board members, who was questioning this building situation, on a tour of Nine Mile Prairie. His wife also went along. My purpose was to show him that there are about 25 acres of land there which had been cultivated a number of years ago and that one or more buildings could be put there without disturbing any of the native prairie. I was also certain that since the University had been using this prairie for research and field trips since the 1920's, the last thing they wanted to do was to destroy any of the original prairie by putting buildings on it. Both the Board member and his wife were impressed with the prairie - especially with the purple prairieclover which was in full bloom. None of the Board members had ever been on Nine Mile.

That afternoon I contacted Chancellor Massengale's secretary (the Chancellor was out at a meeting), and left a message stating that it was of utmost importance for him to write a letter saying that any building on Nine Mile Prairie was to be in conjunction with the usage of the prairie, and that copies of the letter should be delivered that afternoon to the three Board members who would be holding their meeting the following morning. This letter was to relieve any anxiety they had about the University picking up this land at half price and then destroying the prairie for expansion of the UN-L campus. Fortunately, Chancellor Massengale returned to his office in time to have Attorney Wood write the letter incorporating my statement, and the letters were delivered to the Airport Board members yet that afternoon.

Ty Harrison, Tim Knott, and I attended the Airport Board meeting the next day where Ty and I were called upon for comments. Attorney Barney, as usual, opposed the sale of the land for \$600, saying it should be auctioned off to the highest bidder — but he serves only in an advisory capacity. Board member Don Geis made the motion to sell the prairie to UN-L for \$600 per acre, and all three members present voted for the motion.

It will now be up to the University foundation to raise the funds.

Charles E. Bessey

Introduction by Curt Tvedt

Charles Edwin Bessey (1845 - 1915) came to the University of Nebraska in the fall of 1884, following several years of distinguished service to Iowa State University at Ames. Bessey's duties during his 30-year tenure at Nebraska included botany and horticulture teaching posts, dean of the Industrial College, dean of the College of Arts and Science, and three terms as acting chancellor. Throughout his career, he wrote for both scientific journals and popular periodicals and was author or co-author of several plant science texts. Although he was widely respected as a writer and academic administrator, Bessey always considered himself first and foremost a teacher.

Among Bessey's early accomplishments at Nebraska, the organization of the Botanical Seminar was perhaps his favorite endeavor. In addition to student and faculty presentations at their regular sessions, the Seminar conducted botanical surveys and collection trips throughout Nebraska and portions of neighboring states. Evidence of the effort and effectiveness of the botanical surveys is most readily seen in the growth of the University herbarium - from less than 200 specimens upon Bessey's arrival to more than 200,000 specimens in 1910. Several Botanical Seminar students went on to become eminent scientists in their own right: Frederic Clements, R. J. Pool, Jared Smith, P. A. Rydberg, and Roscoe Pound among others. Pound turned to law as his life's work, but Bessey counseled him to retain an interest in botany both for relaxation and keeping a sharp edge on his observational abilities.

Another important aspect of Bessey's work was his insistence upon making practical application for scientific findings. To that end, he was an active participant in various Farmer Institutes in Nebraska in which specialists traveled to the state's communities presenting lectures and demonstrations on the University's agricultural research. In addition to his personal appearances throughout the state, Bessey wrote articles on plant diseases, crop varieties, and agricultural education for publication in *The Nebraska Farmer*.

Bessey's work and concern did not stop at Nebraska's borders. His advice was sought on agricultural extension and establishing national forests, he held a number of offices in scientific societies, and he was on the editorial staffs of *Science* and *American Naturalist*. The Bessey spirit and guiding principles were well-stated in these words: "For as he explained the mysteries of nature, he came to understand that he could never answer *why*, only *how*, and this left him with a sense of reverence that is so desperately needed today." (Walsh, Thomas R. 1972. *Charles E. Bessey: Land-Grant College Professor*. PhD dissertation, University of Nebraska - Lincoln. pp. 202-203).



## Early Winter Colors of Plant Formations on the Great Plains

by Charles E. Bessey

One who has not been upon the Great Plains in the early winter, after the autumn frosts have changed the prevailing green of the landscape, can have little conception of the variety of the colors which meet the eye. These include several shades of red, two or more of orange, one or more of yellow, two of green, a dark blue, a purple, several browns and blacks, and many grays. With a little practice the eye can distinguish from twenty to twenty-five shades of color, sometimes blending into one another almost insensibly, or standing out in marked contrast upon the landscape picture.

It does not require long study to show that so far as the natural vegetation is concerned these colors conform to the distribution of the various plant formations, and that we have here a natural color-scheme in which the plant formations are mapped on the landscape. Let me attempt to reproduce some of the color pictures I have seen.

First, give the picture a general gray tone, which may include the sky as well as the earth surface. In the background, where the hills slope away to the horizon are great patches of dull red or purple, bordered by the silvery gray of the Buffalo Grass. Here in the foreground may be a stretch of light yellow marking the area of a field of corn (Maize) stalks still standing where they grew, and there may be a gray, velvet-like meadow of Buffalo Grass, with dashes of brick-red now and then on its surface where the bunch grasses stand, or where the red stems of the knotweeds mark the winding course of a "draw." Here and there the landscape shows a black spot where the farmer has plowed up the rich soil in readiness for the Spring's plantings. Crossing a ravine we find the sloping sides red with bunch grasses, below which is the belt of yellow "Prairie grass" bordering the dry bed of the brook, the latter here and there marked with red-twigged willows. In the distance, where a stream winds its way along, is a black line of cottonwood trees, whose trunks and larger branches show black against the gray background, and on nearer approach we note the silvery sheen of their twigs contrasting with their dark stems and branches. A plum thicket in a ravine forms a dark-blue patch, with a background of dull red knotweeds, or bunch grass, further back shading into the silvery gray of the Buffalo Grass.

Now we see a silvery gray meadow of Buffalo Grass with faint patches of reddish color scattered over it; back of it a fringe of cottonwood and box elder trees with dark trunks, the latter loaded with their light brown fruits, and still back of these the slopes with alternating silvery gray patches of Buffalo Grass and the dull red of the bunch grasses, running up to the sky line of light ochre where a field of maize is still standing. To complete this picture add a few stacks of alfalfa, now dark brown or black, and a spectral windmill here and there outlined in sombre colors.

Allow me to show you one more picture seen near Minden, under the ninety-ninth meridian. Here is a little valley framed in with a brick-red border of bunch grass which grew on its sloping sides; next to it are patches of yellow Switch grass and silvery gray Buffalo grass and a rich, velvety maroon spot where the ripe fruits of the smooth sumach give their color to the scene. The floor of the valley is covered with the red knotweed, whose red is deepened in a central strip to a rich purple red where a watercourse had encouraged the taller red-stemmed Polygonums to grow.

I need not attempt to place before you more of these general views. In all cases, the picture has a basis of gray, and on this are laid reds, yellows, blues, purples, browns, and blacks, etc. Let us inquire as to the meaning of these strips and patches of color.

When the autumn drought and the early winter frosts stop the growth of vegetation the green shades of summer, themselves by no means uniform, are replaced by the hues indicated in the preceding paragraphs. The practiced eye can distinguish the plant formations on the open plains by their shades of green when the vegetation is in its vigor, and it appears that the early winter coloration is in a measure related to this fact. The boundaries of the formations are more sharply defined in the early winter, since the color differences are then emphasized. I have not, however, been able to determine any law of color change in the plants of different formations, in fact it appears that each plant is a law unto itself. Thus the light green of the low Bunch Grass (*Andropogon scoparius*)\* gives place to a red, as does also the still lighter green of the Tall Knotweed (*Polygonum ramosissimum*), while the nearly similar pale green of the Buffalo Grass (*Bulbilis dactyloides*) turns to a silvery gray. On the other hand the richer green of the Switch Grass (*Panicum virgatum*) turns to a red orange below and a light yellow above, and the dark green of Stinkweed (*Boebera papposa*) as seen in the summer is replaced in early winter by a pronounced brick red. Yet in the midst of these changes the clumps of Dagger Weed (*Yucca glauca*) and the bunches of cactus (*Opuntia sp*) retain their green color,—and in fact are the only green things in the landscape.

I may summarize the facts as far as I have observed them by grouping the plants under the colors they assume, as follows:

### RED

**BUNCH GRASSES** (*Andropogon furcatus*, and *A. scoparius*). The first (Tall Bunch Grass) is sometimes of a rich orange-red running to dull red, and the second (Low Bunch Grass) is from brownish red to brick red and purple, fading out sometimes to a dull gray. Knotweeds (*Polygonum ramosissimum* and *P. emersum*), with the stems of various shades of red, in the second species running to purple-red.

**WILLOWS** (*Salix fluviatilis*) with red twigs.

**STINKWEED** (*Boebera papposa*) whole plant becoming brick red.

\*See note at end of article regarding plant names.

## ORANGE

BUNCH GRASS (*Andropogon furcatus*) as noted above this species sometimes assumes a rich orange-red color.

SWITCH GRASS (*Panicum virgatum*); the lower portions of the seeding plants are often of a red-orange color.

## YELLOW

CORN (*Maize*) fields during the autumn and early winter assume many shades, from the deepest yellow to a pale straw color.

SWITCH GRASS (*Panicum virgatum*); the upper portions of the seeding plants are often of a light yellow color.

## GREEN

DAGGER WEED (*Yucca glauca*) and Prickly Pear Cactus (*Opuntia humifusa* and *O. polyacantha*) constitute the only green vegetation on the plains in the winter.

## BLUE

PLUM thickets (*Prunus americana*), seen at a little distance are distinctly of a dark blue color.

## PURPLE

SUMACH fruits (*Rhus glabra*), ranging from a dull purple to rich maroon-purple.

LOW BUNCH GRASS (*Andropogon scoparius*), as noted above this species ranges from dull red to purple.

KNOTWEED (*Polygonum emersum*), although usually red, sometimes it becomes purple-red.

## BROWN

RUSSIAN THISTLE (*Salsola tragus*), brown to blackish-brown, and the same may be said for weed fields in general.

PLUM twigs (*Prunus americana*), although plum thickets when seen at a little distance are dark blue the twigs seen near at hand are reddish-brown.

BOX ELDER fruits (*Acer negundo*), light brown, and as they are very abundant they give the trees their color when seen near by.

## BLACK

COTTONWOOD tree trunks and branches (*Populus sargentii*) seen at some distance are brownish-black to black.

Plowed land, burned areas and wagon trails all show black or nearly so on the landscape.

## GRAY

BUFFALO GRASS (*Bulbilis dactyloides*), from a light or silvery green in the summer, this species changes to light gray or silvery gray in the winter.

GRAMA (*Bouteloua oligostachya*), gray.

BEARD GRASS (*Aristida sp.*), light gray.

TICKLE GRASS (*Panicum capillare*), silvery gray.

LOW BUNCH GRASS (*Andropogon scoparius*), as indicated above, this may fade out to a dull gray.

COTTONWOOD twigs (*Populus sargentii*), grayish white.

"Early Winter Colors" was originally published in the 39th Annual Report of the Nebraska State Horticultural Society, 1908.

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Updated plant names from *Atlas of the Flora of the Great Plains*, ISU Press, 1977.

Tall bunchgrass: big bluestem (*Andropogon gerardi*)

Low bunchgrass: little bluestem (*Andropogon scoparius*)

Buffalo grass: *Buchloe dactyloides*

Stinkweed: *Dyssodia papposa*

Cottonwood: *Populus deltoides*

Willows: sandbar willow (*Salix exigua*)

Russian thistle: *Salsola iberica*

Grama: blue grama (*Bouteloua gracilis*)  
hairy grama (*B. hirsuta*)  
sideoats grama (*B. curtipendula*)

## Moving West

by Don Stap

Interstate 80, Nebraska

It takes a long time  
to drive through Nebraska--  
three or four years.  
If you're paying attention,  
a millenium or two.  
Behind you, the highway goes back to Iowa  
ahead of you it disappears in the Pleistocene  
somewhere near Loren Eiseley's backyard.

All day down long hills through  
green valleys into  
darkness nothing changes  
over and over it  
rolls on inside me.  
The eyes of a raccoon  
flash near the highway fence.  
The cow-catchers  
at the exits that go nowhere  
haven't caught a single cow today.  
There's too much grass elsewhere  
too far to roam.

Wyoming: Focusing on Infinity

The camera, focused on infinity  
freezes a small herd of antelope  
the moment they turn to flee.

A year later they are mere specks  
on the hillside, then only a whirl of dust  
then loose stones.

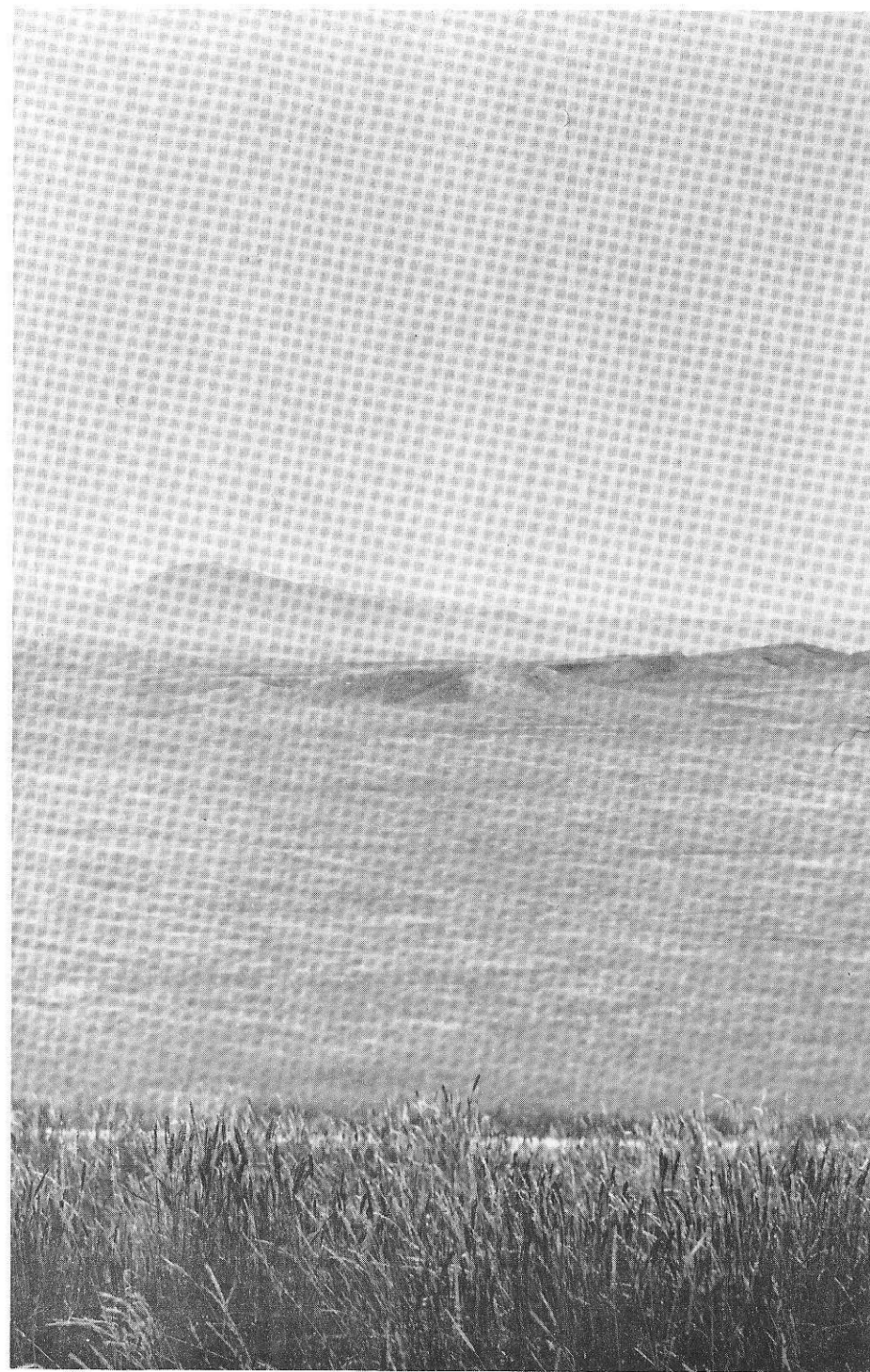
When we stopped at the roadside and napped  
I dreamed of waking and stretching  
one arm in Montana the other to Denver.

And I joined the long sleep of fish  
who entered the shallows here centuries ago  
and are just now surfacing in sandstone.

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"Moving West" was presented at the Eighth North American Prairie Conference (1982, Western Michigan University) and is published here with permission.

Don Stap is a freelance writer from Kalamazoo, Michigan whose works have been published in such literary journals as *North American Review*, *Poetry Northwest*, and the *Prairie Schooner*.



Wyoming

Ed Dadey

Archibald MacLeish  
Introduction by Dick Schanou

Archibald MacLeish, the author of the famous dictum "A poem should not mean/ But be," was one of the leading writers of this country from the early 1920's until his recent death. He is probably most known for his verse play *J. B.*, and for oft anthologized poems like the sonnet "The End of the World," and the poem "Ars Poetica" from which the above line is taken. His themes often deal with the strife between being and nothingness, and in the following 1940 essay MacLeish directs his knowledge and sensitivity toward the importance of our natural resources. The perceptive final paragraph would certainly have been understood by an audience which had weathered the devastation of the 1930's, and there are many today who will appreciate this paragraph and his ironic description of the "miraculous" coinciding of the rise of beef prices with the "abdication" of the buffalo and the suppression of the Plains Indians.

### Green River

by Archibald MacLeish

There were three waves of migration on this continent and the second was always the cattlemen. Ahead of the cattle went the trappers and the Indian traders, leaving a creek's name or a marked tree or a few bones in a huddle of last year's oak leaves. Behind the cattle came the farmers. It was the farmers' plows that edged the drovers westward. And it was the grass by which the drovers went. At the close of the seventeenth century the free range lay around the cowpens on the outskirts of the tidewater settlements of Virginia. A few years later it was in the uplands of the Piedmont. By the middle of the eighteenth century an officer in Braddock's army saw the cowpen men near the headwaters of the Potomac where that stream comes down from Cumberland and makes a gateway to the West. A few years after that there were droves of razorbacks and sheep and cattle in Kentucky. Then the cattle frontier reached Ohio: at the close of the War of 1812 travelers in the Pittsburgh country met droves of thousands of cows and swine from the interior of that region bound for Pennsylvania to fatten for the Philadelphia market. After that there were cattle on the prairies, then across the Mississippi, then at the edges of the Plains. There were always cattle out ahead of the plows. And for a simple reason. Beef and pork and mutton were the only crops in that land without roads which could take themselves to market.

Cattle made the first frontier where white men lived. And grass made cattle. Without the grass the settlement of North America would have been

a different and a slower thing. But grass, among the histories of the schoolrooms, has no honor. What every schoolboy knows, or thinks he knows, is that the pioneers set out through pathless wildernesses toward an endless forest. That pathless wilderness is a figment of Hiawatha and the academic mind. Long before Captain Smith, long before the historic Indians, the buffalo, transcontinental migrants, had made their trails along the great divides and down into the grazing meadows and the salt licks. In Kentucky when the first settlers saw that land these trails were wide enough to drive three teams abreast. And even without the buffalo the forests broke. The great road of the immigrants, the U.S. No. 1 of American settlement, was the road followed by Lincoln's ancestry: out of Massachusetts to New Jersey, out of New Jersey to Pennsylvania, out of Pennsylvania to the valley of Virginia, out of the valley of Virginia to Kentucky, out of Kentucky to Illinois. It was the road the grass made. The beaver meadows and the water meadows of the Northeast were linked up to the mountain meadows of the passes. The first white men to see the valley of Virginia, by which the great stream of migration from Pennsylvania crossed the mountains, saw endless stretching meadows. And that other gateway, up the Potomac to Cumberland and up Wills Creek to the headwaters of the Ohio and down to Pittsburgh, owed its importance, not, as the schoolboy is taught, to the easy gradients of the streams, but to the oases of grass at Deer Park and Mountain Lake Park and Great and Little Meadows and the Glades of the Youghiogheny. It was the grass in the glades which explained the ancient game trails Washington noted there in 1754. And it was in a grass opening on the Youghiogheny that the Old French War broke out.

By grass meadows and by grazing grounds the roads of the buffalo and the pioneers went westward with the cattle bellowing down their ruts. From the grass-covered balds of the Blue Ridge in North Carolina out into the highlands of the Tennessee the grasslands straggled. "Already," said Burke, speaking of the Americans before the Revolution, "already they have topped the Appalachian Mountains. From thence they behold before them an immense plain, one vast, rich, level meadow; a square of five hundred miles." How much more than five hundred miles the Americans had before them the great orator never knew. But even in his day, in 1773, the trappers who for years had unaccountably missed the bluegrass region came upon that empire of a million and a half acres centered on the limestone soils between the Ohio and the Tennessee. And beyond the bluegrass were the prairies. And beyond the prairies, not to be taken by the slowly grazing cattle until the Civil War was won, lay the greatest empire of grass in the Western Hemisphere, 700,000,000 acres of sparse trees or no trees at all, a pasture country greater than the known world in the days of Homer.

Why the Great Plains were a grass country is a question which scientists still answer in various ways. Professor Shaler's theory, which attributed the grass to Indian fires set to start the fresh shoots and attract the game, is the classic explanation of the textbooks. It has few followers today. Soil scientists, a recent breed, remark that whether in Russia or the United States, the black soils of the grasslands bear only grass. Climatologists observe that grass generally ousts trees in a region of limited rainfall because the grass roots, being shallower, get the water first. But whatever

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the explanation of the victory of the grass, there can be no question whatever of its completeness. From the blue-stem sod country of the corn belt on west to the blue-stem bunch-grass country of the winter-wheat belt, and on again to the short-grass country of the western Plains the grass, before the white men came, was everywhere.

Most of it, unlike the grasses of the East, was native. The famous Eastern grasses came as immigrants. From 1635 on the colonists were urged to bring "a good store of claver-grasse seed to make good meadow." Timothy was cat's-tail grass in old England, herd's-grass in New England after a New Hampshire farmer of that name, and timothy elsewhere because Timothy Hanson carried it from New Hampshire into New York and Virginia. Alfalfa was among the seeds brought into the West Indies by Columbus. Sorghums were the African seeds the slaves ate on their sickening Atlantic voyage. The brome grasses came from Central Europe. Red-top, heir to the classical allusions of the Roman poets, was a native of the Mediterranean. Orchard grass, favored by George Washington, was a cultivated grass in Virginia before his day. Even the famous bluegrass-so-called because of the hazy bluish tinge given to the country in summer by its seed vessels—was an importation. It took on the habit of the country early and became a proverbial signal of rich soil, as hickory was in the Ohio country and blue ash in the coves of the Great Smokies and sun-flowers and New England asters and swamp rose mallows in the middle states and juniper trees farther west. Men who avoided the devil's shoe-string regions in the South and the post oak and blackjack prairies of the Mississippi and the drawf elms of the Red River and the purple iris of the Rocky Mountain meadows settled on bluegrass lands with good courage. But bluegrass for all its fame and for all its eager adaptation to the American countryside, and timothy and orchard grass and redtop for all their popularity in the old Atlantic states, were parvenus beside the grama grasses of Colorado and New Mexico and Arizona and Utah and the galleta farther west and south and the buffalo grass running down along the Wyoming and Nebraska boundary into Kansas and Colorado and New Mexico and the two panhandles of Oklahoma and Texas.

The short grass of the Great Plains was an ancient grass, an immemorial sod. It grew before the white men came like thicker, tougher, coarser lawn. Greening before the last frost left the ground, yellow by middle summer, curing on the stalk under the strong sun of August, it had for centuries supported the economy of buffalo and Indian which was native to that country. Bench after bench, draw after draw, valley after valley it ran out, tawny yellow, tarnished golden, from the edges of the prairies to the Rockies and beyond them. No such grazing country, not even on the great Eurasian plains westward of Lake Baikal, was ever opened to the cattle drivers. The pools and trickles and opening streams of grass which had carried them over the Alleghenies and down into the bluegrass and out across the oak openings of Illinois and on by the too rank prairies here flooded to an endless sea. To General Bradley in 1868 it seemed "that all the flocks and herds in the world could find ample pasturage on these unoccupied plains and the mountain slopes beyond."

He was not alone in his opinion. In the twenty years from 1865 to 1885, the Great Plains, which in the north at least had never seen a herd of domesticated cattle, were filled to overflowing. It began even before the

buffalo were slaughtered. At the end of the Civil War, with longhorn Spanish cattle bringing \$3 and \$4 on the range, men in Texas began thinking of the disparity between that price and the \$30 and \$40 the same cattle brought in the East. The results of that cogitation were the first Texas drives up out of the old ranches in the southwest section of the state to the Missouri Pacific railhead at Sedalia, Missouri. Soon, cattle rustlers, irate farmers, and ordinary thieves on the Missouri-Kansas line around Baxter Springs diverted the herds to east and west—the western wanderers working along the Kansas Quarantine Line, out into the Plains, and north as far as Wyoming. At the same time "American" (as distinguished from Texas) cows were drifting into the same area from the tall-grass states east of the ninety-eighth meridian: the natural westward movement of migration.

By 1867 the first of the cow towns had been established at Abilene, Kansas, on the Kansas Pacific Railway and four years later the low prices of 1871 were throwing huge herds of unsalable Kansas cattle into Colorado and Nebraska while other Texan herds were following the Goodnight-Loving Trail into New Mexico and on north to Wyoming. Then in 1872 the buffalo abdicated. Under the combined forces of progress as represented by the Union Pacific transcontinental railway, the repeating rifle, and the big-game hunter, those ancient Americans vanished from the earth leaving their hides to the harness rooms of Boston, their skulls to the mercy of the sun, and their feeding grounds to cows.

They were followed in five years by the Plains Indians whose suppression miraculously coincided with the recovery from the depression of '73 and a rise in the price of beef. Custer was revenged in 1877 by the treacherous murder of Crazy Horse at the Red Cloud Agency, the Sioux were "pacified," range steers rose from \$7, range delivery, in 1879 to \$9.50 in 1880 and \$12 in 1881. And the world boom in Western beef was on.

English investors figured that a \$5 yearling fattened on free grass would bring \$70 and that if the female progeny of 100 cows were kept ten years the herd would number 1428, not counting 1428 bull calves which would be sold on the side for a fat profit. German investors were told the same thing. A certain Baron Richthofen, writing in 1885, assured his readers that an Irish servant girl of the American West, having accepted fifteen cows in lieu of \$150 wages and having branded her stock with her own brand, had sold out the resultant herd to her employer at the end of ten years for \$25,000. Money flowed in, mostly Scotch and English money. By 1882 \$30,000,000 of Scotch and English capital had gone into Wyoming and the Texas Panhandle. And the money brought cattle. Prairie Land and Cattle (Scotch) ran 150,000 head in Colorado, New Mexico, and Texas on 7900 square miles of land. X.I.T. (Chicago owned) had 160,000 head on 3,000,000 Texas acres and a maturing range in Montana. Even farm cows were brought in from the agricultural states east and west of the Plains. Cattle came from everywhere. And as the cattle came the range grew scarcer. And as the range grew scarcer the rush to occupy it became more eager. And as the rush became more eager the demand for cattle increased. And as the demand increased the price of stock went up. The inevitable spiraling of a great bull market followed. Cattle went up to \$30 and \$35 on the range in 1882. Tenderfeet piled in from the East, from Europe, from the Antipodes, to buy ranches. A young Harvard graduate

named Roosevelt took up a ranch in North Dakota. It was the great age of the range—the decade of the Texas trails and the cowboy ballads.

It was in the year of eighty-three  
That A. J. Stinson hired me.  
He says, "Young fellow, I want you to go  
And follow my herd down to Mexico."

Grass was the mother and father of it all. If there was hay at all—which there rarely was—it was wildgrass hay. If there was winter feed it was the winter-brittle short grass which showed its hide-colored sod when the chinook blew. Investments, aside from the investment in stock, were next to nothing. One R.C. Keith started raising cattle at North Platte, Nebraska, in 1867 with five "American" cows. In six years he put in about 3400 head, mostly Texas stuff, at a cost of under \$50,000. And at the end of that time, having sold a thousand head on the hoof for \$33,000 and butchered another thousand for \$30,000, he had something around \$100,000 worth of stock left on hand. The difference between \$33,000 plus \$30,000 plus \$100,000 on the credit side and \$50,000 on the debit side was almost clear profit, for land had cost nothing, ranch buildings knocked together out of old railroad ties cost less than \$2000, and men were \$50 a month and board. It was no wonder that General James Sanks Brisbin published a book in 1881 entitled: *The Beef Bonanza: or How to Get Rich on the Plains*. You could get very rich indeed on the Plains in 1881—or, if not on the Plains themselves, why, then on paper. The paper fortunes were huge in 1881.

It was always grass on the frontier and the Great Plains were the frontier's native country. Grass was their life. It is hard now, with the odor of horse sweat and the odor of gun oil and the odor of saddle leather steaming up from a thousand Western novels, to remember what the grass was. Men took the grass for granted then—and for generations afterward. And yet the grass was everything. It was a natural resource richer than the oil and the coal and the ore which have since then been dug beneath it. Even in 1869 the herds it carried were a considerable part of the country's \$1,500,000,000 worth of stock. And grass was more than wealth. As no men guessed then, save the few who may have seen the dust dance round the water holes, it was the only living thing that was as strong as drought and wind. Men took the grass for granted. If one range failed there was another farther on—a million square miles of it . . . The Plains filled up. The herds grew. There was always grass beyond.

## Instream Flows: The Next Step Toward Protection

by John G. VanDerwalker



Platte River

Bill Whitney

Man has many uses for the water that flows in our streams and rivers. These can be divided into two general categories: out-of-channel use, primarily for domestic, industrial and irrigation purposes, and instream use, for navigation, aesthetics, fisheries, wildlife, recreation, water quality maintenance, groundwater recharge, conveyance and hydropower.

There are two principal and significant differences between these categories of use. Out-of-channel uses generally serve the interests of private individuals or groups of individuals and result in the consumption of large quantities of water.

The instream uses of water are primarily those which are enjoyed by everyone but can never be exclusively acquired by an individual. Consumption of water through instream use is relatively small compared to consumption through out-of-channel use.