

Neal Smith National Wildlife Refuge

Prairie City, Iowa
Fiscal Year 2000

Nancy Gilbert 7/31/01
Refuge Manager Date

Kenneth J. Zimm 8/14/01
Acting Refuge Supervisor Date

Nita M. Feltz 8/15/2001
Regional Chief, NWRS Date

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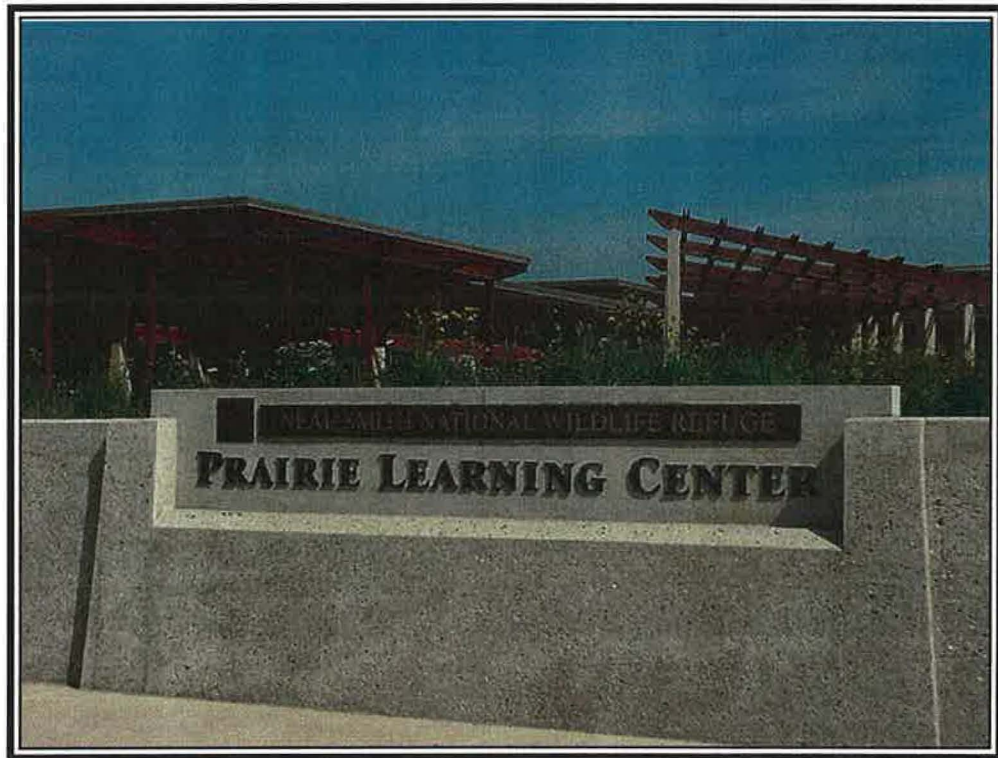
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INTRODUCTION

The Neal Smith National Wildlife Refuge and Prairie Learning Center is among the most unique and valued initiatives in restorative landscape ecology in the United States. The Refuge is located in Jasper County, Iowa, approximately 20 miles east of Des Moines. Prior to Euro-American settlement, the rolling landscape of this portion of Iowa was dominated by tallgrass prairie with islands of oak savanna.

Establishment of the Refuge by the U. S. Fish and Wildlife Service was authorized by Congress on May 25, 1990 for the purposes of restoring native tallgrass prairie, wetland, and woodland habitats; serving as a major environmental education center providing opportunities for study; providing wildlife dependent outdoor recreation benefits to the public; and providing assistance to local landowners to improve their lands for wildlife habitat.

The 8,654 acre project is unlike any existing refuge in that it has been established by Congress to restore a major expanse of tallgrass prairie. The Refuge is the largest prairie reconstruction effort in the country and is symbolic of a growing national and international interest in healing the environment.



Infrared Aerial Photo - 2000
Neal Smith NWR



HIGHLIGHTS FOR 2000

- Carbon Sequestration Study is funded – 1.b.
- Walnut Creek Watershed Monitoring Project is in its fifth year - 1.b.
- Over 2,400 acres prescribed burned on Refuge - 3.f.
- Thirty landowners are contacted under the Partners for Fish and Wildlife Program - 5.c.
- First meth lab waste is found on Refuge - 6.a.
- The Refuge adds 80 acres to its total - 6.g.
- Over 40,000 visitors participated in educational programs, events, or tours - 7.a.
- Local Ecotype Zone map for Minnesota and Iowa is completed - 7.b.
- Iowa State Fair booth is a big success - 7.b.
- Refuge and Friends of the Prairie Learning Center host first Volunteer Awards Banquet - 8.b.
- Friends of the Prairie Learning Center accomplish great things for the Refuge - 8.b.

1

Monitoring and Studies

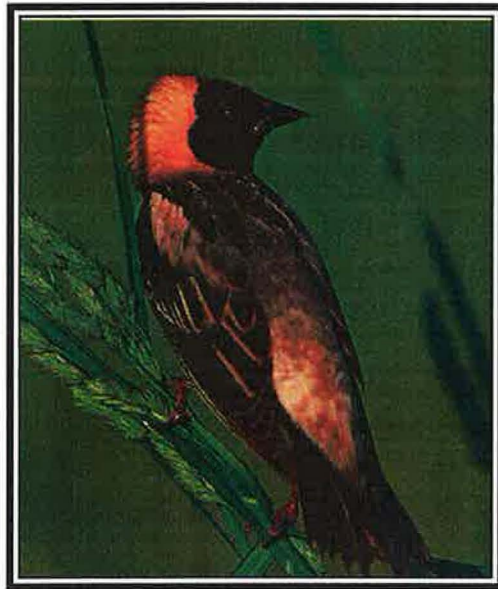
1.a. Surveys and Censuses

The Neal Smith NWR Research Advisory Committee continues to be a valuable asset in implementation of our research program which includes both monitoring and discrete investigative research projects. This committee consists of scientists and land management professionals and provides a diversity of expertise and perspectives about research in ecological restoration. This committee reviews research proposals, assists in developing research priorities and assists in promoting the research program at Neal Smith NWR. Current members include: Pauline Drobney, Refuge Biologist; Nancy Gilbertson, Project Leader; Dennis Keeney, Director of the Leopold Center for Sustainable Agriculture; Erv Klass, Unit Leader of the Iowa State University Research Cooperative Unit; Jim Mattsson, Region 3 FWS Regional Biologist; Jim Pease, Iowa State University, Animal Ecology Professor; Jerry Selby, Director of Science and Stewardship, The Nature Conservancy, Iowa Field Office; Keith Schilling, Iowa Geological Survey, Iowa DNR, and Daryl Smith, University of Northern Iowa, Biology Department Professor. The Research Advisory Committee guides the research process at the Refuge through formal meetings and via telephone and e:mail.

Breeding Bird Survey.

Bret Giesler, an Iowa State University graduate, was hired to conduct a breeding bird survey on the Refuge between June 13th and July 14th. This is Bret's second point count season on the Refuge. Birds were observed within a 50 meter radius of the observer and were counted for 10 minutes between the hours of 5:30 a.m. and 10:00 a.m.

Birds identified in the point counts totaled 54 species. Species associated with edge habitat were the most prevalent. The 4 major vegetation sites and the number of site counts conducted on each were as follows: Herbaceous-36, Riparian-29, Woody-23, Crop-22, totaling 110 point counts. The Riparian habitats consistently had the highest number of bird observations and species richness. Crop habitats had the lowest numbers in both bird observations and species richness. On 5 points, no birds were observed within the 50 meters during the 10 minute count. Four of these were in crop fields and one was in a herbaceous field.



*Bob-o-link, one of the prairie species
nesting at Neal Smith NWR.*

Results of this survey seemed lower than previous years' counts. Fledgling birds were extremely rare, suggesting that reproduction to mid-July was low. Counts performed in previous years occurred in later summer and showed many fledged birds. One possible explanation is that the long burn season resulting from extended drought delayed early nesting on the Refuge.

Henslow's Sparrow Observations - 2000:

The Henslow's Sparrow (*Ammodramus henslowii*) was again observed on the Refuge this year; however, this was the first time the birds were seen outside the bison enclosure; in this case, on the north end of the Refuge. The Henslow's is a species of special concern to the FWS and is listed as an uncommon resident in Iowa. Only a few places in the state offer reliable annual sightings. It is more common at lower latitudes and habitat preferences have been documented in those regions, but in Iowa, such data are patchy. They *appear*, however, to prefer areas with vast expanses of grassland adjacent to wet meadows. The areas also typically consist of a substantial amount of dead vegetation as well as a few scattered shrubs. We look forward to more observations in following years and hope to add to our growing database on this intriguing species.



Henslow's sparrows have been observed on the Refuge.

Late Summer Butterfly Survey--Tor Janson, Grinnell College Academic Intern

In the Fall of 2000, Refuge intern, Tor Janson, conducted a butterfly survey of 6 remnants and 13 plantings on the Refuge. He conducted 18 separate, timed surveys between August 31st and September 14th, ceasing after the 14th because of a dramatic drop in temperature. The 1994 baseline data for Lepidoptera spp., occurred only between June and August, and as such, Janson's study provided information about late-emerging butterflies previously unavailable on the Refuge. Janson also wished to observe any differences in butterfly diversity between plantings and remnants. He found between 2 and 13 species of butterflies at each site and a total of 24 species, all of which are common and/or habitat generalists. One find, the cloudless sulphur (*Phoebastria sennae*), was a new record for the Refuge; all other species had been recorded in the baseline surveys. Two species were found only on plantings, while 8 were found exclusively on remnants. This difference may be partly explained by the fact that many of the butterflies found on remnants prefer brushy or wooded habitats common to degraded remnants on the Refuge and not to plantings.

Butterfly surveys in late summer were impeded by dense biomass approximately 8 feet tall in most survey areas, making elusive butterflies chasing difficult.

1.b. Studies and Investigations

Carbon Sequestration Study

In early 2000, Project Leader Gilbertson and Biologist Drobney, submitted a proposal for innovative energy-related research as solicited by Rebecca Spiess of the Energy Bureau of the Iowa DNR. Funding ultimately originated from the U.S. Department of Energy. A proposal for investigation of the potential of grasslands (remnant prairie, different ages of

prairie plantings, as well as savanna remnants, cool season exotic grassland, and cropland) was accepted and a grant for \$45,000 was awarded to Iowa State University.

Carbon sequestration is the capture of atmospheric carbon by plants and its subsequent deposition into the soil. The issue of carbon sequestration has become increasingly important with the growing concern about the relationship of massive carbon dioxide (greenhouse gas) production on global warming. While land managers often suggest tree planting as a means of storing atmospheric carbon, evidence suggests carbon sequestration be much more efficient in prairie ecosystems.

An initial project meeting to design a carbon sequestration research project was held at the Refuge on March 3rd and attended by individuals from Iowa State University (ISU), USDA-ARS National Soil Tilth Laboratory, Iowa DNR Geological Survey Bureau, and U.S. FWS. Principle researchers include Dr. Keith Schilling, Iowa Geological Survey (Iowa DNR); Dr. Thomas Isenhardt, ISU; and Dr. Cindy Camberdella, USDA-ARS National Soil Tilth Laboratory. During this meeting, participants brain-stormed ideas for the Walnut Creek Watershed study, including developing a sampling strategy and analytical parameters on soil samples collected, as well as developing an understanding of contracts, budgets, and a project time-line.

A second organizational meeting was held on April 7th to refine sampling strategy and soil assays, as well as to determine methods of establishing and locating sample sites.

Specific objectives of this project are to:

- estimate carbon sequestration within similar soils under different vegetation (annual row crops, restored/reconstructed prairie, remnant prairie, and savanna) within the Refuge
- determine the effect of time since prairie reestablishment on soil carbon accumulation
- assess the effect of burning as a prairie management strategy on soil carbon accumulation.

Project investigators consulted with staff of the ISU Department of Statistics on final sampling design. It was decided that in order to accomplish project objectives within the resources available and to reduce variability, that sampling sites within each treatment be blocked by common soil series [Tama (120B) or Otley (281B)]. To select sites, geographic information system (GIS) coverages of possible sampling sites were created by personnel from the IDNR Geological Survey Bureau. An ArcView area grid and random number generator was then used to select sampling locations, which were distributed proportionally to the size of the site. Global Positioning System (GPS) coordinates of sampling locations were generated to assist in sample site location.

GPS coordinates of sampling locations generated by the IDNR Geological Survey Bureau were used to locate and mark sampling sites within the Refuge on May 17-18.

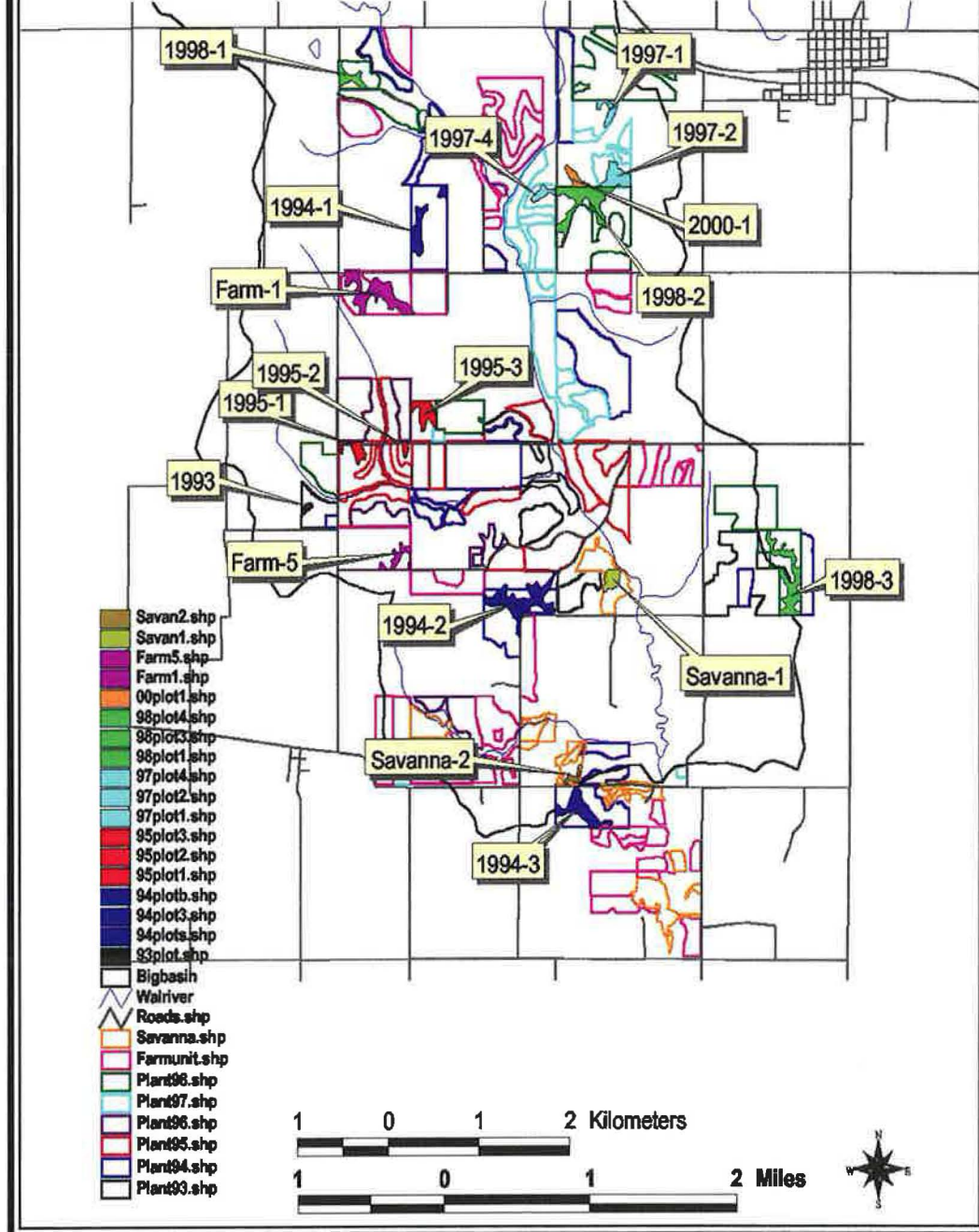
Soil samples were collected during the week of May 22nd. Samples were collected to a depth of 40". Two truck-mounted Giddings soil samplers were used to collect samples within the cropped fields and restored prairie sites. These soil cores were sectioned into 5 depths in the field and stored in plastic bags at 4°C until processed. In savanna areas inaccessible by truck, modified Giddings soil tubes inserted with a gasoline-powered jackhammer were used to collect intact soil cores. Upon return to the laboratory, intact cores were stored at 4°C until sectioned and processed.

Samples from the cropped fields and restored prairies were all taken from either Tama (120B) or Otley (281B) soil series. These series are very similar and consist of well to moderately well-drained soils on convex ridge tops and side slopes. These soils formed in loess under grass, and slopes are from 0 to 9%. In a representative profile, the surface layer is black, very dark brown or very dark gray silty clay loam 15-18" thick. The subsoil extends to a depth of 42-50" and is friable silty clay loam. This is underlain by yellowish brown silty clay loam.



*Field Researcher from USDA-National
Tilth Laboratory preparing to core the soil.*

All sites



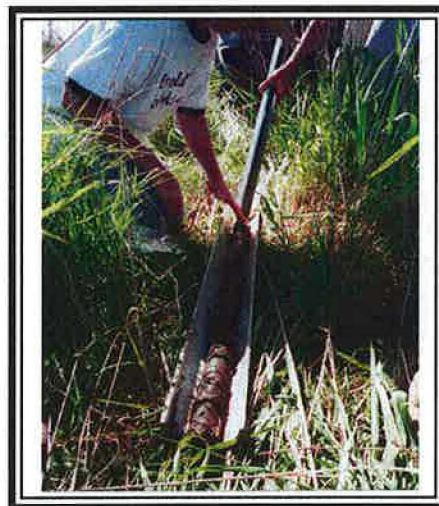
Carbon Sequestration Sampling Sites For Summer, 2000

Soils from the savanna sites were sampled within the Ladoga Series (76D2). This series consists of moderately well drained soils on the uplands. These soils formed under deciduous trees and tall prairie grasses. Slopes are from 2 to 14%. In a representative profile, the surface layer is very dark grayish brown silt loam about 6" thick. The subsurface layer is dark grayish brown and grayish brown silt loam about 5" thick. The subsoil is brown, friable to firm silty clay loam that extends to a depth of 60".

By project completion, soils will be assayed for bulk density, texture, total organic carbon, total organic nitrogen, and a subset (surface soils) for particulate organic matter.

Soil collections on the Refuge during 2000 did not include remnant prairie sites as identified in the initial sampling design. Attempts to locate high-quality remnant prairies on Tama-Otley soils within a several county area adjacent to the Refuge were unsuccessful. It was decided to sample several remnant prairie sites on Ladoga soils within the Refuge and GPS coordinates of sampling locations were generated by the IDNR Geological Survey Bureau. Soil collection was undertaken on July 27 with good cores obtained from "Remnant 1" located near the Visitor Center. However, "Remnant 2", located in the eastern part of the Refuge, was determined to be too small and disturbed to be representative of a remnant prairie and no cores were collected at this location. Project personnel are currently assessing options for additional soil collection within remnant prairie locations on the Refuge. Options include collecting additional soil cores on "Remnant 1".

Analysis of sampling results are currently underway. This year's experiences are initial efforts in what is intended to be a long-term investigation. As such, preliminary research this year will be used to refine and expand the scope of future work.



Core sample taken from reconstructed prairie.

Regal Fritillary Butterfly Reintroduction Research

In 1998, Biologist Drobney and Dr. Diane Debinski, professor at ISU, obtained a grant from the National Fish and Wildlife Foundation, to begin efforts to restore the regal fritillary (*Speyeria idalia*) butterfly to the Refuge. Efforts included attempts to re-establish the larval host plant, prairie violet (*V. pedatifida*) in sufficient numbers to support introduction.

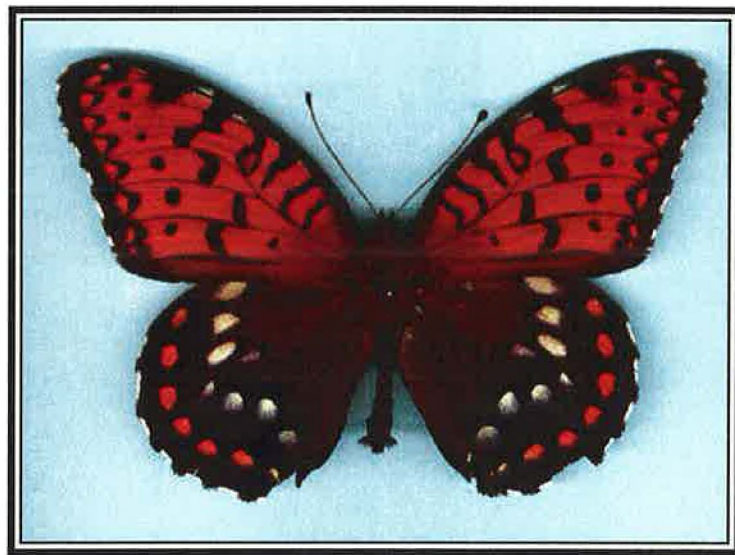


Prairie violet (Violet pedatifida).



Regal fritillary (Speyeria idalia) butterfly larva.

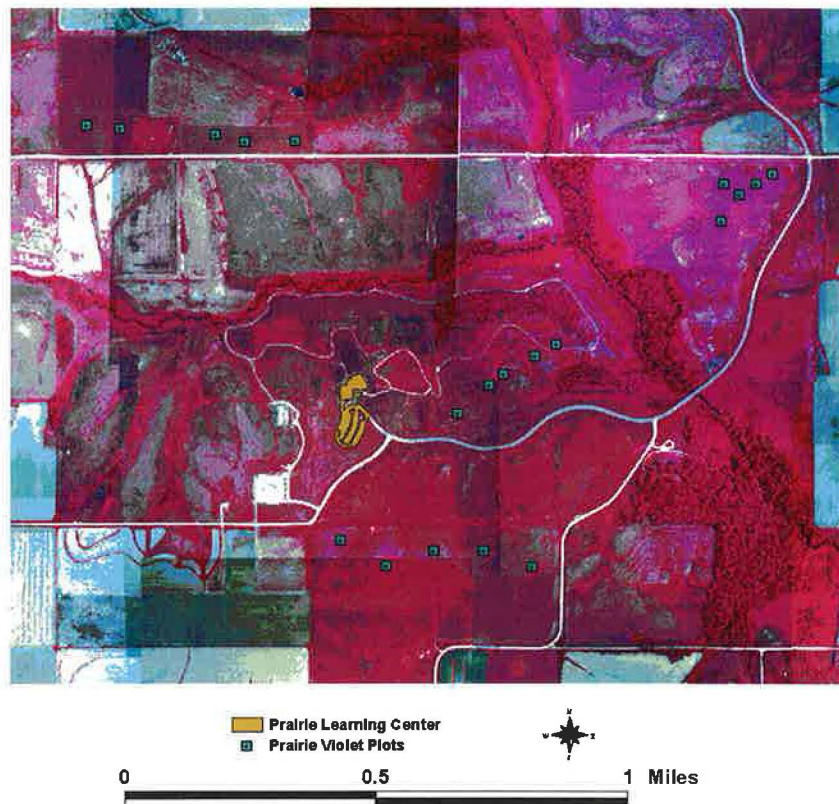
The regal fritillary was once common throughout the prairies of the Midwest, but is now found only in a few scattered populations on native prairie remnants. Restoration was begun with the establishment of 20 experimental plots to determine the best management strategy for host violets relative to fire and grazing, and to begin development of suitable habitat for butterfly introduction. Violets were planted in plots in 1998 and 1999 and nectar plants were planted adjacent to each plot as a food source for mature butterflies.



Male regal fritillary (Speyeria idalia) butterfly.

In the summer of 2000, four gravid (pregnant) regal fritillary females were introduced. The females were collected at Iowa DNR's Ringgold Wildlife Area in Ringgold County, IA. This site was selected because it supported a healthy population within our ecotype zone that met the minimum size threshold for taking regal fritillaries. The butterflies were netted, stored in a cooler, and transported to the experimental plots all within a few hours. On the plots, the females were kept in cages which were moved from plot to plot on a daily basis to maximize egg distribution. Surveys will be conducted in the spring and summer of 2001 for caterpillars and adult fritillaries. Efforts will continue until a self-sustaining population is established.

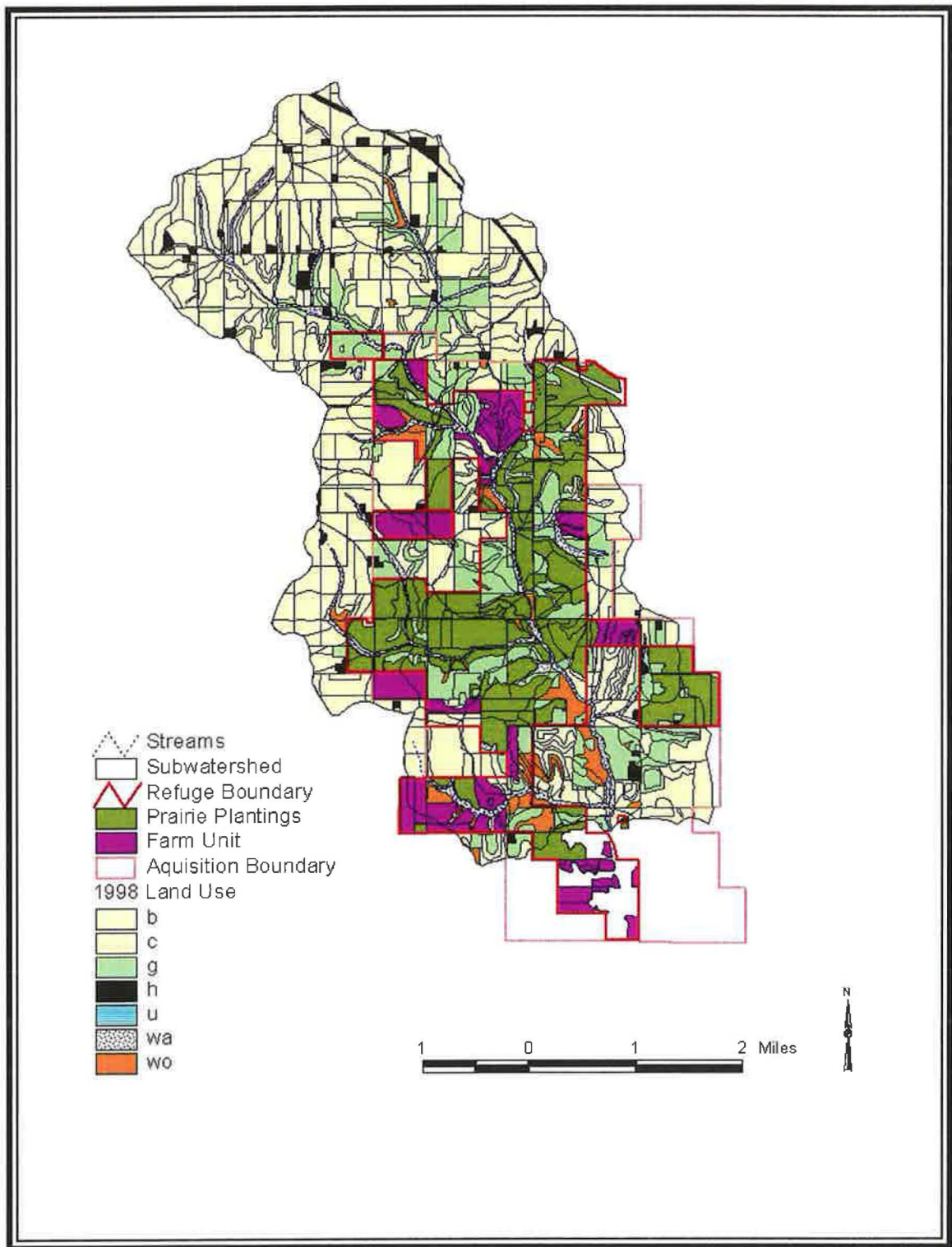
Prairie Violet Plots



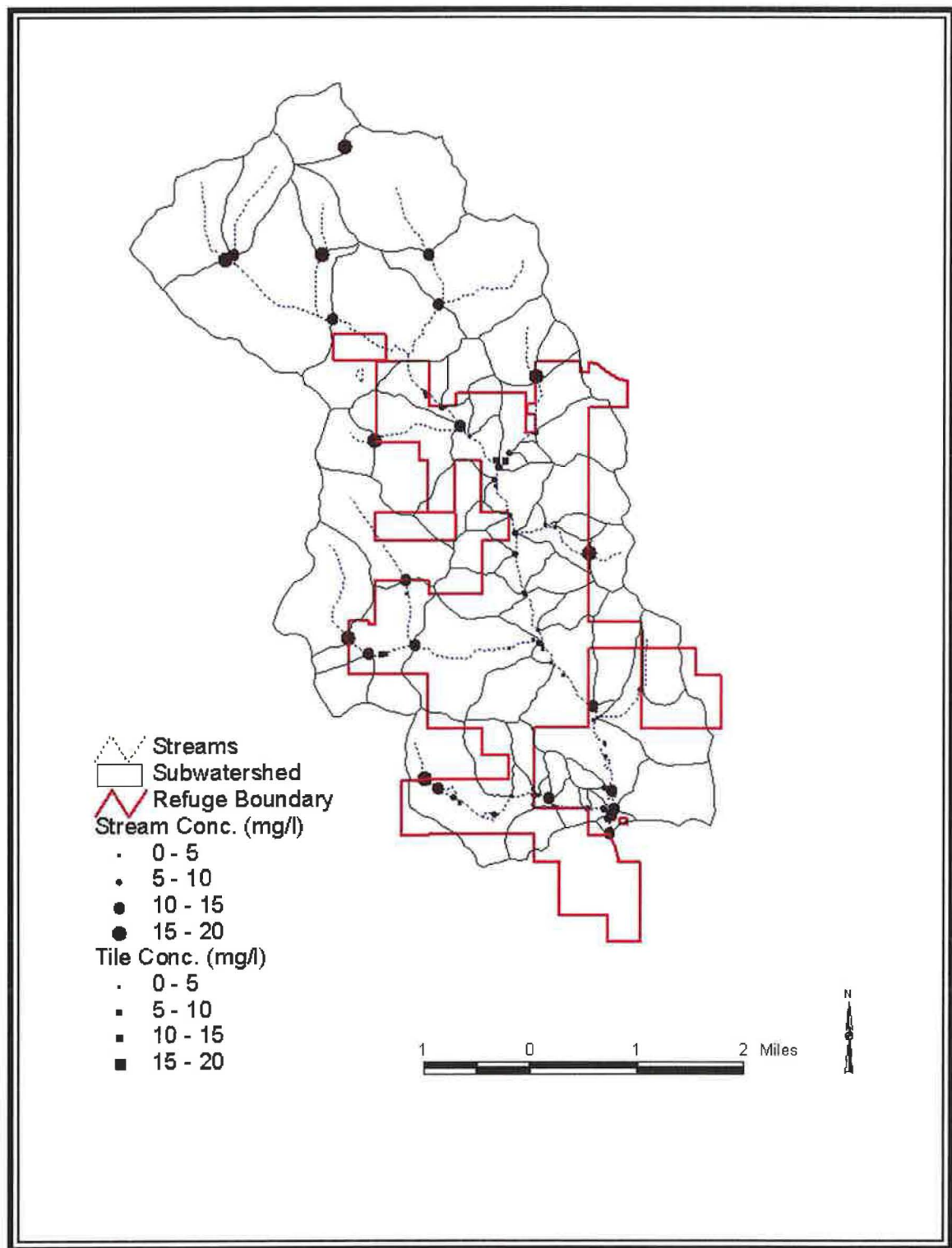
The most surprising development of the project was the discovery of two regal fritillaries on the Refuge that apparently arrived on their own. A male regal fritillary was observed by Biologist Drobney on June 13, much earlier than males normally emerge in central Iowa. It is possible that this butterfly was blown in on strong winds this summer from more southern populations perhaps as far as Missouri. Later in the summer, a female was observed more than once by Refuge intern Jen Bovee in and around some of the prairie violet plots. The exact origin of these wild butterflies is unknown.

Prairie Restoration as a BMP for Water Quality Improvement: Evidence from the Walnut Creek Watershed, Jasper County, Iowa. (Abstract for paper accepted for publication in Proceedings of the 17th North American Prairie Conference.) Keith Schilling, Iowa Geological Survey, Iowa Department of Natural Resources.

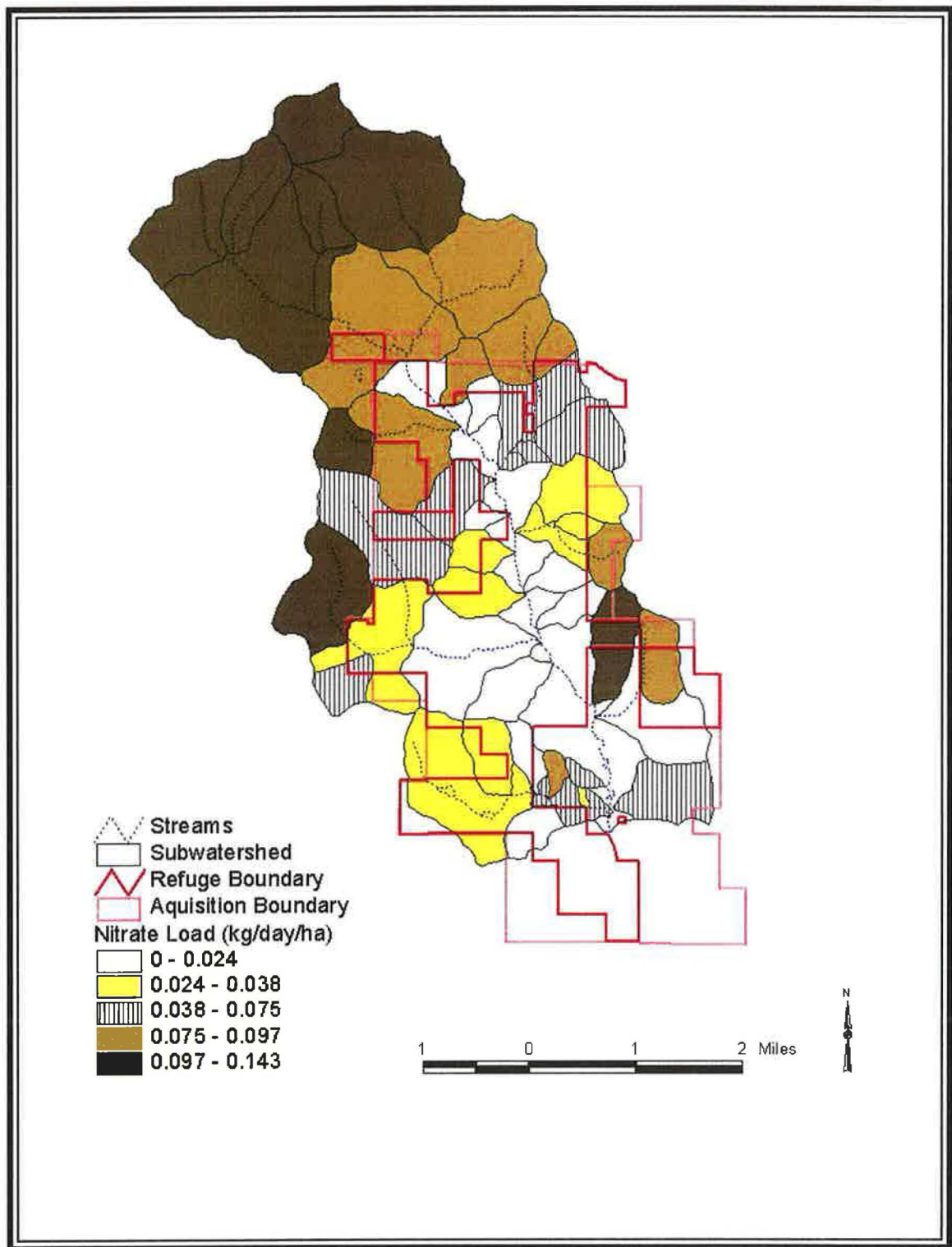
Large-scale conversion of row crop to native prairie has occurred in the core of the Walnut Creek watershed but water quality improvements have been difficult to detect. A total of 81 samples were taken from tributary creeks and drainage tiles over a two-day period in May, 1999 during baseflow conditions to determine the source of elevated nitrate concentrations in the watershed. Nitrate concentrations ranged from <0.1 mg/l to 19 mg/l, with highest concentrations (>15 mg/l) found in headwater areas of many sub-watersheds. Water draining predominantly restored prairie areas had nitrate concentration less than 1 mg/l. Nitrate loads (concentration times discharge) and loads per hectare were greatest in 9 headwater drainages located in 4 sub-watersheds. Nitrate loads exceeded 0.1 kg/day/ha in these drainage areas, which, despite constituting 1/3 of the land area in the watershed, contributed more than 50% of the total nitrate load. Land use in these 9 headwater drainages averaged more than 90% row crop. Nitrate loads in streams draining prairie or pasture were less than 0.02 kg/day/ha. A linear relationship between nitrate concentrations and percent row crop in sub-watersheds was statistically significant. Results of this study have implications for placement of prairie in similar watersheds to achieve water quality improvements on a watershed scale.



Land use for the Walnut Creek Watershed, Jasper County, Iowa.



Nitrate concentration for Walnut Creek Watershed, Jasper County, Iowa.



Nitrate loading for Walnut Creek Watershed, Jasper County, Iowa.

Walnut Creek Watershed Monitoring Project. (Excerpted from *Walnut Creek Watershed Monitoring Project: Monitoring Effects of Prairie Restoration on Watershed Water Quality*, Keith Shilling, Iowa Department of Natural Resources, Geological Survey Bureau.) Keith Schilling, Iowa Geological Survey, Iowa Department of Natural Resources.

This project was established in 1995 to monitor the effects of large-scale prairie restoration on water quality in the Walnut Creek watershed of Neal Smith NWR. The project utilizes a paired watershed approach (Walnut Creek/Squaw Creek) as well as upstream/downstream comparisons for tracking of trends. Monitoring results reported for nitrate, atrazine and fecal coliform offer a glimpse of the magnitude of water quality improvements that can be expected from a watershed-scale restoration project.

The project began with the expectation that conversion of row crop to native prairie and improved cropland management would result in measurable improvements in surface water quality. Water quality improvements were hypothesized because substantial land use conversions have decreased nitrogen fertilizer and pesticide applications on Refuge-owned lands. Completion of the first five years of full-scale monitoring (WY1996-2000) has shown statistically significant reductions in common agricultural pollutants (nitrate, atrazine, and fecal coliform) in the Walnut Creek watershed in relation to Squaw Creek. The Walnut Creek Monitoring Project clearly demonstrates the need to follow projects for several years in order to begin to see changes. Only by establishing a long-term monitoring record can the effects of best management plans on water quality in watersheds be fully evaluated and quantified.

The effects of seeding method on yearly mowing management of plant diversity and community composition in new tallgrass prairie reconstructions. Scott Moeller, MS Thesis; Iowa State University. Major Professor: Dr. Thomas Jurik.

Although there is presently widespread interest in reconstructing native prairies in the mid-western U.S., little is known about which specific techniques are most conducive to the early establishment of high species diversity and floristic quality - common goals in prairie reconstruction. ISU graduate student, Scott Moeller, conducted controlled experiments to test the effects of different seeding and mowing techniques on the diversity and floristic quality of vegetation in new prairie reconstructions in 1997 and 1998. Compilation and publication of the research was completed in 1999, however, data analysis continued through 2000.

staff planted diverse prairie seed mixes in experimental plots at several different seeding depths, then mowed the plots at different heights (when vegetation reach 20-45 cm) and frequencies during the growing season. Moeller then measured each species' stem density, percent cover and biomass to assess the effects of the treatments on the vegetative community. Diversity and floristic quality were lowest in the "deep" (5 cm) and "surface" seeding treatments, and highest in the "shallow" (3 cm) seeding treatment.

Shorter and more frequent mowing had a negligible effect on floristic quality, but had the universal effect of increasing richness and diversity. Each site was affected by mowing

somewhat differently, depending on its age and the dominant weedy cover present. On a two-year-old site, the shortest and most frequent mowing (mowed to 6 cm) resulted in the greatest increase in both desirable and undesirable species. On a first-year site dominated by a variety of broad-leaf weeds, increases in diversity with short and frequent mowing were primarily due to increases in weedy annuals. On a first-year site dominated by foxtail, increases in diversity and floristic quality with frequent mowing were due to increases in desirable planted species. The overall results suggest that an intermediate seeding depth (e.g. 2-3 cm) followed by frequent mowing (maintained between 10 cm and 30 cm in height) are the most effective strategies for fostering high diversity of native species. The results also suggest that the benefits of short and frequent mowing can be obtained even in the third year of a reconstruction, and that a cover crop of foxtail may be beneficial in some reconstruction situations.

Small-scale spatial patterns of vegetation on remnant tallgrass prairies in southern Iowa. Katie L. Monsen, M.S. Thesis, Iowa State University. Major Professor: Dr. Thomas Jurik

This project is designed to determine if small-scale spatial patterns are evident in remnant tallgrass prairies. If so, these patterns can help Refuge planners better design planting regimes that emulate good quality prairie and evaluate the success of plantings. Ms. Monsen is analyzing Sheeder, Bundt, and A.C. Morris Prairies, all good quality prairie remnants within the Neal Smith NWR local ecotype zone, to determine if strong spatial patterns exist and whether they can be applied to prairie reconstructions. Species presence/absence data is being collected in contiguous 0.25-m² quadrats on 50-m transects (n=11 over the 3 prairies). Soil P (ppm), K (ppm), pH, and percent organic matter (% OM) is also being analyzed on each transect. Data will be analyzed within the next year.

Small Mammal Effects

Kelly Wolf-Bellin continued her PhD research on the effects of small mammal activities on the establishment, abundance, and distribution of prairie plant species diversity. Beginning in 1998, Kelly constructed over 1,700 artificial gopher mounds. She then sowed a number of native seeds, representing a variety of sizes and growth forms, both on and off the mounds to compare their relative survival rates. Preliminary results showed significantly higher germination rates for seeds sown on the mounds as opposed to off the mounds, especially in plots where she had clustered several mounds together. In addition, she conducted a small mammal survey in 1999, which indicated the presence of a substantial number of voles, mice, and ground squirrels.

This year, she continued monitoring the seedlings and investigated the role of mammal herbivory relative to plant survival. In previous surveys she noticed evidence of herbivory by larger mammals, such as deer and rabbits as well as the smaller mammals, such as mice and voles. To investigate this, Kelly built several wire-mesh structures which would selectively exclude mammals based on their size. Results from this design will surely provide us with further insight on the relationships between the flora and fauna of our reconstructed prairie ecosystem.

2

Habitat Restoration

2.a. Wetland Restoration

On-Refuge

Nothing to Report

Off-Refuge

The Refuge staff participated in a wetlands restoration project which is discussed in 5.c. "Private Lands Activities".

2.b. Upland Restoration

On-Refuge

Machine Harvest

Approximately 16,000 bulk lbs. of seed were harvested on-site. Sites were harvested in a timely manner after the Refuge Biologist inspected units and verified seed readiness. The Operations staff harvested and processed the seed with the assistance of available personnel from Iowa DNR. Seed was dried and cleaned at the Refuge and kept in Refuge storage facilities. Of this harvest, the Refuge retained approximately 7,000 bulk lbs. and the Iowa DNR received 9,000 lbs.

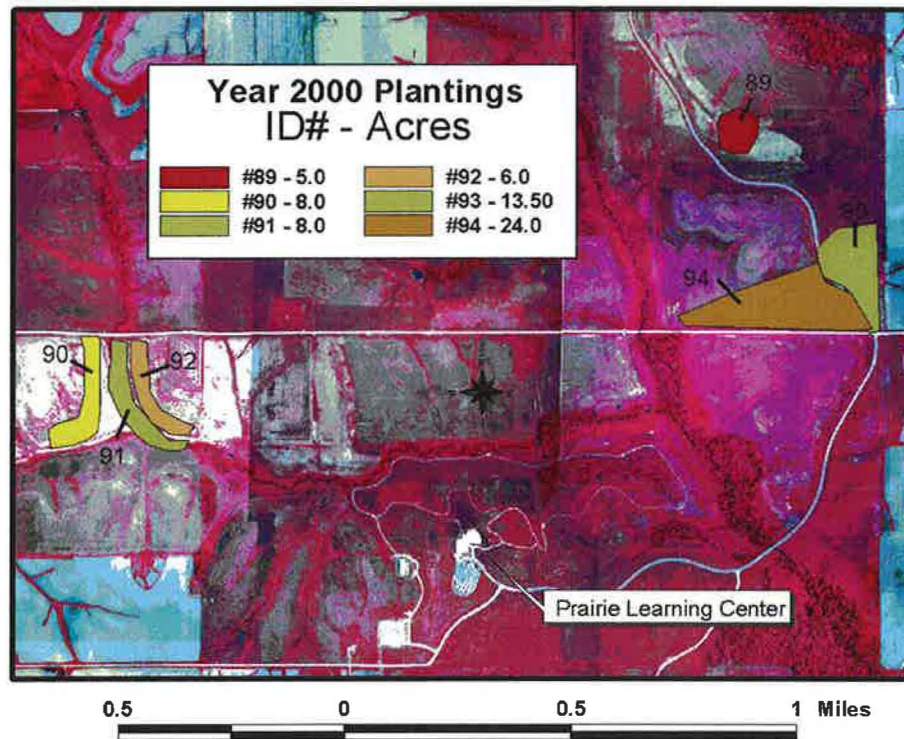


Seed dryer in seed storage facility.

Spring Planting

During 2000, approximately 64 acres were planted in the spring. Limiting planting to a few acres allowed us to focus more effort on exotic species control and to re-evaluate prairie reconstruction success on previously planted acres in order to adaptively manage. Seeding rates (viable seed) were approximately 12 lbs/acre on mesic sites, 9.5 lbs/acre on wet-mesic and savanna areas and 7.5 lbs/acre on reed canary grass areas.

Plantings were in brome fields for conversion to prairie. In the past, plantings were concentrated on crop land, because although smooth brome (*Bromis inermis*) and other species present in old pastures and Conservation Reserve Program areas are exotic, they were at least perennial vegetation on a farmed landscape. At this point, several brome-dominated areas are surrounded by prairie plantings and as such, are sources of invasion of brome by seed and via rhizomatous expansion into plantings. These brome areas were strategically targeted for reconstruction, and included areas that are in the most visible and most heavily planted core of the Refuge.



Strategy for preparation and planting included herbicide treatment in spring and then planting into existing sod using a drill. Planting into sod reduces the degree of weed seed release from the seed bank that occurs when the soil has been cultivated.

Brome recovered in portions of the planting areas despite herbicide treatment. Though it is most desirable to completely kill cool season exotics prior to planting, stressing brome prior to planting does provide a window of opportunity for establishment of prairie seedlings. These plantings were frequently mowed this summer to continue to limit competition for light and other resources necessary for seedling survival.

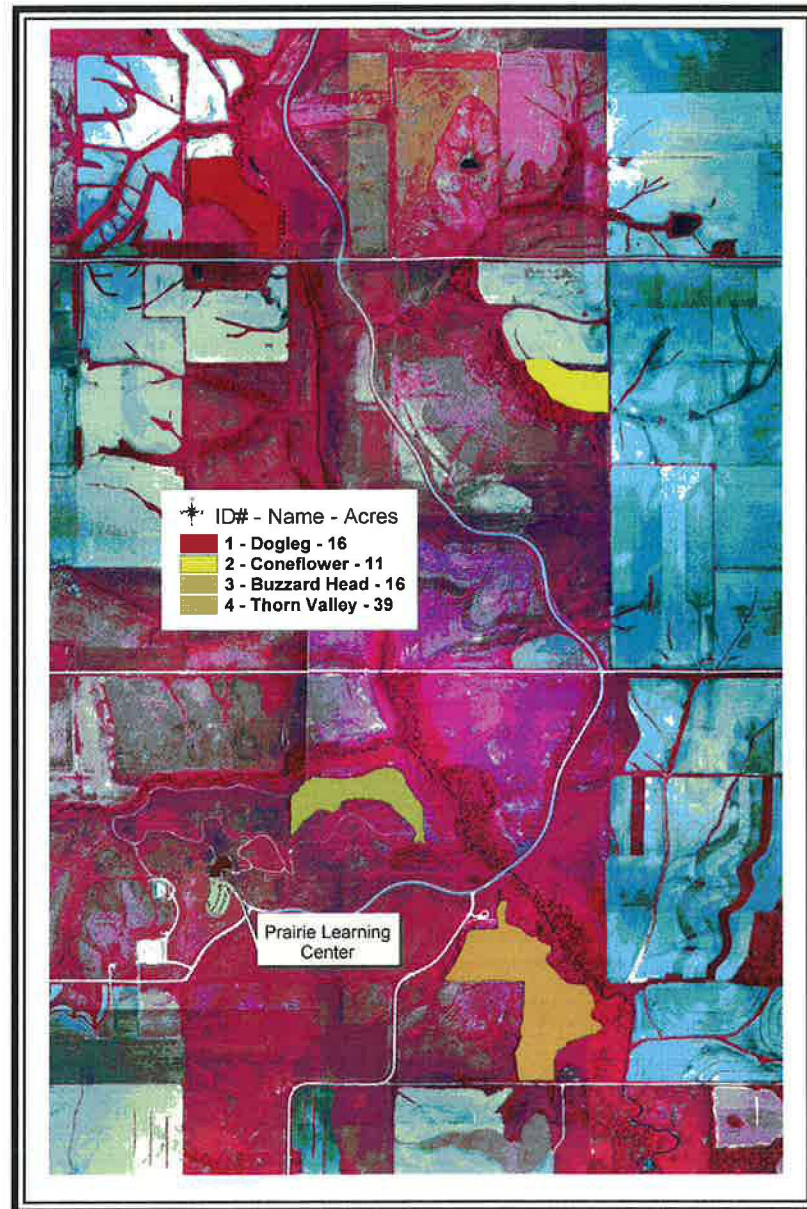
Ringgold Gold Fall Planting

In fall of 1999, Mel Moe of the Iowa DNR provided the Refuge with an unexpected and generous offer of seed harvested from Ringgold Wildlife Management Area in Ringgold County. The seed had been harvested with a flail-vac in October and we wished to plant it immediately. Though a seed analysis was not available at the time of planting, we were aware that little bluestem, rough blazing star, Indian grass and mountain mint, and many other species were present in the mix. Biologist Drobney and Jack Heisler, the Operations Specialist in charge of the Refuge farm program, collaborated to find an appropriate planting site. Criteria included that the site was similar to the donor site, that it could be somewhat isolated from other plantings to preserve the uniqueness for future harvest and that it would be available from a coop-farmer who would be willing to trade for use of another parcel of land on the Refuge.

A suitable parcel was located in Section 27 (T78N, R21W). The site consisted of two fields, 9.9 acres and 9.1 acres, on the southern border of the Refuge. The fields were characterized by a hilltop sloping to relative lowlands, much like the donor site. Because the harvest site was highly diverse, this seed was not mixed with other seed but instead kept isolated in a specifically Ringgold-originated planting dubbed "Ringgold Gold", at the good-natured request of the Iowa DNR staff involved. Both fields are divided into three sections running from lowlands to hilltops in order to determine the effects of shallow disking on soil erosion and planting success. One section was subjected to a rotary hoe before planting, one after planting, and one received no such treatment. All seed was distributed via a mulcher blower with an acceptable amount of unevenness.

Management of Remnants

Approximately 3 acres of woody species have been selectively removed from prairie and savanna communities on the Refuge, primarily by volunteers and by students involved in environmental education experiences. Remnant natural communities of primary focus include Dogleg Prairie, Coneflower Prairie, Buzzard Head, and Thorn Valley Savanna.



Remnants of greatest stewardship focus during 2000.

A spring burn of the Thorn Valley savanna has resulted in a shift to tall, early successional, native species such as Jerusalem artichoke (*Helianthus tuberosa*) mixed with annuals, replacing the brome. Sedges are becoming a more apparent portion of the flora. Weedy woody species such as multi-flora rose (*Rosa multiflora*) and raspberries (*Rubus occidentalis*) that once were very abundant are still present, though smaller in stature and apparently less dense.

Butterfly transects were established in all remnant prairies, savannas and wetlands for long-term butterfly monitoring, first established in 1994.

Coneflower Prairie is a 15 acre prairie remnant dominated by rough dropseed (*Sporobolus asper*). This year, new or relatively new species recorded on Coneflower Prairie include turtlehead (*Chelone glabra*), prairie phlox (*Phlox pilosa*), cardinal flower (*Lobelia cardinalis*), Indian turnip (*Cacalia tuberosa*), and downey gentian (*Gentiana puberulenta*). These are all conservative species (species that have a high fidelity to good quality prairie) and indicate that this prairie remnant is attaining greater floristic quality.

Dogleg Prairie is a 16 acre prairie remnant overgrown with woody species that has relatively high native plant species diversity. This remnant has been “adopted” by a Drake University course entitled “The Walnut Creek Watershed Experience”. Under the direction of Dr. Richard Wacha and Biologist Drobney, students have participated in monitoring and stewardship activities including brush cutting and seed collection.



Bee balm survives in degraded prairie remnants.

Friends' Biological Interns

The Friends of the Prairie Learning Center has sponsored internships at the Refuge since 1999. In 2000, the Friends sponsored three internships, one in the spring and two in the summer. These interns were able to assist the Biology staff in carrying out the biological duties of the Refuge to an extent that could not have been achieved without them.

Spring Propagation Internship March 26 - May 17, 2000

Holly Griswold, Cornell College Biology Senior. Courses at Cornell College are offered on a quarterly basis with only one subject per quarter. As such, Holly was able to dedicate a full quarter to this internship as her independent study. Living on the Refuge and working a full-time schedule, Holly dedicated her time to initiating the Refuge propagation program.

This internship involved greenhouse propagation of rare species and species that are available in inadequate numbers to supply our Refuge needs. The object of this project was

to secure a minimum of 10 gene pools for each species in order to ensure genetic diversity as well as species diversity on the Refuge.

Holly propagated 29 prairie species from seeds that were hand collected from 10 different prairie remnants in central Iowa. Unfortunately, seeds from all species were not available from 10 different sites. Some originated from a single collection site, though others were available from as many as 7 collection sites. Efforts will be made to get seed from additional sites in future years.



Compass plant seeds were collected for propagation.

Seedlings were grown in conetainer flats (98 individual plant conetainers/flat) yielding thousands of plants in dozens of flats. Germination response of seeds from each location were closely monitored. Results showed that germination rates differed by species and by site. Edge Prairie was the most successful seed source for several of the species including rough blazingstar (*Liatris aspera*), prairie blazingstar (*Liatris pycnostachya*), and prairie lily (*Lilium philadelphicum*). Certain species were not successful regardless of gene pool, including *Phlox maculata* collected from 3 different sites, none of which yielded a single germination. Overall, the end results of this propagation effort are regarded as highly successful, filling the greenhouse with species that will be transplanted to various areas of the Refuge, including the production plots planned for the next year.

In addition to propagation, Holly led Refuge stewardship groups during the Friends' Stewardship Saturday events and a special Boy Scouts Camporee event. In addition, she provided leadership for a group of students from Drake University's "Walnut Creek Watershed Experience" class for 3 hours each week working with seed processing and propagation. Holly also gained a variety of other experiences including woody and invasive species control, spotting during prescribed burns, attending the Iowa Academy of Science meeting and assisting the Regal Fritillary Reintroduction Project by helping map the research plots and recording prairie violet survivorship in the research plots.

Without sponsorship by the Friends' group and Holly's availability and dedicated work in this propagation effort, the Refuge would not have been able to grow such a wide variety of species in such large numbers .

Summer Internships

The summer interns participated in a diverse array of tasks and experiences that would give them a well rounded perspective on tallgrass prairie and savanna reconstruction and habitat management. Each intern also had a more specific project that enabled them to focus on one aspect of ecological issues at the Refuge. Both interns participated in the following experiences:

- Greenhouse watering, fertilization, weeding, seed sowing and seedling transplantation
- Exotic invasive plant treatments: pulling yellow and white sweet clover (*Melilotus oficionalis*, and *M. alba*), clipping and spraying reed canary grass (*Phalaris arundinacea*), clipping of Canada thistle (*Cirsium arvense*)
- Non-commercial pesticide applicator certification
- Cleaning hand-collected seed
- Collecting sedge seed at a local marsh and dispersing it in appropriate places on the Refuge
- Locating baseline plant transects that were established in 1994
- Leading the Friends of the Prairie group in stewardship activities
- Attending the North American Prairie Conference at Mason City, Iowa, in July

Regal Fritillary Internship June-July, 2000

Jen Bovie, Biology Senior at Luther College. This on-going project is an attempt to reintroduce the rare Regal Fritillary butterfly (*Speyeria idalia*), a prairie endemic species under the direction of Dr. Diane Debinski of ISU and Biologist Drobney. Duties of the intern included survivorship counts of violet plots and upkeep of violet plots. Also, capture of Regal Fritillary adults from other Iowa locations, construction of butterfly cages, and placement of gravid females over violet plots. Other activities performed included the installation of butterfly transects throughout the Refuge, and the creation of an interpretive brochure and display for visitors. Jennifer worked in conjunction with Kristan Price, research assistant for Dr. Debinski. Though Kristan was working through research funding, she participated in many of the same activities as the interns. Kristan's position added power to get work being performed by interns done, in exchange for the collective effort that the entire group of interns contributed to accomplish butterfly collection and maintenance, prairie violet plot establishment, and enhancement of Regal Fritillary butterfly habitat in the vicinity of prairie violet plots.



Researchers observing Regal Fritillary butterfly habitat.

Exotic Species Control Internship June- July, 2000

Rene Richter, Animal Ecology Sophomore, ISU

The project focused on Canada Thistle (*Cirsium arvense*) control. Thistle patches were located, measured and recorded with GPS equipment. These efforts were concentrated on the 265 acre area of the Refuge known as the Flaherty site. This data was then compiled and mapped on GIS software. With this information the Refuge will be able to closely monitor changes in Canada thistle populations and refine management methods to control this invasive species.

Drake University Course

During Fall 1999 and Spring 2000, an experimental course at Drake University in Des Moines, Iowa entitled "The Walnut Creek Watershed Experience" was developed. This course was taught cooperatively by Dr. Richard Wacha and Biologist Drobney.

As a part of this course, students cleaned and inventoried seed, as well as propagating prairie plants from seed in the greenhouses. Students also organized a brush and tree cutting day involving other Drake University students. In addition, they assisted in repair of an eroding gully near the Prairie Learning Center. Additional details can be found in Section 7.b..



Walnut Creek Watershed students organized a tree-cutting event on Dogleg Prairie remnant.

Off-Refuge

Approximately 9,000 lbs of bulk harvested seed was transferred to Iowa DNR as part of the partnership for using local eco-type seed on Iowa restoration sites.

2.c. Deepwater/Riverine Restoration

On-Refuge

Nothing to Report

Off-Refuge

Nothing to Report

3

Habitat Management

3.a. Water Level Management

Nothing to Report

3.b. Moist Soil Management

Nothing to Report

3.c. Graze/Mow/Hay



Bison grazing within the enclosure.

Our bison population increased to 53 animals, as a result of 13 births and 2 deaths. These herds are on a continuous grazing regime within a 750 acre enclosure which is estimated to produce approximately 1,125,000 - 1,500,000 pounds of forage annually. Combined forage consumption by the animals is estimated to be no more than 450,000 pounds each year. The newly established prairie within the enclosure is capable of sustaining the current herd size at a 35 to 40% utilization rate, without slope corrections. Bison herd reductions will be made in 2001 and as needed to prevent habitat damage while still playing a vital role in the establishment and ecology of the prairie.

The Refuge currently supports 13 elk. During Spring 2000, radio collars were removed from 2 of the bull elk initially introduced to the Refuge. Of interest in the second event was the fact that after several hours of chase, the animal finally was successfully sedated and went down between two segments of the bison herd. The bison surrounded the elk and provided some challenge to Refuge staff and to the veterinarian who were attempting to remove the collar and revive the animal. Staff responded well, however, and the elk was up and running soon thereafter.

Mowing is an integral part of prairie reconstruction at the Refuge. Mowing takes place as a first and second year management tool on new prairie plantings. Also, mowing is used to control broadleaf weeds and woody vegetation to promote native growth. Approximately 600 total acres were mowed in FY00, consisting of prairie plantings, firebreaks, demolition sites and weed management sites.

3.d. Farming

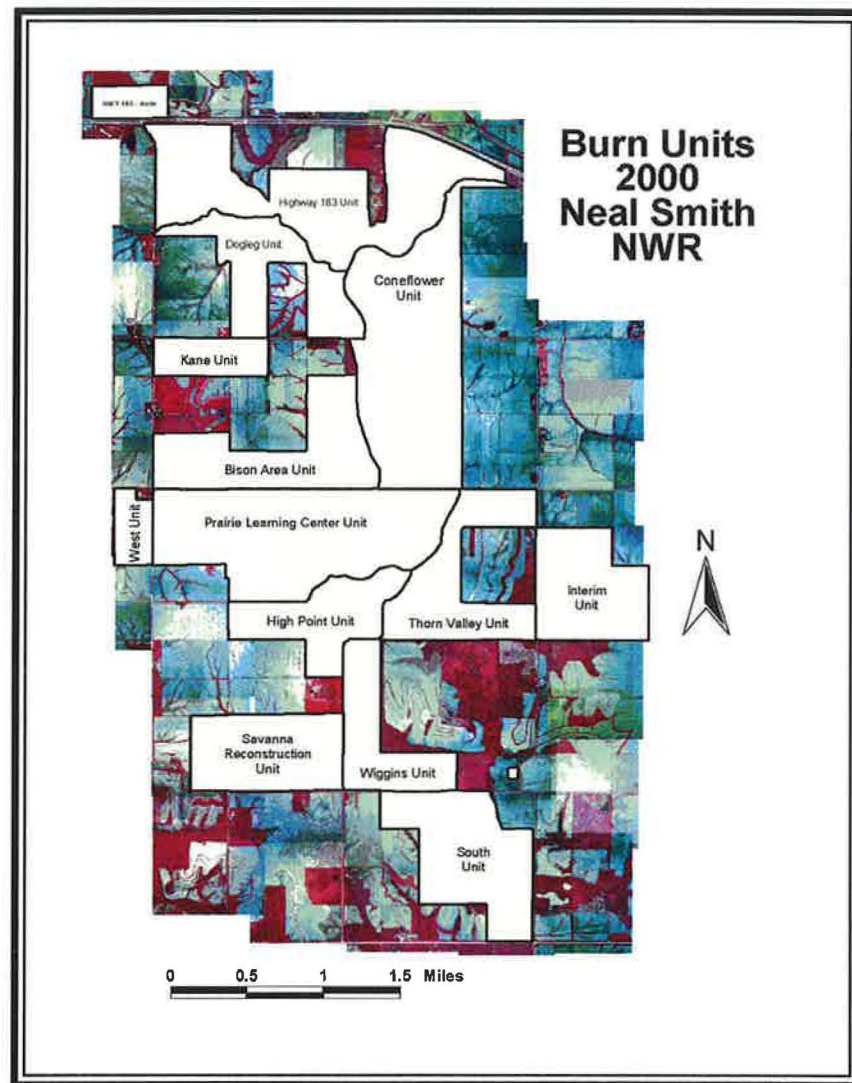
Nothing to Report

3.e. Forest Management

Nothing to Report

3.f. Fire Management

This year's burn season includes the largest number of acres ever burned on the Refuge. A total of 21 units were burned between March 31st and May 12th. The units ranged from 20 acres (PLC 5) to 317 acres (Interim Unit). The total area burned covered approximately 2,433 acres, costing an average of \$7.66 per acre. Cost per acre on each unit was quite variable, ranging from \$3.40 for the Flaherty Unit to \$26.98 for the West Unit.



Tim Bodeen, Public Use Specialist, was the acting burn boss and scheduled the public use needs around the burning season thus freeing burn crew time for 4 environmental education staff. The additional available staff provided a much greater power to perform prescribed burns and was a significant factor contributing to the success of this year's burn season.

A second factor contributing to the ability to burn relatively large numbers of acres was the extraordinarily dry weather conditions. Most units had an ample supply of fuel and the burns proceeded quickly. Bodeen deserves credit for rallying a crew at any available opportunity.



The Neal Smith NWR burn team of 2000 including 3 students from Drake University.

As expected, on most of the area burned, vegetative growth was stimulated and biomass production well exceeded that of the unburned sites. In order to burn quickly, portions of some sites areas with less well-developed fuel loads were omitted from the burn unit or were not targeted as high priority burn areas. As a result, these areas are more prone to exotic species invasion and are converting to a healthy prairie community more slowly.

We also observed higher survival rates and more vigorous growth in the experimental plots of prairie violets (*Viola pedatifida*) on the burned sites. These small plants bloom in mid-spring and benefit from the fire-induced duff reduction. Regal Fritillary butterfly larvae use the violets as host plants and actively feed on them in spring, which raises an intriguing management question: while a spring burn increases violet survival, does it also inhibit butterfly larva survival?



More than 2,400 acres were burned this year.

Year 2000 burn units, dates burned, respective acres and cost per acre.

Unit	Date	Acres	Cost/Acre
Bison	4/12/2000	150.0	6.96
Bison 2	4/13/2000	150.0	7.50
Coneflower 1	4/22/2000	250.0	7.94
Coneflower 2	4/24/2000	100.0	8.68
Coneflower 3	4/25/2000	50.0	19.25
Dogleg 1	4/22/2000	90.0	3.64
Dogleg 2	5/03/2000	30.0	12.23
Fall Plant	4/10/2000	23.0	17.40
Flaherty	4/12/2000	200.0	3.40
HWY 163 - 1	5/04/2000	60.0	12.23
HWY 163 - 2	5/12/2000	230.0	7.74
Interim	4/21/2000	317.0	6.40
PLC 1	4/10/2000	40.0	11.26
PLC 2	4/13/2000	41.0	14.90
PLC 3	4/18/2000	100.0	8.26
PLC 4	4/25/2000	60.0	15.11
PLC 5	4/26/2000	20.0	13.90
PLC 6	4/28/2000	200.0	3.50
Savanna	3/31/2000	241.0	3.63
Savanna Recon.	4/25/2000	39.0	14.23
West	4/18/2000	42.0	26.98

3.g. Pest Plant Control

Biology staff spent a significant amount of time managing invasive plant species during the summer of 2000. Two interns and the STEP BioTech were trained and certified as non-commercial pesticide applicators in June and spot-treated reed canary grass (*Phalaris arundinacea*) around the Savanna Trail. To prevent seeding, reed canary grass heads were clipped by hand in several areas where patches were of relatively small size.

One summer internship focused on Canada thistle (*Cirsium arvense*) populations. Thistle patches were located, measured and recorded with GPS equipment. Of special interest was a 265 acre area known as the Flaherty site. This data was then compiled and mapped on GIS software. Patches located in this survey were spot mowed as a management treatment. Another less intensive effort was asserted by other biology staff to locate and record the Canada thistle patches on a large portion of the rest of the Refuge. With this information, we will be able to closely monitor changes in Canada thistle populations and refine management strategies to control this invasive species.

Unusually cool wet springs for the past several years have allowed these exotics to proliferate and will require intensive Refuge attention in seasons to come.

Purple loosestrife, (*Lythrum salicaria*), an extremely invasive exotic species in wetlands, was observed by Drobney in summer, 2000, near the south boundary. Five plants were observed on the south side of County Road F-70 that forms the south boundary of the Refuge. Drobney contacted the Jasper County Engineers' department and obtained permission to eradicate the plants. Unfortunately, two of the plants were mowed prior to eradication.

On the Friends' Stewardship Saturday following discovery of the purple loosestrife, volunteers did a windshield survey of much of the area surrounding the Refuge in attempts to locate additional plants. No plants were found, though volunteers enjoyed taking a closer look and appreciating the large number of lavender and purple plants in bloom at that time. Reconnaissance will continue in future years. Currently, no purple loosestrife plants have been observed on the Refuge.

Garlic mustard (*Alliaria petiolata*) has been observed in Jasper County along the South Skunk River in summer, 2000 by Scott Bryant and Pauline Drobney. This extremely invasive species of woodlands has not been previously recorded in Jasper County. Though it has not been observed on the Refuge, finding it in Jasper County within 12 miles of the Refuge is a concern, as it often travels along waterways.

4

Fish and Wildlife Management

4.a. Bird Banding

Nothing to Report

4.b. Disease Monitoring and Treatment

Nothing to Report

4.c. Reintroductions

No new animals were introduced to the bison or elk herd this year. The bison herd of 38 increased to 53 as a result of 13 births and 2 deaths. No further re-introductions are planned at this time.

Neal Smith NWR staff will conduct its second bison round up on November 1, 2000. ROS Smith is coordinating the effort with Montana State University, the National Bison Range in Montana and Fort Niobrara NWR in Nebraska. Maintenance Mechanic Boot and ROS Smith are making all the necessary repairs and preparations to the bison handling facility and ROS Heisler is working with and preparing the horses. Dr. Tom Roffe, DVM from Montana State University will collect genetic data. The bison will also be tested for various common bovine diseases and treated for eye injuries sustained from the tall grasses.



Elk beside road with Visitor Center in the back ground. (Ron VanNimwegen)

A total of 10 elk was introduced to Neal Smith NWR in 1997 and 1998. One mature bull died shortly after its release. Four calves were born during the spring of 2000 increasing the herd to 13. The herd remains healthy and moves throughout the enclosure. They can often be seen from the auto tour route.

4. d. Nest Structures

Nothing to Report

4.e. Pest, Predator and Exotic Animal Control

House sparrows have been an intermittent problem in the seed storage facility and trapping is an on-going effort. Birds are able to enter the building through open doors and other small openings. Sparrow traps are baited with seed and water. The use of water escalates the success of the traps during the summer and the building remains relatively bird free for short periods of time.

Mice are a continual problem and are dealt with through the use of bait stations and pellets of zinc phosphite. Zinc phosphite has no carryover properties so secondary poisoning is not a problem.

5

Coordination Activities

5.a. Interagency Coordination

ROS Heisler worked with the Natural Resources Conservation Service (NRCS) and the Farm Services Agency (FSA) on a Debt for Nature project that will eventually protect approximately 300 acres of upland and riparian habitat.

ROS Heisler also participated in a wetland mitigation review that involved Pioneer Hi-Bred International, Inc., NRCS, and the FWS.

5.b. Tribal Coordination

Nothing to Report

5.c. Private Land Activities

Approximately 30 individual landowners were contacted by FWS personnel and provided technical assistance for the Partners for Fish and Wildlife Program. The private land activities affected in some way, approximately 800 acres. Total projects involved had approximately \$10,000 contributed by the FWS for dirt work and seed purchase. In addition, the partners involved matched those dollars with donated time, money, equipment, goods and services.



Dallas County Wetland Restoration Project (Before)



Dallas County Wetland Restoration Project (First Year After)

6

Resource Protection

6.a. Law Enforcement

The Refuge Officers on staff for most of FY2000 were Public Use Specialist Tim Bodeen who departed for Indiana in August and Park Ranger John Below who graduated from FLETC at the end of January.

One recurring problem is with hunters parking in Refuge field approaches and out in the fields. This was encountered at all the different farm approaches on the Refuge. Temporary parking areas will be constructed for next year to eliminate this problem.

The dumping of meth lab waste is a new problem to the Refuge this year. A meth lab training was done by the Drug Task Force in Jasper County. As a result, staff found 3 dump sites to add to the sheriff's department's 5 for a total of 8 dump sites on the Refuge.

Two hunting citations were written in FY 2000, which is minimal compared to the record number of hunters utilizing the Refuge. Both these were for fishing in a closed area. The Refuge had one car in the ditch that damaged two stop signs. Another accident involved one car rear ending another while watching the bison and elk. The Jasper County Sheriff's Office responded to both the accidents.

6.b. Permits and Economic Use Management

Cash rent continued as the method used for Refuge farming. The system is designed to allow the Cooperator a reasonable rent on the land while giving the government a good return on the operation. Rent ranges from \$60 to \$75.00 per acre which is comparable to rents collected in the area for low quality ground. Rent was collected in two installments, 30% due in May, with the balance due in December. Final rent figures are based on the Report of Planted Acres which each Cooperator submits to the NRCS. Deductions from rent figures include the cost of crop scouting at \$5.00 per acre, mowing costs for buffer

strips at \$12.00 per acre, and any chemical application in preparation for ground being planted back to native plants by the Refuge.

Crop Scouting was utilized as a part of the Integrated Pest Management (IPM) program on the Refuge. The same company was used as in previous years, Farmers Co-Op Exchange of Prairie City. As noted above, the cost of this service was paid by the Cooperator and then deducted from their cash rent. Success of this program has been very good, giving both the Refuge and the cooperating farmers sound information and recommendations regarding the condition of the crops. Crop scouts identified an increase in leaf beetles that went above the allowable "threshold" level causing one farmer to conduct an additional spray sequence and thereby prevented further losses for the farmer and neighbors.

A total of 816.5 acres was planted to corn, soybeans, or alfalfa again this year with the cooperation of 7 local farmers. No additional farm land was planted to prairie, instead, many units already in prairie were over-seeded for increased diversity.

6.c. Contaminant Investigation

Nothing to Report

6.d. Contaminant Cleanup

Nothing to Report

6.e. Water Rights Management

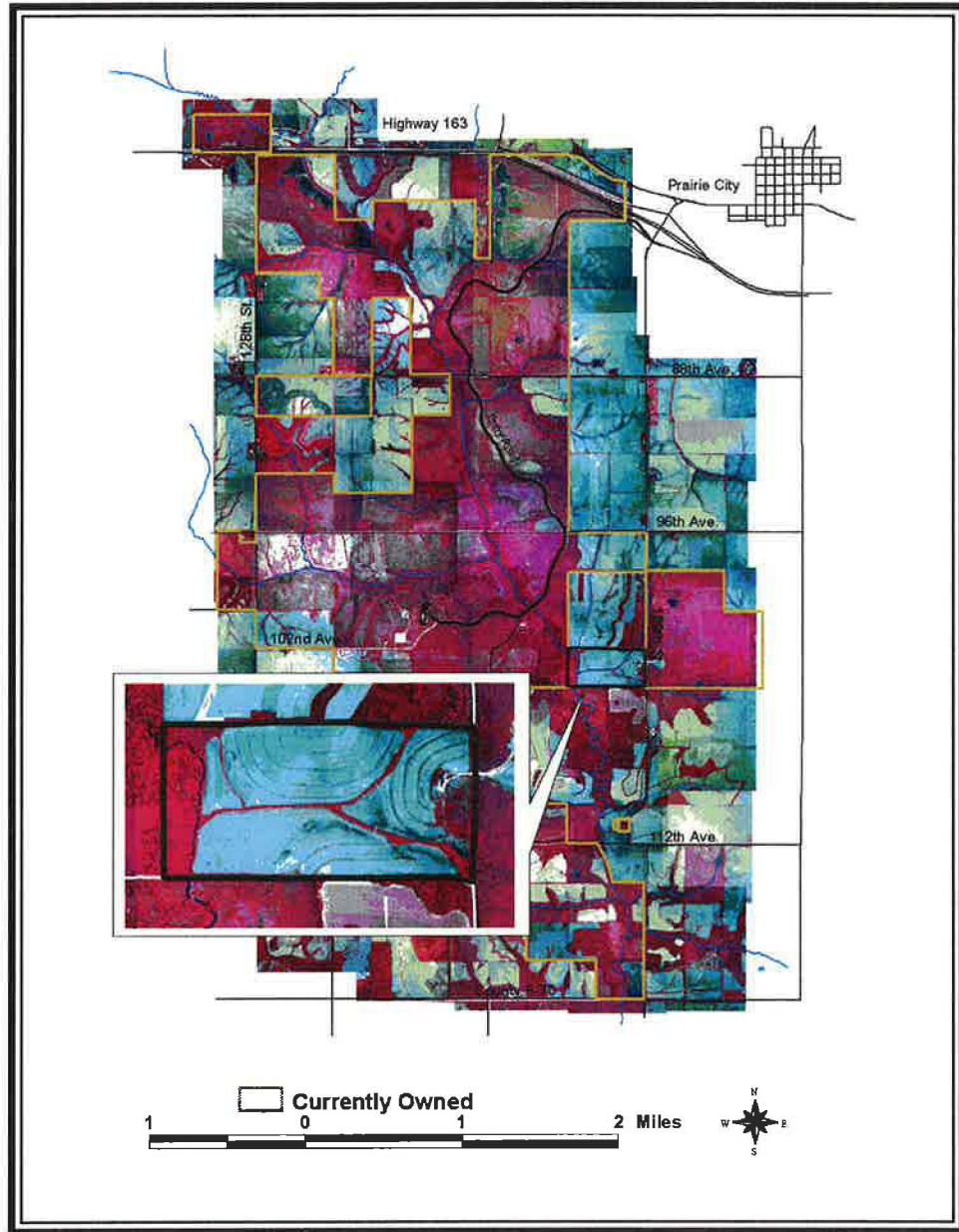
Nothing to Report

6.f. Cultural Resource Management

Nothing to Report

6.g. Land Acquisition Support

By the end of FY2000, we were in the process of completing the purchase/exchange of 80 acres of land in Section 15, T78N, R21W. This was a difficult purchase because we originally had an opportunity to purchase the land the year before from another owner but failed to get the appraisal done on time. The land was ultimately sold to another person. Several months later, the Service approached the new owner with an offer to purchase the land plus exchange some excellent property which was part of the Refuge but was physically severed from the Refuge by the new State Highway #163. This 32 acre exchange parcel was not part of the Walnut Creek watershed and therefore, not as crucial to the overall ecological integrity of the project. The purchase will be complete by FY2001. A house that is part of the sale will be maintained for student and volunteer housing.



Harmison Property purchase

6.h. Threats and Conflicts

Nothing to Report

7

Public Education and Recreation

7.a. Provide Visitor Services



*A visiting Geographical Information Specialist Team
enjoyed the Buffalo Program during their visit.*

Public Education and Recreation

The Refuge recorded over 125,950 visitors in FY 2000. The majority of over 40,000 Prairie Learning Center visitors participated in scheduled educational programs, events or tours. Public use staff provided 368 environmental education programs for 10,245 students during this period.

Public use staff conducted 40 guided tours of the Prairie Learning Center and Refuge for 1,336 visitors. Over 91 scheduled groups learned about the Neal Smith NWR and Prairie Learning Center during meetings and events held in the Center's conference rooms and auditorium. The Center received over 24,290 walk-in visitors. Due to gross inaccuracies with the in-road traffic counters, their numbers are not being reported this year.

In the summer, Outdoor Recreation Planner Tim Bodeen transferred to Kankakee NWR after fourteen months of service as the head of public use.

Exhibits and Facilities

Artists featured in the J.N. "Ding" Darling Art Gallery included:

- Duck Stamp Art from Ukraine
- Iowa Federal Junior Duck Stamp contest winners
- "Ding" Darling art and political cartoons
- David Jordan "Insects"
- Larry Stone "Environmental Expressions" Photography
- Local Art Display

Reference section 8.b. for Facilities discussion.

Environmental Education Activities

Curriculum/Teacher Training:

Iowa Corps

The fifth annual Iowa Corps Teacher Training Program brought 30 Iowa educators to the Refuge for six busy days of habitat stewardship and workshop activities. Coordinators Janie Swartz and Bob Winklebock facilitated the workshop and the care of the Iowa Corps participants from their base camp at the Refuge's "Williams Farm." Refuge staff provided instruction and directed stewardship activities. Iowa Corps participants volunteered over 800 hours doing habitat stewardship projects.

Project Bluestem

During FY00, 169 teachers participated in five Project Bluestem (PBS) workshops. To date, over 414 teachers have attended PBS workshops, which introduces participants to the PBS curriculum and the Refuge.



Students involved Soil Builders Project Bluestem Activity.

School Programs

Approximately 10,245 students of all ages from 200 schools participated in scheduled activities at the Refuge. Over 90% of the school groups visiting the Refuge participated in day-long programs that utilized the PLC, trails, and public use staff. Following is a breakdown of environmental education customers by age groupings:

Level	# of Groups	# of Students
Elementary	74	4,819
Middle	33	2,693
High School	16	655
College	19	469
Day Cares	54	1,478
Home School	4	131
Teachers	21	222

Traveling Educational Trunks

The Refuge's Prairie and Elk Traveling Educational Trunks were utilized by several school districts. The Prairie Trunk traveled to 6 school districts and the Elk Trunk was sent to 8 school districts.

A Song Bird Trunk was sent out twice during the period. This educational trunk has curricula and materials for conducting song bird ecology activities

Scouting

Approximately 1,826 scouts participated in on-site activities in FY00. One Eagle Scout completed his Eagle Scout project at the Refuge.

Over 200 Boy Scouts participated in the Polk County Boy Scout Jamboree, a 2 ½ day event. The group camped about 1 mile from the Refuge on Jasper County land that had been mowed and prepared for tenting. Refuge staff, interns, and volunteers prepared several “stations” on the Refuge for the scouts to learn and participate in a variety of wildlife topics. The culmination of the event was a stewardship activity at the “Game Farm” site of the Refuge where scouts cleared trees and brush from the degraded savanna.

7.b. Outreach

Special Events

Annual special events continue to be an important program element at the Refuge. When well marketed, the events draw large crowds of people who might not otherwise visit the Refuge. Following is a list of events held at the Refuge during FY00 which 1,558 visitors attended:

National Wildlife Refuge Week, A.C. Morris Feed and Seed, Going Away Giving Away Party, Junior Duck Stamp, Buffalo Day, Wings and Wild Oats, and Iowa Prairie Week.

Included as a special event is the Junior Duck Stamp Contest. The enormous talent that Iowa art students have never ceases to amaze us. The Refuge had 274 entries from 46 different schools. Brian Franson was the winner with a superb depiction of a pair of wood ducks.



Brian Franson's Wood Ducks won first place.

Outreach went as far as Cherkasy, Ukraine in 2000. Marvin Campbell, a board member of Newton, Iowa's "Organization Promoting Everlasting Neighbors" (O.P.E.N.), whose sister-city is Smila in the state of Cherkasy, Ukraine worked with the Refuge this year to develop an art-exchange program via the Junior Duck Stamp Contest. He worked with the Ukrainian government to develop a "Lake and River Bird" contest in Smila. The Iowa students' artwork was brought to Ukraine in November and was on display there until April when it was brought back to the United States, along with the Ukrainian students' artwork which was to be displayed at the Refuge from April until November of the next year. This is a new vehicle for expanding horizons and knowledge of two different countries since wildlife issues and environment are global issues.



Judges pick winners of the Ukrainian "Lake and River Birds" art contest.

Ecological Outreach and Information Sharing

Development of Local Ecotype Zones for Minnesota and Iowa

A map of local ecotype seed harvest zones for Iowa and Minnesota was begun by Drobney in 1999 upon request from the Regional Office. Such zones could be used to guide development of local ecotype projects throughout these two states. Within a year, the Northern Tallgrass Prairie Ecoteam developed a priority that stated that within the ecoregion, all FWS programs would become independent of non-local ecotype seed within 5 years. The map and guidelines that Ms. Drobney developed to explain intended use of the map were unanimously adopted by the ecoteam for use in establishing cooperative project areas in the Northern Tallgrass Prairie Ecoregion.

In the final map, entitled "Ecotype Zones for Minnesota and Iowa", there are 9 distinctive ecotype zones, with a caveat that land immediately associated with major riverine systems such as the Missouri, Mississippi, and Minnesota Rivers, be considered separate ecotype zones. Each of the major zones are divided into at least two subdivisions, because though there are broad ecological similarities within each of the zones, there are likely genetic differences due to the relatively broad geographic coverage. This is especially true in

zones broadly oriented north and south because latitudinal differences are directly related to climatic differences. Climate including daylength, rainfall, and temperature, critically affects genetic characteristics of plants.

A document defining local ecotype and including definitions, rationale, and common-sense guidelines for use were developed to explain intended application of the information on this map. A **local ecotype zone** is defined as a geographic area with generally similar environmental characteristics and plant and animal species associations, and within which genetic characteristics are likely to be similar.

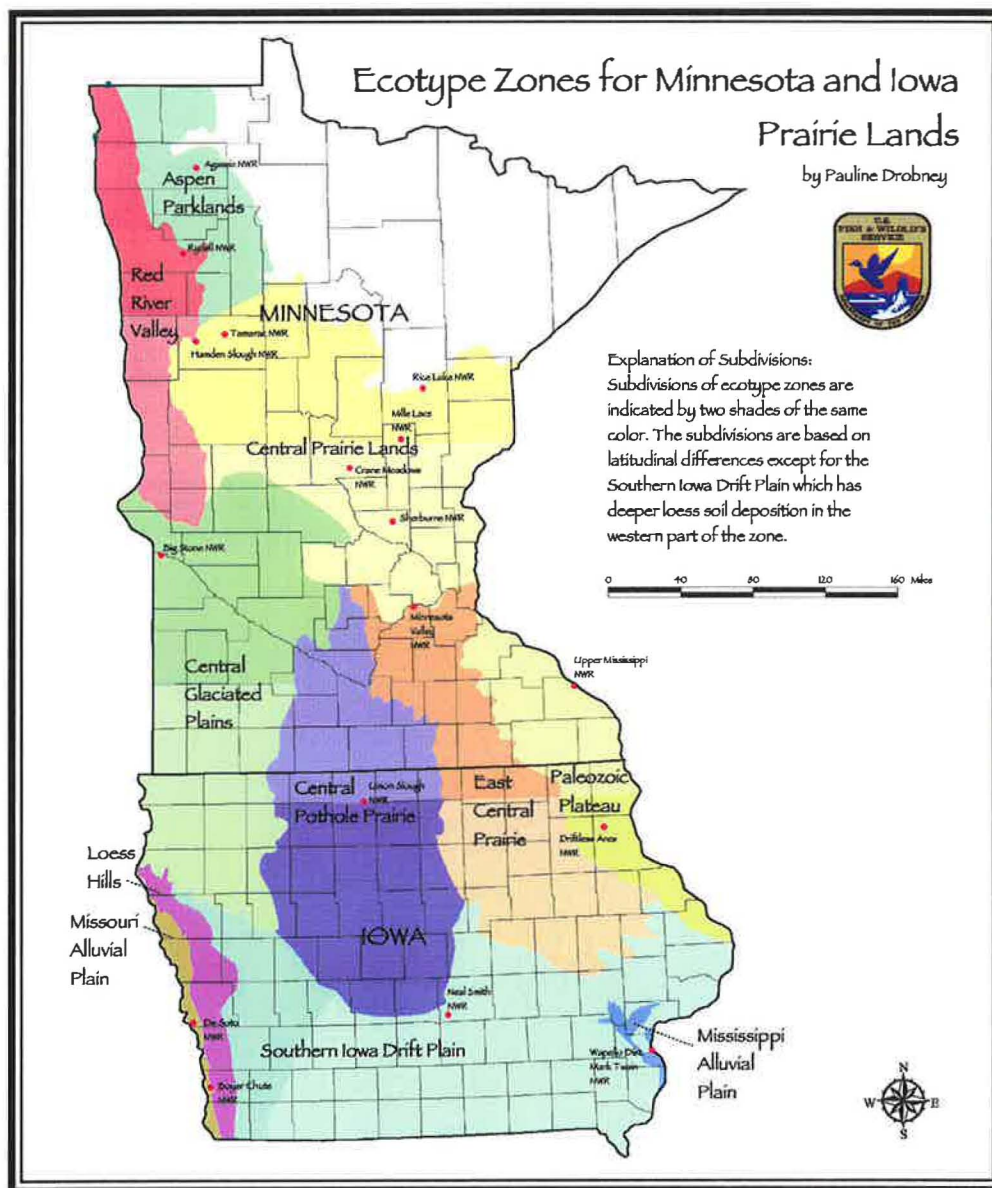
The zones on the map are intended to be used as a general guide, not applied as a rigid rule. For the purposes of prairie seed collection and ultimate planting, local ecotype zones are constructed broadly enough to accommodate large or general projects, but narrowly enough to express ecological uniqueness.

Use of ecotype zones is subject to decisions made on a case-by-case basis by Project Leaders and land managers within the area. In some cases, land managers may design a project local ecotype zone that is much more restrictive than this map indicates, for example, when a parcel of farmland is purchased near a high quality prairie and will be restored to prairie. In other cases, the project local project ecotype zone could include portions of two or more ecotype zones indicated on this map. One reason could be because the project is near or across the boundary of three zones. Portions of all three zones may be appropriate in the project local ecotype zone.

This map is currently being used by the FWS in the Northern Tallgrass Prairie Ecoregion to develop cooperative project areas to share resources and effort to develop specific ecotype zone seed production. Seed nurseries that will produce single species harvests, and multi-species plantings that will produce somewhat diverse harvests are being planted in several areas from seed originating from local prairie remnants.

In addition, the Iowa DNR, noting the FWS leadership in this arena, has decided to adopt the goal of becoming independent of non-local seed within 5 years. Jim Munson, of the Iowa Private Lands Office, spearheaded the cooperative effort between FWS and DNR and at a meeting he facilitated and that was held at the Neal Smith NWR, Iowa DNR staff present unanimously agreed to adopt the same ecotype zone map that the Northern Tallgrass Prairie Ecoteam had adopted. The Iowa DNR is now a strong partner with Iowa FWS team members in our ecoregion. Information is being shared intensively, as is equipment and seed. In some cases, different species are being grown in different localities to facilitate mutual seed needs.

Additional inquiries have been made from agencies and organizations outside Minnesota and Iowa, who have been interested in development of similar maps for their areas.



Walnut Creek Watershed Experience; a Drake University Course.

In FY 2000, a collaboration between Neal Smith NWR and Drake University in Des Moines began. In early 2000, the Dr. William Ehmann, Director for Environmental studies at Drake, and Dr. Richard Wacha, Drake Professor of Biology, approached Project Leader Gilbertson, and Biologist Drobney to explore the possibility of establishing a cooperative program between the Refuge and the university. A class called 'The Walnut Creek Watershed Experience' resulted from discussions between Ehmann, Wacha and Refuge staff. The class was designed to give university students an experience that combined theoretical issues in prairie biology and restoration with pragmatic situations and hands-on creative problem solving on a landscape-scale restoration. Team taught by Dr. Wacha and Drobney, students exercise some freedom in determining the projects they work with and develop throughout the semester, restricted by the needs of the Refuge.



Walnut Creek Watershed Course. Front: Kim Barr, Jana Mott, Pauline Drobney, Sid Juwarker, Daniel Preston, and Dave Holman. Back: Dr. Ehmann, Drake University Professor of Environmental Sciences.

The first group of students to enroll in this class began in the fall semester of calendar year 1999 and included Kim Barr, Dave Holman, Sid Juwarker, Jana Mott and Daniel Preston. They spent much of their time tracking down an elusive pair of transect lines running at 330 degrees through a degraded, yet relatively high-quality prairie remnant nicknamed the 'Dogleg' due to its shape as seen from above. Transects were originally established in 1994 following Floristic Quality Assessment techniques established by Swink and Wilhelm (1991). Relocation of these transects will allow repeat monitoring that will reveal whether vegetation is becoming more or less like high quality areas typical of Iowa in response to applied refuge management.

In addition to relocating transects, the group established woody macro-plots and permanently marked the boundaries with physical stakes and by global positioning using a PLGR GPS unit.

As a part of their training, Sid Juwarker, Jana Mott and Daniel Preston took the S-190 and S-130 course funded by the U.S. FWS, participated in pack testing, and as such, qualified to participate in Refuge prescribed fires. All three students participated in at least one Refuge burn. In addition, Jana Mott went on to use that experience as background in studies of Key deer and fire ecology in Florida, and Daniel Preston participated in wildlife suppression in the forest fires in Montana during the summer of 2000. Mr. Preston continues to be on-call for Refuge burn crew duty and has expressed interest in becoming a fire ecologist or advanced fire-fighter after he completes his degree in Environmental Politics at Drake.

The spring, 2000 Walnut Creek Watershed Experience class was significantly larger with 8 students. As a result, two groups were formed to undertake separate projects. One group organized the seed room and greenhouse, focusing on organizing seed and on inventorying stratified seed stored in coolers. These students independently initiated development of a seed stratification database to more easily facilitate seed work in the labs. In addition, they learned seed cleaning, accessioning and propagation techniques for prairie species.

The second group of students was mentored by two students from the fall semester, Daniel Preston and Dave Holman, who, inspired by their class experiences, took an advanced level course in the spring entitled "Special Topic: Prairie Restoration". These students continued to monitor woody macro plots and document species found on these areas. This group also arranged a stewardship day, enlisting the help of other Drake students to clear brush from the northern edge of the Dog Leg.

The Walnut Creek Experience continues to evolve as a dynamic interaction between a maturing and the fledgling environmental program at Drake. Students represent a range of cultural diversity including student origins ranging from southern India to Nepal to third-generation Des Moines students, as well as a diversity of interests from English literature to grassroots activism to plant ecology. During the course of the year, the program has grown to focus on the Dogleg Remnant, marking this remnant as a distinct project area for Drake students. Difficulties to overcome include incorporating enough lab time to accommodate both travel time and experiences. The need for a continuous interaction—one that bridges those months which are most active for the —has become an impetus to develop a summer section of the Walnut Creek Watershed Experience sometime in the future.

Several ecological outreach efforts were provided to professionals and to the general public as a part of the Refuge's biological program:

- Fielded approximately 1,700 requests for technical biological assistance and advice. Requests originate from conservation organizations, land management professionals, scientists, educators, seed producers, students, and the general public.

- Presented at the Trees Forever ten year anniversary “Celebrating a Decade; Involving People, Empowering Communities, Improving the Environment” conference at Amana, Iowa. Presentation was on establishment of tallgrass prairie and savanna and was part of a two day educational workshop on November 4-5, 1999.
- On December 15, 1999, was an invited speaker and panel discussion member at Iowa Ecotype Grower’s meeting. The purpose of the meeting was to address issues of seed purchase, seed availability, and demand relative to the Iowa Ecotype Project and to seed needs by FWS, Iowa DOT, NRCS, and other organizations.
- At the request of Iowa seed growers, WNT hosted a meeting on January 10, 2000 to discuss outstanding local ecotype seed issues in Iowa including perceptions of the usefulness in plantings of seed diverse seed mixes resulting from harvest of prairie remnants relative to single species production.
- Presented rationale for use of the “Ecotype Zones for Minnesota and Iowa Prairie Lands” map at the Wetland Management District Coordination Meeting at Fargo, North Dakota on January 19, 2000.
- Provided interview to the Philadelphia Inquirer about ecological restoration on Neal Smith NWR entitled “On the Faux Prairie”. This newspaper printed a story with color pictures on March 27, 2000.
- Met with researchers from Wisconsin interested in carbon sequestration in savannas to discuss potential research opportunities and the degree to which wooded grasslands are likely to store carbon.
- Attended the Iowa Natural History Association meeting in Des Moines, Iowa on Saturday, February 26, 2000 and discussed natural history issues.
- Provided ecological restoration discussion and stewardship experience to biology students from Cornell College in Mount Vernon, Iowa in March.
- Presented a paper at the Iowa Academy of Science Meeting on March 15, 2000. Paper was entitled “Adaptation of the Floristic Quality Assessment Technique for Iowa”.
- Served as a Refuge Management Training Academy instructor speaking about the challenges and process of tallgrass prairie ecological restoration at Neal Smith NWR. This presentation was given at Blackwater NWR on April 14, 2000.
- Provided an interview with Iowa Public Television in March, for an Earth Day television program entitled “The Last 30 Years”. This program attempted to

characterize quality of life and resource changes in Iowa over the past 30 years. The program aired on April 21, 2000.

- Participated in several meetings instigated by the Grinnell 2000 Program to establish a Prairie City USA program. This developing program is patterned after Tree City USA developed by the Arbor Day Foundation. The objective is to provide incentive to preserve or reconstruct prairie in towns or cities in Iowa, to increase awareness of prairie and provide aesthetic, and to develop installation of prairie vegetation for utilitarian purposes. Participation in program development is on-going. Eventually this program could be a prototype for a national program.
- Was a plenary session speaker for Fulfilling the “Wildlife First” Promise; A National Refuge System Biological Workshop at the National Conservation Training Center. This was a meeting of biologists in the refuge system throughout the country and was held from May 14 to May 19. The presentation was one of a series of “Refuge Success Stories” and focused on tallgrass prairie and savanna ecological restoration at Neal Smith NWR.
- Provided an interview for an Associated Press article on June 2, 2000. This piece was picked up by numerous newspapers throughout the country.
- Hosted a field trip on June 15, 2000, for the Tri-State Master Gardeners Conference held in Des Moines, Iowa. Provided discussion and demonstrations about prairie reconstruction, propagation, savanna restoration, and related topics.
- Provided interview for Iowan Magazine relative to Threatened and Endangered species. A feature article on rare and threatened and endangered species entitled “Lost and Found, a Guide to Iowa’s Endangered Plants and Animals” written by Larry Stone appeared in July, 2000.
- Presented two papers at the 17th North American Prairie Conference held at the North Iowa Area Community College in Mason City, Iowa on July 16-20. A total of 5 papers were presented about WNT by Drobney and researchers during this conference. Drobney abstracts are as follows:

P. M. Drobney. Progress report on tallgrass prairie and savanna ecological restoration at Neal Smith National Wildlife Refuge in Prairie City, Iowa.

Since 1992, when field work began on Neal Smith National Wildlife Refuge (formerly Walnut Creek National Wildlife Refuge), approximately 5,000 of the 8,654 acres within the acquisition area have been purchased. Local ecotype prairie seed has been planted on 2,000 acres, using different seeding rate strategies and planting techniques. Characteristics of plant communities including species diversity, are developing differently among planting sites. Savanna restoration is under way in remnants, and plans are developing to reconstruct savanna in current cropfields. To date, the Refuge supports 10 elk, and 40 bison. Henslow’s sparrows were observed on-site in 1999, and grassland birds using the area include northern harriers, short-eared owls, upland sandpipers, and bob-o-links among others. Invertebrate studies include efforts to reintroduce the rare prairie endemic, regal fritillary butterfly (*Speyeria idalia*).

P. M. Drobney. Rationale for local ecotype seed use in prairie plantings and development of an Iowa and Minnesota ecotype zone map for US Fish and Wildlife Service seed production project areas.

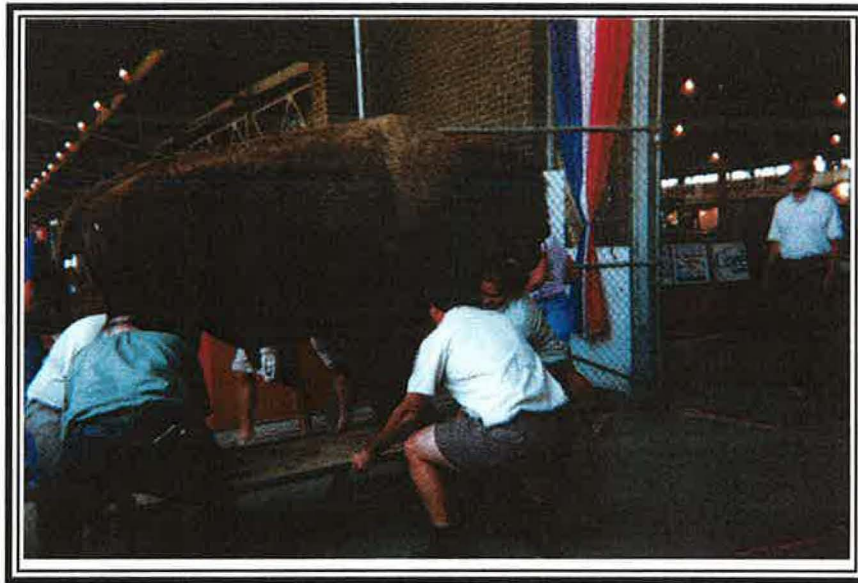
Seed originating from local prairie remnants is arguably a better choice than non-local ecotype or cultivars in several types of prairie plantings, especially in emulations of historic natural communities or expansions of existing prairies. Use of local ecotype seed also reduces the risk of genetic and species pollution of remnant prairies that occur near prairie plantings. An ecotype zone map for Iowa and Minnesota has been constructed to support development of local ecotype seed production project areas for the U.S. Fish and Wildlife Service. Guidelines for use of this map are intended to provide flexibility to managers whose project needs may not exactly match broad map lines. Reasons to deviate from map lines could include location of a project near a zone line, or the desire to emulate a disjunct community type that occurs only in specific soil types throughout a broader range. Managers are encouraged to use the outlined "common sense guidelines" to develop local ecotype zone lines that meet the needs of their project, and that are also consistent with the overall intent and philosophy used to develop the ecotype map.

- Scientific publication includes the following co-authored paper:
Debinski, D.M., P. Drobney. 2000. Regal Fritillary and its Host Plant Studied at Neal Smith National Wildlife Refuge (Iowa). *Ecological Restoration* 18 (4): 254-255.
- Provided guidance and cooperation in development of the Iowa DNR local ecotype seed production program via meetings and phone conversations.
- Provided a guided field trip experience to a national meeting of the Soil and Water Conservation Society on September 6, 2000. Presentation included discussion of ecological imperatives, restoration and reconstruction needs, local ecotype, seed collection and storage techniques, and demonstration of planting. Refuge research including water quality, hydrology, and carbon sequestering were featured.
- Provided discussion in prairie issues and walking tour to fourteen Teacher Leaders participating in a university supported summer educational program.
- Participated in FWS Promises Team on the Habitat Management Program Training Committee. Purpose of the committee was to develop an efficient training method for HMP development on refuges throughout the country.
- Provided stewardship activity for the grand opening of the Prairie iNet occurring on the Refuge on September 6, 2000.
- Led a field trip for the Iowa Geological Survey Meeting held at the Refuge on September 21.
- Provided a discussion of ecological restoration and a tour for the Soil and Water Conservation meeting on September 28, 2000.

- With STEP employee (biotech), Angela Sokolowski, provided stewardship involvement to the Friends of the Prairie Learning Center volunteers on every second Saturday of the month.

Off-Site Programming

Refuge staff presented 34 programs to off-site groups during FY00. These groups included conservation agencies, natural resources professional groups, and service organizations, sports and vacations shows, and the Iowa State Fair for an outreach of over 234,900 contacts.



Staff and volunteers preparing the Iowa State Fair booth.



Volunteer Yentis staffing the booth at the Iowa State Fair.



Refuge Manager and Volunteer schmoozing with Governor Vilsack at the Iowa State Fair.

8

Planning and Administration

8.a. Comprehensive Conservation Planning

Nothing to Report

8.b. General Administration

Refuge Funding

<i>Fund</i>	<i>FY 2000</i>	<i>FY 1999</i>	<i>FY 1998</i>	<i>FY 1997</i>	<i>FY 1996</i>
1261	804,702	755,997	710,595	557,788	423,870
1261 (vol)	4,900	6,400	8,900	2,500	2,000
1262	80,000	62,700	17,200	18,750	25,000
1121	7,000	7,000	10,000	14,000	8,000
1221					1,000
1230				3,300	2,500
9110/9251	5,400	5,400	5,400	3,587	28,200
9263	10,659	11,660	44,375		
TOTAL	912,661	849,157	796,470	599,925	490,570

Funds in 1261 included \$617,803 for salaries, \$26,000 for utilities, office supplies, fuel, etc, \$50,000 for Visitor Center Operations, and \$4,900 for volunteers. Also included was \$3,000 for Challenge Cost Share for an Iowa Corps Summer Workshop Program. A RONS project for one GS-6 Bio Tech to conduct surveys for \$75,000 was funded but we were unable to hire an individual during the fiscal year for this project. Operating funds

for the Volunteer Coordinator totaling \$16,899, which was also a RONS project, was part of the 1261 funding. We were fortunate to receive an additional \$50,000 to apply toward janitorial costs.

1262 funding included \$50,000 for repair of erosion on the gravel trail system. We utilized that funding to employ four YCC students to assist in the trail repair. Annual maintenance flexible dollars totaled \$30,000.

The Refuge purchased two 2000 Dodge Ram Pick-ups during the fiscal year, along with a hydraulic thumb for the 690 Excavator. A microscope (imaging system) was purchased for use in the lab.



*Staff members pose in Visitor Center exhibit area.
Back row: J. Heisler, N. Gilbertson, A. Kelpe, C. Smith, C. Dykstra, B. Boot, and
D. Van Ryswyk. Front row: J. Below, P. Drobney, A. Sokolowski*

Refuge Staffing

Below is a list of staff employees at Neal Smith NWR during FY 2000:

<u>Permanent Full Time</u>	<u>Grade</u>	<u>OD Date</u>
Gilbertson, Nancy M. Refuge Manager	GS-13	09/98
Bodeen, Tim Park Ranger	GS-12	06/99 Transferred 04/00
Petersen, Bernard J. Refuge Ops. Specialist	GS-11/12	11/92 Transferred 11/99
Smith, Joyce C. Refuge Ops. Specialist	GS-12	06/00
Drobney, Pauline M. Wildlife Biologist	GS-11/12	03/92
Boot, Brian A. Maintenance Mechanic	WG-8/9	10/92
Byal, Wayne O. Maintenance Mechanic	WG-9	07/99 Terminated 08/00
Heisler, John E. Refuge Ops. Specialist	GS-5/7/9	04/95
Dykstra, Carla J. Administrative Tech.	GS-6/7	05/91
Mehl, Mary C. Park Ranger	GS-5/7	03/98 Transferred 06/00
Below, John J. Park Ranger	GS-07	04/98
Courtright, Callie Le'au Park Ranger (Volunteer Coordinator)	GS-5/7/9	09/99
Van Ryswyk, Doreen D. Secretary (OA)	GS-5	08/97

Temporary/Term Appointments

Olawsky, Craig D. Refuge Ops. Specialist	GS-9	12/93 Terminated 12/99
Kelpe, Amy J. Social Svc Assistant	GS-5	06/00 Terminated 09/00

Student Temporary Experience Program

Quijano, Christian F. Bio Science Technician	GS-4	05/98
Corcoran, Adam C. Park Ranger	GS-4	12/99
Klauke, Therese M. Park Ranger	GS-4	01/00
Sokolowski, Angela J. Bio Science Technician	GS-4	10/99

Building Repairs

When the Prairie Learning Center was completed some serious defects in the building construction were found. Moisture began seeping through the floor. The roof began to leak. If that were not enough, the entry road developed an uneven surface. The floor was the first issue dealt with in FY2000.

FLOOR:

The floor of the Learning Center was built without a moisture barrier under it. Water that percolated through the loess soils would reach a less permeable soil layer then move sideways directly under the Center. Water would then seep through the concrete slab by capillary action causing the carpet in the exhibit areas and rubber flooring in the labs to loosen. Mildew and mold developed under the floor coverings creating a potential respiratory health problem.

Months of investigation and discussions with the RO Engineering Department, Denver Engineering and our staff ensued. The options being considered include: 1) Tear the entire concrete floor out, install a moisture barrier and pour a new concrete floor; 2) Remove the floor covering (carpet), apply a concrete sealer and re-install floor covering; 3) Leave the floor alone but remove the rubber-backed carpeting and rubber flooring and replace it with a jute backed carpet and tile that would allow the floor to "breathe", or 4) Install a technology that would dry the floor out and repel water away from the building.

The cost of tearing the concrete floor out was too great and too disruptive. Using a concrete sealer might create other problems or would not last very long requiring re-applications year after year. Re-applying floor sealant would disrupt the Center periodically and would be costly. If the floor was not repaired and a different floor covering laid on allowing the concrete to "breathe", the floor would still pull moisture through it eventually deteriorating the integrity of the floor and the walls of the building. The fourth solution would be disruptive for a short period of time, but the technology was new and therefore results uncertain.

The solution remains to be resolved in FY 2001 along with roof and road repairs.

Neal Smith NWR 2000 YCC Program

The second Youth Conservation Corps program at Neal Smith NWR accomplished many important tasks during the eight-week period. Enrollees provided a resource that saved time and money in return for conservation education employment that is not commonly available to high school students. Each enrollee was faced with new challenges and were able to build confidence and new job skills. They also learned prairie ecology and about possible environmental careers from information integrated in the activities they were involved in.



*Top - Jacob Ritchhart and Kip Williams
Bottom - Jenny Miner and Jennifer Barloon*

The enrollees were recruited from three area high schools. Kip Williams, Jacob Ritchhart, Jennifer Barloon and Jenny Miner were selected from a pool of ten applicants. All four completed the eight-week program successfully. The total cost of the program was approximately \$13,500. Staff salary costs were \$4,930, while \$1,940 were spent on materials to complete assigned projects. Some work highlights of the summer include:

- Cleared eight miles of barbed wire fence to prepare areas for prairie restoration.
- Installed posts on parking lot to inhibit vehicle traffic.
- Cleared a public use trails of hazardous, overgrown vegetation.
- Assisted biological interns clearing invasive species from research plots.
- Assisted biological interns by catching butterflies for research project.
- Conducted litter clean up on entry road, cleaned offices, storage areas and sheds.
- Fed and cared for Refuge horses.
- Geese banding at Union Slough NWR.
- Guided tour at DeSoto NWR.
- Experienced how science shapes everyday lives at the Science Center of Iowa.



Basswood Trail parking lot posts.



Fence material removed from Refuge



The whole crew including biological interns and ROS Jack Heisler.

The formal environmental education programs allowed them to experience how other refuges in the area operate and to participate in other programs.

Overall, the 2000 YCC program at Neal Smith NWR was a success, both for the Refuge and for the enrollees. This year provided an opportunity for the staff to learn how to better operate the program and gained the input of four talented students.

Volunteer Program

Volunteers at the Neal Smith National Wildlife Refuge-Prairie Learning Center are continuing to help us to conserve, protect, and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people. 526 Volunteers contributed 12,026 hours to the Refuge this past year. As one of the largest tallgrass prairie reconstruction projects in the United States, our volunteers donated 5,125 hours working on pest plant control, planting, harvesting and restoration efforts. Approximately 5,009 hours, over 40% of the total hours volunteered, were providing visitor services and outreach. Volunteers contributed 1321 hours to general administration, and 571 to surveys, censuses, studies and investigations.

Highlights this year include our Volunteer Recognition and Awards Banquet, Stewardship Saturday's and Scout Jamboree. 80 volunteers attended the First Annual Volunteer Recognition and Awards Banquet to receive awards, such as shirts, hats, mugs, etc. for their service. Stewardship Saturday, each second Saturday of the month throughout the year, volunteers spent around 845 hours collecting, cleaning or sorting seed, clearing brush or working in the greenhouse. In April, the Scout Jamboree hosted 236 Boy Scouts and

leaders who volunteered 758 hours towards upland restoration stewardship projects such as tree removal and planting tallgrass prairie species.

The volunteers can be broken into the # of volunteers by age:

Under 18	274
18-35	100
35-61	119
Over 61	33



Volunteers Karen Balmer and Lynn Huebler spent hours in the hot summer sun removing birdsfoot trefoil.

Volunteers with the Interns

Throughout the summer, the biology staff was supplemented with several very special volunteers who worked closely with the Friends' interns. The skills and efforts contributed by these volunteers added to the experiences of the interns as well as to the projects in which they took part.

- Ron Van Nimwegen, Animal Ecology Senior at ISU, joined the other interns as a full time volunteer in July. He assisted both the thistle project and the butterfly project interns. In the fall, he helped Tor Janson with a dendro-ecology project to age trees in the savanna in attempt to rebuild the land use history of that area. After the internships were over, he continued to volunteer on the Refuge, working on GIS compiling spatial data to create maps pertaining to various Refuge projects.
- Aryanne Tolczynski, middle school student from Prairie City, volunteered frequently with the interns, assisting with both the butterfly and thistle projects, greenhouse work, and seed cleaning. Aryanne represented the younger end of our volunteer spectrum, as a local student who has developed a long-term relationship

with the Refuge. We hope to gain more devoted school-age volunteers in years to come.

- Amy Kelpe, Pella resident, worked at the beginning of the summer as the Youth Conservation Corps leader, and then volunteered with the butterfly interns and the Environmental Education staff at the Refuge.

Stewardship Saturdays

As several years of restoration and reconstruction efforts on the Refuge have begun to bear fruit, the Friends of the Prairie Learning Center sought to become more directly involved in the restoration process. The site selected was a 20 acre parcel along the east end of the Tallgrass Trail. Work on the Friends' Prairie was initiated in 1998 and has since become a premier restoration site.

On the second Saturday of every month, the Friends of the Prairie Learning Center held a stewardship event at the Refuge led by a member of biology staff. Participation ranged from 5 to 50 people who usually worked from 9:00 a.m. to approximately 1:00 p.m. The activities varied based on the time of year and included exotic tree cutting/removal, exotic invasive removal, native seed collection, seed cleaning, seed sowing, gully repair, and orchid labeling. These fun work days give Friends the opportunity to understand the challenges of ecological restoration of the Refuge first hand, and not only assists the restoration process, but provides a foundation for interpretation of the Refuge to the public they address on our behalf.

During 2000, the Friends of the Prairie Learning Center initiated the Friends' Prairie Interpretation Project. The project is designed to provide a means of interpreting the restoration activities on the Friends' Prairie specifically and on the Refuge as a whole. The project consists of two parts. The first part is the development and installation of signs along the trail to interpret ecological aspects of the prairie. The second part will be a brochure to supplement the signs. Mary Norton, an Educational Consultant of the Prairie Hill Farm was hired to write the signs and interpretive brochure based on ecological messages identified by Biologist Drobney.

Volunteer Seed Collection. From spring through fall, seed was collected by hand at surrounding prairies by volunteers and other stewardship groups. Over 100 different species were collected from 32 sites, 5 of which were on the Refuge. Over 100 lbs. (nearly 1600 oz.) of seed were cleaned after collection (some of this weight includes partially cleaned seed). This volume of seed could have cost around \$25,000 if purchased through commercial dealers. However, many of the species are not commercially available, making collected seed invaluable. These collections represent species that characterize tallgrass prairie and savanna ecosystems but that are poorly represented on the Refuge because they are available in limited quantities.

This year we obtained a significant number of species that have never before been harvested for the Refuge or that are rarely found because of habitat destruction, including: Azure aster (*Aster azureus*), Flat-topped aster (*Aster umbellatus*), Tuberous Indian

Plantain (*Cacalia tuberosa*), Marsh Marigold (*Caltha palustris*), Gray's sedge (*Carex grayi*), Hop sedge (*Carex lupulina*), Palm sedge (*Carex muskingumensis*), Turtlehead (*Chelone glabra*), Yellow flax (*Linum spp.*), Violet Wood Sorrel (*Oxalis violacea*), local ecotype Switchgrass (*Panicum virgatum*), Wood Betony (*Pedicularis canadensis*), Prairie phlox (*Phlox pilosa*), Mad-dog skullcap (*Scutellaria lateriflora*), Blue-eyed grass (*Sisyrinchium campestre*), and Bird's foot violet (*Viola petadifida*).



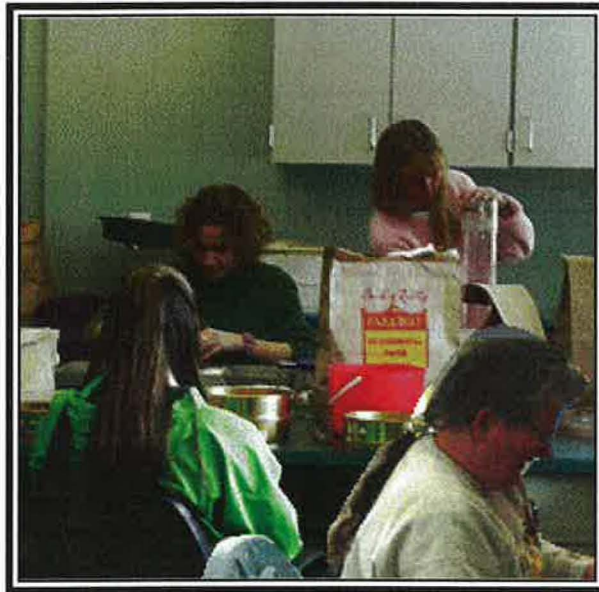
Volunteers cleaning seed in lab.

Outstanding volunteers trained in plant identification and collection techniques organized seed collection teams. Others with skills in seed processing formed seed cleaning teams. Laurie and Dan Fennimore served as Seed Collection Team Leaders for several sites in Jasper and Polk Counties. Their dedicated team has produced a large amount of hand collected seed for the Refuge. In addition to seed collection, they have located privately owned remnants, obtained permission from the landowners to collect seed for the Refuge, and have become active ambassadors for the long-term preservation and stewardship of these remnants.

LaVerne Collister, continues to provide extraordinary service as a Seed Collection Team Leader, with 9 years of experience with the Refuge! He was the first Seed Collection Team Leader and has not only led seed collection efforts, but made educational identification and information cards to inform his team. This team goes above and beyond the call of duty by not only collecting seeds, but by spreading some of their collected seed on degraded portions of the collection sites which through the years, are becoming more diverse.

A new leader is Jonathan Yentis, though he has been a long-term volunteer. Jonathan has volunteered to lead a new team called the Seed Cleaning Team, long needed at the Refuge. This volunteer position and program is newly established and we look forward to watching it develop.

Erma Selser took on the monumental responsibility of compiling the seed inventory for both bulk and hand-collected harvests this year, after completion of service by a term employee, Craig Olawsky, who had previously performed this painstaking task.



Volunteer Erma Selser, bottom right, leading a seed cleaning and inventory session in the lab.

All of these devoted individuals and many more function as vital sources for future plant diversity in our reconstructed prairie and have helped us move closer to producing our own supply of seed for harvest. These folks have donated an amazing amounts of time and effort to and deserve a standing prairie ovation for their contributions to the Refuge.

Friends of the Prairie Learning Center

The Friends continue to be a breath of fresh air for the Refuge. They supported and/or completed a number of projects for the Refuge and for themselves. The following is a list of highlights from the Friends' annual report:

- Developed and filled Executive Director position. This is a contract position for approximately 20 hours per week. The person is responsible for recruiting volunteers to work in the bookstore, writing and submitting grant proposals, and developing a liaison with the local, state, and federal congressional community.
- Developed electronic mailing list for members and volunteers. The membership chair sends out weekly updates by email to almost 200 people. This keeps folks up-to-date in between newsletters.

- Expanded website. The www.tallgrass.org website was expanded to include current Refuge information, volunteer opportunities, and educational and scientific information.
- Supported Events. The Friends contributed over \$2,500 and hundreds of volunteer hours to events such as Buffalo Day and Wings and Wild Oats. This money provided for speakers, music, and food.
- Received NFWF Grant. The Friends received a National Fish and Wildlife Foundation Grant to develop interpretive signs for the Tallgrass Trail.
- Continued Stewardship Saturday. The Friends support the Refuge every second Saturday of each month by volunteering a day for land stewardship. They have “adopted” a section of the Refuge by the Tallgrass Trail where they are removing trees from a degraded savanna.
- Supported Four Internships. Money was provided to support four biology interns for nine weeks each.
- Implemented a bookstore discount program for Friends, staff, and volunteers. To encourage Friends’ members, volunteers, and staff to use the bookstore, a 5% discount was offered to the staff and volunteers and a 10% discount was offered to the members.
- Total assets for 2000 is \$97,055, including \$31,988 in bookstore inventory.

Refuge Hunt Seasons 1999 - 2000

*Note: All hunting on the Refuge
ends January 10, 2000*

Game	Dates
Upland Game Birds	
Cock Pheasant	Oct 30 - Jan 10
Bobwhite Quail	Oct 30 - Jan 10
Whitetail Deer	
Bow	Oct 1 - Dec 3 Dec 20 - Jan 10
Muzzle Loader	Oct 16 - Oct 24* Dec 20 - Jan 10
Shotgun	Dec 4 - Dec 8 Dec 11 - Dec 19
Small Game	
Squirrel	Sept 1 - Jan 10
Cottontail Rabbit	Sept 1 - Jan 10

** Iowa Residents Only*

Hunter Ethics

- Ethical Hunters respect the rights and property of Refuge tenants, neighbors, and other Refuge users.
- Be alert for trespassing. Watch for boundary and closed area signs, as shown on the map side of this brochure. Please be aware of the litter problem: take back everything you brought with you to the Refuge.

Neal Smith National Wildlife Refuge
P.O. Box 399
Prairie City, Iowa 50228
515/994-3400

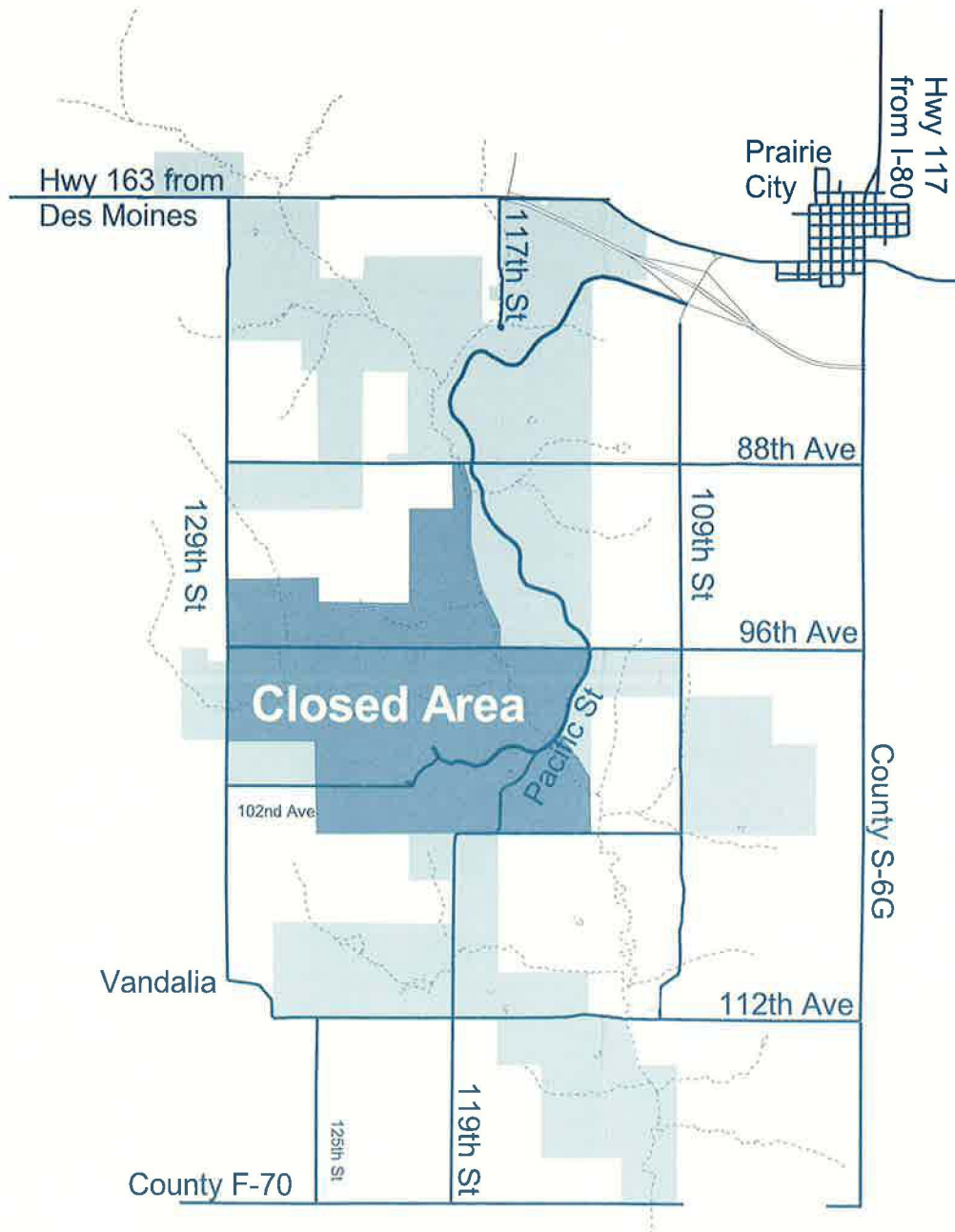
U.S. Fish & Wildlife Service
1 800/344 WILD
<http://www.fws.gov>



U.S. Fish & Wildlife Service

Neal Smith

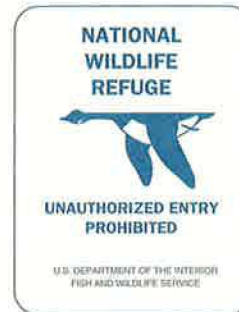
*National Wildlife Refuge
Hunting Regulations
& Map
1999 - 2000*



Refuge Signs



Hunting
Prohibited



Refuge Boundary



Off Limits to
Public Unless
Specified

Hunting Regulations

Please refer to the State of Iowa Hunting Regulations for shooting hours, definition of approved weapons, clothing, bag limits, license requirements and other important information. Contact the Iowa Department of Natural Resources at (515) 281-5145.

Special Refuge Regulations

- Below are regulations specific to hunting on Neal Smith National Wildlife Refuge. These do not include all applicable regulations. Direct additional questions to a Refuge Officer.
- Hunting of species not listed on this brochure is prohibited on the Refuge. Hunting of listed species is permitted only within the dates on this brochure.
- Refuge access is from 1/2 hr before sunrise to 1/2 hr after sunset. See the map and posted signs for areas closed to hunting.
- Do not block roads or field entrances. Do not drive into fields or grassland areas.
- Trapping of fur-bearing animals is prohibited on the Refuge.
- Construction or use of permanent stands or ladders is not permitted. Portable stands may be used but must be removed at the end of each day.
- All persons engaged in gun hunting activities are required to wear an article of solid blaze orange outerwear or a hat. When hunting deer with firearms, refer to State of Iowa Hunting Regulations regarding clothing.
- Report all accidents and injuries to Refuge Headquarters, PO Box 399, Prairie City, IA 50228. Telephone (515) 994-3400.

• Public Education & Recreation

VISITOR SERVICES

Bookstore Sales Associate
Information Desk Attendant
Public Relations Assistant

OUTREACH

Special Events Assistant
Naturalist/Interpreter
Historian
Media Resources Manager
Storyteller
Artist/Photographer
Newsletter Publisher/Writer
VIP Board Member

• Monitoring & Studies

SURVEYS & CENSUSES

Refuge Researcher

STUDIES & INVESTIGATIONS

Refuge Researcher

If you are interested in volunteering at the Neal Smith National Wildlife Refuge and Prairie Learning Center please fill out the following information. When you have completed the information please drop it off, send it in or fax it to us. Thank you.

Name _____

Address _____

City _____ State _____ Zip _____

Home Phone _____

Work Phone _____

Fax _____

E-mail _____

Neal Smith National Wildlife Refuge
Prairie Learning Center
Phone: (515)994-3400
Fax: (515)994-3459
P.O. Box 399
Prairie City, Iowa 50228
www.tailgrass.org

No person shall, on the basis of race, color, sex, age, national origin, religion, physical or mental restrictions, be excluded from participation in any program or activity of the Department of the Interior.



U.S. Department of the Interior
U.S. Fish and Wildlife Service

U.S. Fish & Wildlife Service

Volunteer Opportunities



Neal Smith
National Wildlife Refuge
& Prairie Learning Center

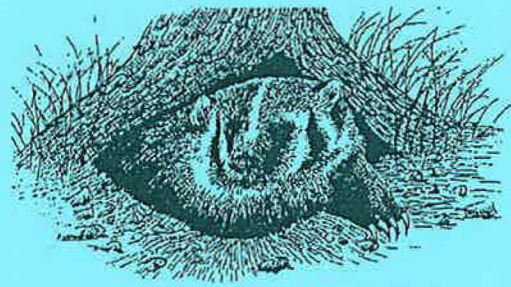
The Volunteer Program

The volunteer program is an active and vital part of the Neal Smith National Wildlife Refuge. Annually, enthusiastic volunteers contribute hundreds of hours on Refuge projects. Our volunteer program recruits people of all talents, who have an enthusiasm for volunteering and an interest in the Refuge's success. Volunteer projects will vary according to the needs of the Refuge, ability and personal interest; yet all have one thing in common—they are vital to our Refuge's success.

The Refuge

The Neal Smith National Wildlife Refuge is the largest tallgrass prairie reconstruction project ever attempted by the U.S. Fish and Wildlife Service. The goal of this significant reconstruction project is to have a functioning tallgrass prairie ecosystem.

In an ecosystem, every part relies on another and the relationships within are constantly changing. As volunteers, you provide support, community connections, and a greater variety of life within the National Wildlife Refuge System. With your help we have a chance to understand this diverse ecosystem. Together, we can bring back part of our heritage that might have been lost to future generations.



♦ Planning & Administration

GENERAL ADMINISTRATION

Friends Board member

Friends Committee member

Receptionist/Clerical Assistant

Administrative Associate

Data Entry Assistant

E-mail Coordinator

Web Site Administrator



♦ Habitat Restoration

UPLAND RESTORATION

Seed Harvest Team Leader

Prairie Seed Collector

Prairie Seed Handler

Greenhouse Caretaker

Seed Data Entry Tech

WETLANDS RESTORATION

Prairie Seed Collector

♦ Habitat Management

PEST PLANT CONTROL

Prairie Steward

GRAZE/MOW/HAY

Utility Person

Groundskeeper

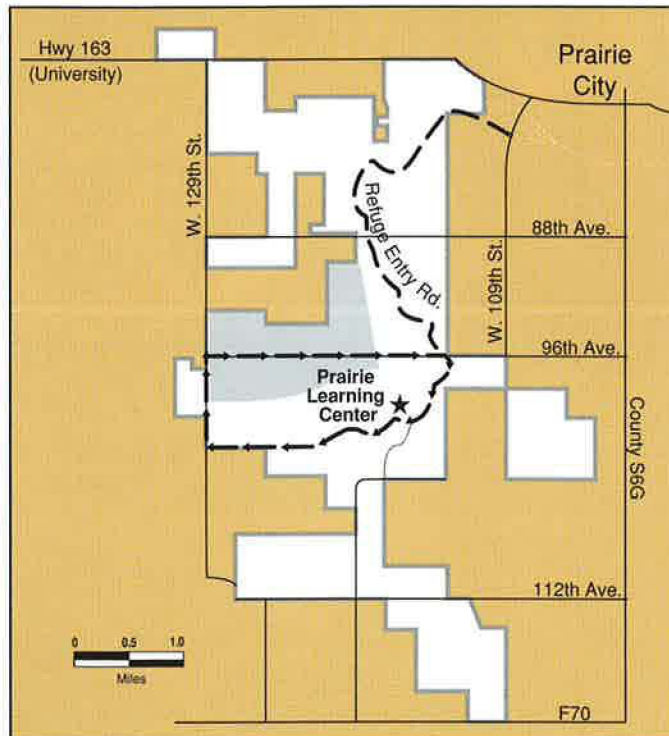
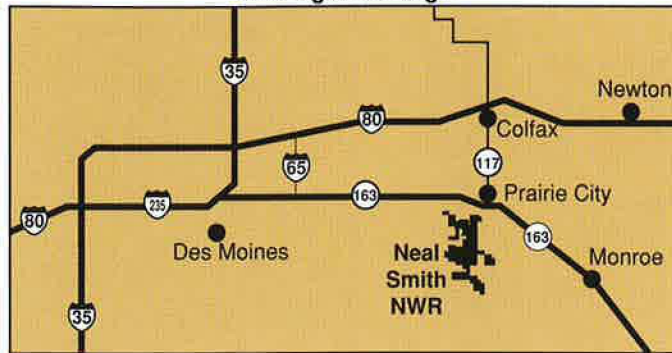
Maintenance Assistant

Adopt-A-Trail

Adopt-A-Prairie Area

Adopt-A-Road

Finding the Refuge



Bison and Elk Enclosure

- Refuge Entry Road
- Refuge Boundary
- Roads
- Bison and Elk Range
- ← Auto Tour Route

Neal Smith National Wildlife Refuge
Prairie Learning Center, Box 399
Prairie City, IA 50228-0399

Phone: 515/994 3400

Web address:
<http://www.fws.gov/r3pao/walnut/>

U.S. Fish & Wildlife Service
1 800/344 WILD



U.S. Fish & Wildlife Service

Neal Smith National Wildlife Refuge

American bison
USFWS photo

Welcome back
to the Tallgrass
Prairie!



Neal Smith National Wildlife Refuge

Over the last 150 years, we have converted the prairies to gravel roads and highways, to towns and cities, to farms and industries. We transformed it to the Midwest we have today. The tallgrass prairie that once covered part or all of 13 states is almost gone.

One hundred fifty years ago, tallgrass prairie covered 85% of Iowa's 36 million acres. *Today, only one-tenth of one percent of that prairie remains!* That's why Neal Smith National Wildlife Refuge exists -- to bring back some of the plants and animals that were the tallgrass prairie.

*Paths of wind,
Patterns of rain*

If you travel across the Rockies from the west on Interstate 80, you climb the tree-rich and well-watered western slopes. As prevailing westerly winds rise up over the mountains, they release most of their moisture in the form of rain. By the time these winds blow down the eastern slopes and spill out onto the Great Plains, they are dry. The plants of these plains are low-moisture plants – prairie grasses and other flowering plants. The Great Plains stretch out to the east in a nearly treeless landscape. This short-grass prairie is typical of the western portion of what is called the “prairie wedge.”

As the winds proceed toward the east across the Plains, they collide with the moisture-rich winds sweeping up from the Gulf of Mexico and rainfall grows more plentiful. As more moisture becomes available, the prairie species gradually change – from mixed-grass species in Nebraska to the tallgrass species of Iowa.

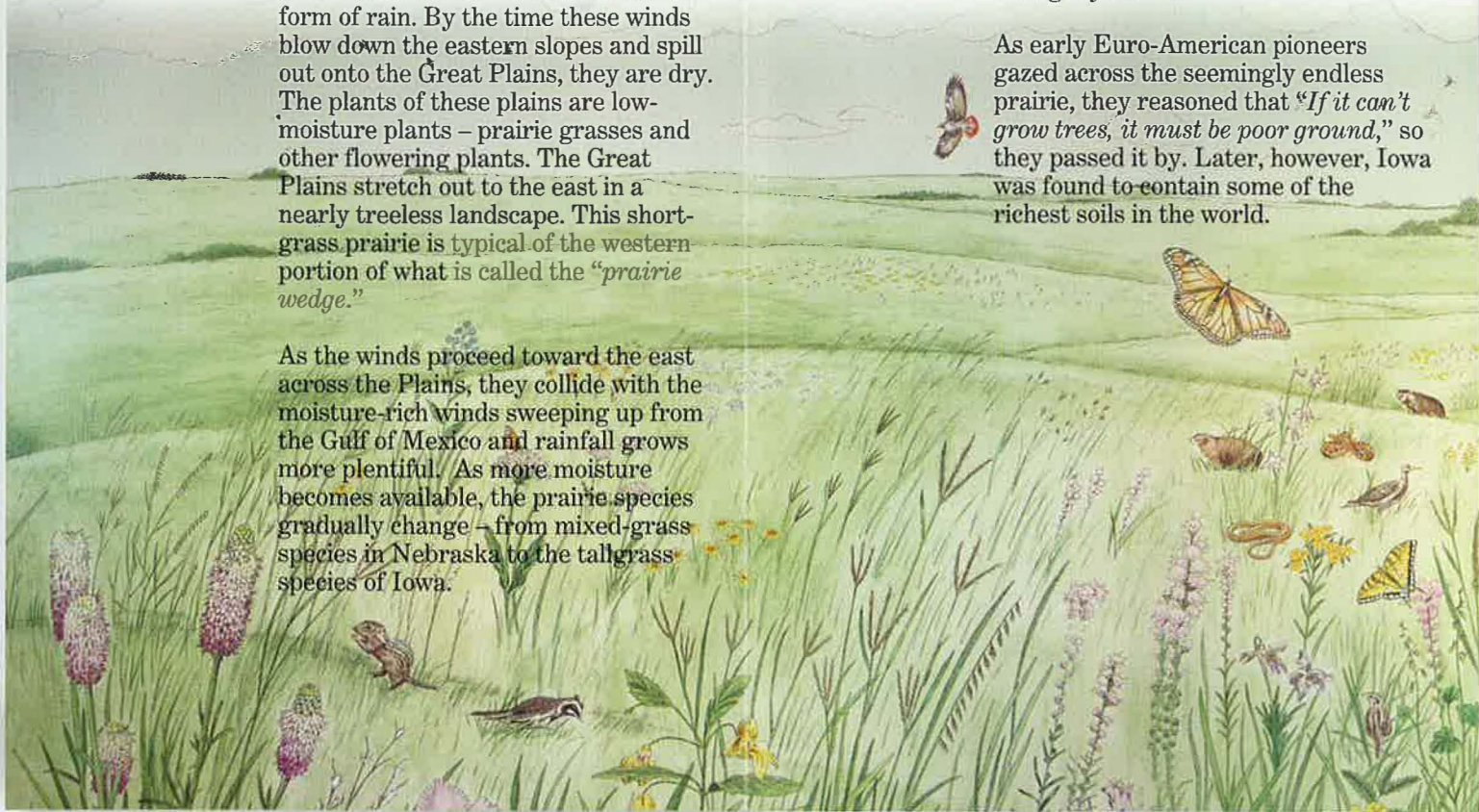
The U.S. Congress authorized the acquisition of 8,600 acres – land purchased from landowners willing to sell. Within those acres, there are several miles of surfaced trails to wander and an auto tour to drive; both provide good opportunities to see bison, elk, deer and other prairie wildlife.

Prairie Learning Center



The Prairie Learning Center is at the heart of it all, teeming with fascinating exhibits for all ages – a place to see prairie research in action and *the* place to begin your visit.

As early Euro-American pioneers gazed across the seemingly endless prairie, they reasoned that “*If it can't grow trees, it must be poor ground,*” so they passed it by. Later, however, Iowa was found to contain some of the richest soils in the world.





Some day it may all look like this. But for now...



Meadowlark
B. Angus, USFWS

The tallgrass prairies provided a diversity of wild life – hundreds of plant species – over 350 species of birds – nearly 100 species of mammals – scores of amphibians and reptiles and fish – and uncounted thousands of insect species.

Often dry and unpredictable? To be sure. Lifeless and dull? Hardly.

Neal Smith National Wildlife Refuge offers a rare peek at this incredible collection of life we call the tallgrass prairie.



Canada Wild Rye
USFWS Photo

Lead plant
USFWS photo



*Adaptation –
the key to
prairie life.*



Coyote
USFWS photo

Take a driving tour through this developing remnant of our history. Search for the bison and elk herds in their native tallgrass habitat. Wander through the myriad of prairie blooms with a new show each week during the growing season. Lend a hand by helping plant prairie seeds in the spring. Take a walk among the open-grown oaks of the oak savanna with the ghosts of thousands of elk.

In the shortgrass prairies, trees were few, restricted almost entirely to the river bottoms. In tallgrass prairies, trees grew also in savannas – those scattered oases of tree groves with prairie plants beneath that dotted the tallgrass landscape. The trees were often oaks, burr oaks especially – trees with thick bark that could withstand the prairie fires. Their spreading branches provided welcome shade to the bison and elk that roamed these lands.

The plants and animals growing and living in prairies are adapted to the hot summers, cold winters and endless cycles of floods and droughts. They also adapted to fires that often swept over them. The plants and animals in the prairie are strong survivors.

Saving the Pieces

“The first law of intelligent tinkering is to save all the pieces.”

Aldo Leopold, 1948



*Prairie chickens
may someday be
a part of the
landscape of Neal
Smith NWR.*

While we won't be able to save all the pieces, Neal Smith NWR is saving as many as possible by:

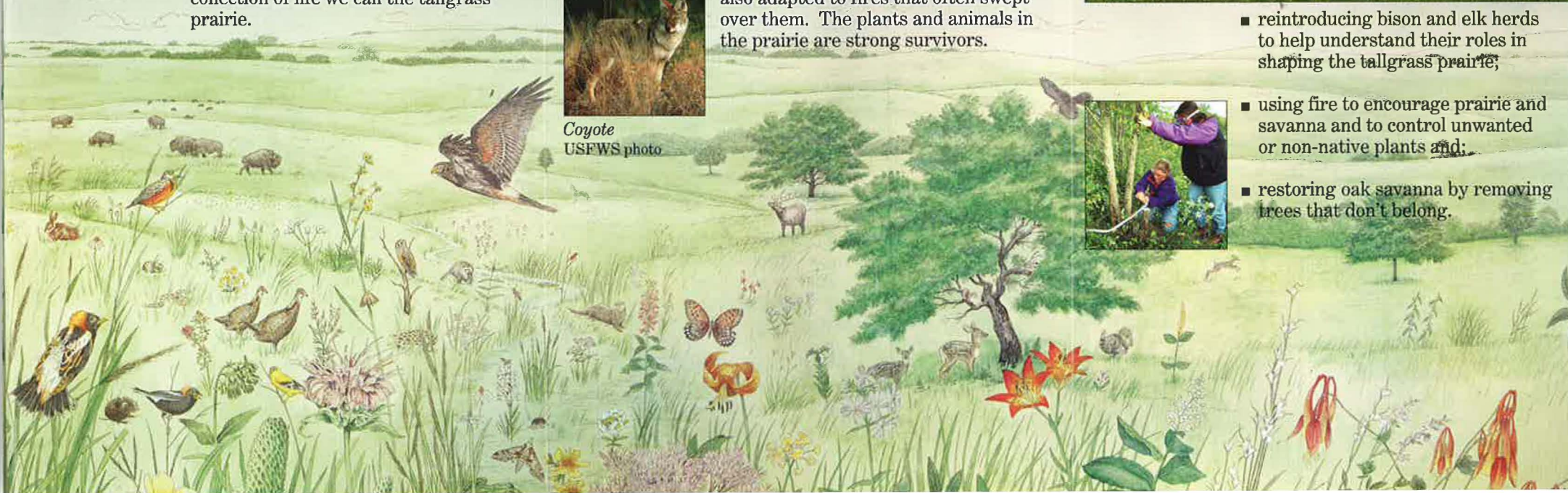
- restoring small prairie remnants that were left, including some savannas;
- reconstructing prairies by planting prairie seeds, many collected by volunteers from tiny remnants in cemeteries, roadsides, and railroad tracks in south-central Iowa;



- reintroducing bison and elk herds to help understand their roles in shaping the tallgrass prairie;

- using fire to encourage prairie and savanna and to control unwanted or non-native plants and;

- restoring oak savanna by removing trees that don't belong.





*Stiff tickseed
(left)*
USFWS photo

Neal Smith NWR is one of the *National Wildlife Refuge System's* 520 refuges which manage more than 93 million acres throughout the United States.

Goals of Neal Smith NWR

- to increase biodiversity by restoring and reconstructing tallgrass prairie and savanna habitats;
- to increase public knowledge and understanding of prairie through environmental education;
- to increase scientific knowledge and understanding of the prairie and savanna through ongoing research; and
- to provide diverse wildlife-related recreational opportunities.

Some day...



*Great Spangled
Fritillary
Butterfly*
Alex Theirman

It is possible that elk, prairie chickens, great spangled fritillary butterflies, northern harriers, upland sandpipers, short-eared owls, glass lizards, sedge wrens, pocket mice, speckled king snakes, and spotted skunks will all once again call Neal Smith NWR home.

For now, we are just beginning. But already Neal Smith NWR may be more than you ever imagined. Then we can all say "Welcome back!"

Refuge Information

- Bison are wild, unpredictable animals. Remain in your vehicle.
- Designated trails are for foot traffic only.
- For additional or specific regulations contact the Refuge.
- Visitor Center hours are Tuesday-Saturday from 9am-4pm and Sunday from noon to 5pm.
- Refuge trails and auto tour route are open daily from sunrise to sunset.



American bison
USFWS photo

The Refuge and the Prairie Learning Center are located south of Highway 163, just 20 miles east of Des Moines and 8 miles south of I-80.

PRAIRIE WIND

VOLUME 7 - NUMBER 2

WWW.TALLGRASS.ORG

SUMMER 2000

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20th Anniversary Results in Gift for Friends

In celebration of their 20th Anniversary, the Iowa Natural Heritage Foundation (INHF) presented the Friends with a \$1,500 gift to produce an interpretive trail brochure for the Savanna Trail. The new brochure will be available to visitors of the Prairie Learning Center later this month.

In receiving this gift on behalf of the Friends, Robin Fortney, Friends Project Manager said, "We thank INHF for a gift that commemorates their 20th anniversary, and supports the mutual efforts of our organizations to restore and protect Iowa's natural areas and to provide educational activities for the public."

The new brochure "The Savanna Trail: Where Ecosystems Collide" is the work of a number of very talented volunteers. Cathy Engstrom, Communications Coordinator for INHF, and Cheryl Cibula, a graphic designer at Meredith Corporation, have worked closely with Robin and Tim Bodeen, the Refuge's Outdoor Recreation Planner, during the past year to develop the brochure.

The Savanna Trail lets Refuge visitors explore three major Iowa ecosystems: prairies, woodlands and savannas. This brochure will enhance their visit with information about plants and animals that can be viewed along the trail.



Be sure to stop by the Prairie Learning Center later this month and pick up your own copy of the Savanna Trail brochure.

*Cathy Engstrom and
Cheryl Cibula*

PRAIRIE WIND

Summer 2000

Volume 7/Number 2

Published by the
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Prairie Learning
Center**

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and
Kristen Goldsmith

Prairie Wind is a newsletter about the activities of the Friends of the Prairie Learning Center/Neal Smith National Wildlife Refuge. To subscribe, send your name and address to Friends of the Prairie Learning Center, P.O. Box 399, Prairie City, Iowa 50228. Visit our website at www.tallgrass.org.

Prairie Wind is printed on recycled paper using soy-based ink.



The Federal Junior Duck Stamp Contest

Each year tens of thousands of budding young artists from all across the United States compete in the Federal Junior Duck Stamp Contest. Each state is judged separately and the Best of Show from each state compete against each other for the national honor of the next year's collectors' item, the Federal Junior Duck Stamp. Proceeds from the sale of the stamps support conservation education scholarships.

The goal of the Junior Duck Stamp Contest is to instill an appreciation for waterfowl and wetland conservation in young people. The entries are judged in groups: kindergarten through third grades, fourth through sixth grades, seventh through ninth grades, and tenth through twelfth grades. The judging occurs at the Neal Smith National Wildlife Refuge Prairie Learning Center.

This year's Iowa Best of Show is awarded to Brian Franson, of Grant, Iowa. He is 14 years old and attends Griswold Community Schools. His

acrylic painting of wood ducks is titled "Break Time."

The Award Ceremony for the Iowa competitors was held at the Neal Smith National Wildlife Refuge Prairie Learning Center on May 6, in conjunction with the annual festival "Wings and Wild Oats". All winning and honorable mention entries were on display in the gallery.

The first place winners are:
Terrill Birth -- North Fayette High School, Brad Thiele -- Sibley-Ocheyedan High School, Matthew Solheim -- North Fayette High School, Amber Hansen -- Spalding Catholic, Alton, Dani Jo Stephenson -- Terril Community School, Victoria Roemia -- Prairie Crest, Cedar Rapids Christina Sorenson -- Terril Community School, Scott Skophammer -- St Paul's Lutheran, Fort Dodge, Austin Fairchild -- Terril Community School, Matthew Vavroch -- Montezuma Community Schools, Chelsie Larabee -- Clarinda High School

Nine Weeks in Heaven and Dirt

Propagation Internship by Holly Griswold

Before I started at the Refuge, I had no idea what goes into the propagation effort. Being the first person to lay hands on this project, it took a great deal of effort and time trying to get everything organized. My job was to gather 29 species of plants, each collected from different collection sites and grow them in the greenhouse. Sounds simple right?

To find the seed I began by searching through five freezers full of seeds. Then I learned that each seed needed to be cared for in a different manner. Legumes needed to be scratched, milkweed needed to be mixed with moist sand and others even needed all of these treatments plus boiling. I performed these procedures trying to copy mother

nature's way of helping seeds germinate. Needless to say, I became very attached to these little seeds that would become my plants.

Then transplanting began, which I know a few Friends were able to experience on stewardship Saturdays. The participating Friends and I worked hard for hours only to realize we had transplanted 200 plants and over 100 remained.

I also had many other different opportunities from attending conferences to watching prescribed prairie burns. Through all of these challenges and experiences I had a great time learning about the prairie, meeting new people and watching my beloved seeds grow.

Know Your Prairie Plants

Now that you have looked for spring flowers, try your hand at these summer favorites.

Blazing star or gayfeather: *Liatris pycnostachya* Michx

This plant can be found in the Friends' Prairie on the Refuge. It was planted in 1993 and started to make itself known in 1998. It is part of the daisy family and prefers moist sites. The plant flowers from July until frost. One of the most beautiful plants in the prairie; it can grow to a height of 5 feet. The perennial rootstock is a rounded corm and this helps it survive drought. The top two-thirds of the plant are rose-purple flowers that have a fuzzy appearance. If planted in the fall it can be damaged by frost heave. The roots are described as having the flavor of carrots. The Meskwaki used the flower heads of the plant and mixed it with shelled corn to prepare horses for races.

Lead Plant: *Amorpha canescens* pursh

A member of the legume family the plant likes dry, sandy soils and is often found in dense colonies and blooms from May to August. It is a shrubby perennial that grows to 3 feet tall. It has numerous compound leaves and the entire plant is hairy which gives it a whitish cast that lends a lead color, hence its common name. This is a deep-rooted plant that draws moisture from the soil below the level of most prairie plants. The flowers, which are purple, grow in a spikelike mass along the upper 2 to 7 inches of the stem. When the prairie was first plowed, the pioneers said that the leadplant sounded like shoestrings snapping. Many native tribes used the dried leaves for smoking and tea. The Omaha called it te-hu-to-hi meaning "buffalo bellow

plant" because it flowers at the time of the bison rut. The presence of lead plant is a sign of a prairie in good condition. Superstition held that it was an indication of the presence of lead ore.

Compass Plant: *Silphium laciniatum* L.

The marker of the prairie, the pioneers used to put strings on these plants to guide the way. The compass plant is a member of the daisy family and blooms July through August. It's thick deep taproot, up to 15 feet long, helps it survive the dry prairie conditions. The plant can get up to 8 feet tall and leaves grow to a length of 1 foot. These leaves orient themselves on the stem in a north-south direction, hence the name. With its leaves on edge it also helps to reduce water loss and has rough hairs to collect moisture. This plant is ready for the Iowa drought! The flowers are yellow and look like a sunflower. It takes 5-7 years to bloom, so be patient. When in bloom, the compass plant forms a gummy material along the upper main stem, that was used by Native Americans and pioneer children alike as chewing gum. The Omaha would not camp near this plant because they believed that lightning was common where it grew. They would burn the root during electrical storms to act as a charm against a lightning strike.



Lead Plant



Compass Plant

Photos by Dan Fenimore

Did you know?

Friends' members receive a discount at the Prairie Point Bookstore!

Friends' members with a current membership card and at least \$25 giving level -- 5% on consignment items and 10% on all other items. No credit card sales.

Refuge Staff -- 5% on all items. If Friends' member, then Friends' discount only applies. No credit card sales.

Prairie Point Staff who are not Friends -- Same discount as Friends if worked more than 30 hours in 1999.

Browsing with Mary -- *An update from Prairie Point Bookstore*

The perfect gift for a favorite child is a book! The children's section in Prairie Point Bookstore is growing week by week, so it's THE place to look for that gift. Here are a few suggestions from the newest titles which have just been added. All of the following are filled with marvelous illustrations.

The Adventures of Old Man Coyote* and *The Adventures of Old Man Toad. \$1.00 each
These wonderful animal tales written over 80 years ago by Thornton Burgess are back in print to be enjoyed by a new generation.

The Butterflies' Promise by Julie Ovenell-Carter. \$5.95
Millie's grandpa loves his garden and his "flying flowers" but a stroke puts him in a nursing home. How can Millie help him now?

A Firefly Named Torchy by Bernard Waber. \$5.95
Torchy's light is so bright that no one will play with him and all the night animals and daytime flowers scream, "Turn out that light!" Then one night an exciting thing happens and Torchy is treated to a wonderful adventure.

The Mushroom Hunt by Simon Frazer. \$14.95
A family outing becomes a great learning experience. If you don't know much about mushrooms, this is the book for you.

Sunflowerhouse, by Eve Bunting. \$6.00
Sunflowers all in a circle make a funflower house! A Castle! A Cage! This is a story about summer fun among the flowers, which also teaches about the life cycle of plants.

Toad by Ruth Brown. \$5.95
Yuuuuuck! Toad is covered with lumps and bumps. He's slimy and gooey. And he's being watched by a very hungry monster!

For exciting, yet informative children's reading, check the offering of titles at Prairie Point. You'll find an interesting selection of Indian legends, nature stories, guidebooks, and activity suggestions for the entire family to enjoy together. And don't forget to check the video, cassette and CD-ROM section. Visit Prairie Point soon, it's the best place to find great books and media for all ages.

Come Grow With Us

The power of a Friends group is its members. We represent a variety of interests, talents and financial support allowing the Friends of the Prairie Learning Center to meet its mission and goals. We encourage you to renew your support or become a new Friend by completing the membership form below. Friends of the Prairie Learning Center is a nonprofit organization and all donations are tax deductible.

\$25 -- Big Bluestem Friend

\$100 -- Savannah Saver

Other -- \$ _____

\$50 -- Buffalo Buddy

\$250 -- Prairie Patron

Please circle one.

New Member

Renewal

Be sure to check and see if your company matches contributions....

Name _____

Address _____

City _____ State _____ Zip _____

Phone _____ Date _____

E-mail _____

Circle your donation level and mail to Friends of The Prairie Learning Center, PO Box 399, Prairie City, Iowa 50228

Callie's Corner

This section is written by Callie Le'au Courtright, Park Ranger/Volunteer Coordinator for the Neal Smith National Wildlife Refuge-Prairie Learning Center. Callie's Corner will be updates from her or a feature article on a volunteer.

It seems like just yesterday that everyone was preparing for Y2K and here we are quickly approaching the summer. Our volunteers have started off the year with quite a bang. As of April 8, 2000, the volunteers have donated almost 2500 hours. Many dedicated volunteers have contributed to this number. Two of these dedicated volunteers are Dave Wharff and Amy Kelp. Wharff and Kelp have been an incredible help to the Refuge staff, especially in the past couple of months. While Park Ranger John Below was at Law Enforcement training and recently during burn season, Wharff and Kelp have served as an incredible support for the Public Use staff.

Amy Kelp, a new addition to our volunteers and to the area, has joined the Public Use staff to provide quality educational programs to thousands of school children. Kelp has completed many hours of training, with the Public Use staff, and is willing to immerse herself in the student's experience. She

recently started giving buffalo programs and hikes. Her enthusiastic attitude has been a wonderful help to the staff. This summer she will be interning with the Friends of the Prairie Learning Center. Congratulations Amy and thank you for all your hard work.

Dave Wharff has been volunteering with the Neal Smith National Wildlife Refuge for three years (over 700 hours). Already this year, he has volunteered over 100 hours with the bookstore and for the Refuge. Wharff joined the Public Use staff as one of our first Environmental Education volunteers. A natural born storyteller, Wharff quickly picked up the idea behind the buffalo program and now has kids jumping through hoops to learn more. His laughter, his giving spirit and his creativity have helped to warm the hearts and open the minds of many visitors and school children. He has been an inspiration and a help. Thank you Dave!

HELP WANTED

-- Prairie Point Bookstore volunteers to work weekends. Contact Mary Jordan Prairie Point Manager directly for more information, at 515-994-3400.

-- Calling all Authors! We need writers for the newsletter. Example articles include human interest stories, articles on staff members, board members and volunteers or articles about the plants of the tallgrass prairie and oak savanna.

Volunteer Calendar

The volunteers at the Neal Smith National Wildlife Refuge-Prairie Learning Center give a large amount of their personal time to aiding our mission. In order to achieve our mission, the Refuge volunteers need to be well trained and recognized appropriately for their efforts.

In order to accomplish this, there are extended training opportunities beyond the general volunteer orientation that current volunteers are encouraged to attend (current volunteers must have volunteered within the last 12 months). These trainings (*) are listed within the calendar below and will educate volunteers as they help us to safely achieve our goals.

The following is a schedule of volunteering opportunities, orientations and classes.

Anyone may attend Stewardship Saturday hosted by the Friends of the Prairie Learning Center.

Please call Callie at (515)994-3400 if you would like to join our volunteer program, register for orientations, classes or training. All dates and times are subject to change or cancellation, please call to verify and receive current information.

June 3, 17, 24 or July 7, 14, 20-EE Volunteer Training

9:00 a.m.-3:30 p.m.

Be part of the first ever class of Environmental Educators. Training will include identification of plants, birds, mammals and insects. Volunteers will learn teaching and learning styles as part of their training. Bring a sack lunch. (Must also enroll in a Project Bluestem training within the year) Registration deadline: May 26

Seeking Volunteers for the VIP Board

VIP... Volunteers are Important People. Running a volunteer program takes a lot of time. Each volunteer deserves to be informed on Refuge issues and recognized for his/her efforts to help achieve the Refuge goals.

The VIP Board will aid the Friends of the Prairie Learning Center Volunteer Coordinator and the Refuge Volunteer Coordinator. There will be five positions available: Volunteer Contact-writing and calling; Volunteer Recruitment—public relations, media, ads, etc.; Volunteer Recognition—calculating hours, data input, reports and awards; and Volunteer Spirit-support Recognition chair, provide creative programming and outings for volunteers.

These five chairs will be in direct contact with the Refuge Volunteer Coordinator. This is an excellent opportunity for anyone who would like to take on an extra leadership role. Responsibilities and hours vary with each position. For more information, call Callie at (515)994-3400.

Volunteer Calendar

*June 8-Prairie Plant Walk

9:00-11:00a.m.

Learn some basic prairie plants and adaptations to the prairie. Registration deadline: May 26

June 10-Buffer Day

9:00a.m.-4:00p.m.

Volunteers are needed to assist with game and food booths, setup/take down, along with many other activities. Sign up by May 26.

June 10-Stewardship Saturday

9:00a.m.-12:00p.m.

Join the Friends of the Prairie Learning Center for a fun-filled morning working on the Friends' Prairie. Activities may include collecting prairie seeds, planting prairie plants, cutting brush and cleaning seeds.

*June 15-Birds and Bison

6:30-9:00a.m.

Early morning learn-to-bird program including 2-mile hike. Buffalo program following coffee and donuts. Registration deadline: June 8

*June 22-What's "Bug"ing You?

10:00a.m.-noon

All bugs are insects but all insects aren't bugs. Learn some names of common prairie insects, learn to make insect crafts, take a swing at insect catching and test your insect knowledge. Registration deadline: June 15

June 28-Volunteer Meet & Eat

11:30a.m.-12:30p.m.

Join staff and volunteers for a prairie potluck. If you have already gone to an Orientation, this is a great chance to refresh your Refuge memory and renew friendships. Sign up by June 21.

July 8-Stewardship Saturday

9:00a.m.-12:00p.m.

Join the Friends of the Prairie Learning Center for a fun-filled morning working on the Friends' Prairie. Activities may include collecting prairie seeds, planting prairie plants, cutting brush and cleaning seeds.

July 11-Volunteer General Orientation

9:00a.m.-2:00p.m.

Join new & old volunteers for an introduction to the National Wildlife Refuge System. Go on a behind-the-scenes Refuge tour. Play Refuge Jeopardy to test your knowledge. Coffee & donuts provided. Bring a sack lunch. Registration deadline: July 5

July 12 or 15-Project Bluestem

9:00a.m.-4:00p.m.

All volunteers are welcome to join teachers and our staff to learn about our prairie curriculum. Environmental Education volunteers are required to take this course. Cost is \$25 and includes a copy of the curriculum and lunch. Registration deadline: July 3

August 8-Volunteer Meet & Eat

11:30a.m.-12:30p.m.

Join staff and volunteers for a prairie potluck. A chance to refresh your Refuge memory and renew friendships. Sign up by August 1.

August 12-Stewardship Saturday

9:00a.m.-12:00p.m.

Join the Friends of the Prairie Learning Center for a fun-filled morning working on the Friends' Prairie. Activities may include collecting prairie seeds, planting prairie plants, cutting brush and cleaning seeds.

Other Upcoming Refuge Activities - Open to the Public

July 8-Millennium on the Prairie

1000 years ago Iowa was covered with prairie. View Iowa the way it was at the millennium of 1000 AD and 2000 AD. 12 Noon - 2:00 p.m. events.

Sept 9-Iowa Prairie Celebration

Visit the nation's largest tallgrass prairie reconstruction during Iowa Prairie Week and be reminded of the sweeping grasslands of the Native Americans and early pioneers. Speakers and activities will be held on Sept 9th. 12 Noon - 2:00 p.m. events.

The Manager's Corner

I recently attended the Fish and Wildlife Service's "Region 3 Annual Project Leaders' Meeting" in Minneapolis (sounds a bit stuffy, doesn't it?) and had the pleasure of listening to "Rachel Carson." Of course it wasn't the Rachel Carson. She died of cancer in 1964 at the age of 56. A wonderful thespian portrayed her, circa 1962, after her book, *Silent Spring*, had been published.

It gave me pause to think of the sacrifice this person made for the future of our natural heritage, for surely the ridicule and controversy that Ms. Carson sustained from her writing of *Silent Spring* did nothing to aid her in her fight for her own life.

For those of you who have not read *Silent Spring*, it describes the dangers of pesticides such as DDT (dichloro diphenyl trichloro ethane) and other chlorinated hydrocarbons to our environment. DDT is toxic at high levels, but at lower levels interferes with calcium deposition in eggshells, causing them to be thin and fragile.

Eggs cannot withstand the weight of the parents sitting on them in the nest. Our own national symbol, the bald eagle, almost went extinct because of this. Eggs were being crushed; young were not fledged; no new birds were being added to the population. Think of it this way: if you and I were hatched from eggs, few individuals would have survived birth after 1965. For many of you, that would mean that your children and grandchildren wouldn't exist. It's a good thing we aren't hatched! However, humans do not go unscathed. Not only would our world be SILENT (no more meadow larks singing in the spring) — our spirits therefore diminished — but DDT, which also accumulates in human tissues, would lead to cancer and genetic damage.

Ms. Carson was a scientist by education and a writer by nature. The United States Fish and Wildlife Service (or Service) was fortunate to call her one of its own from 1939 to 1952.

She worked as a scientist-writer for what was then referred to as the Bureau of Fisheries in Washington, D. C.. One of my favorite essays of hers was a piece she had written about the Refuge System's boundary sign: "If you travel much in the wilder sections of our country, sooner or later you are likely to meet the sign of the flying goose — the emblem of the national Wildlife Refuges. You may meet it by the side of a road crossing miles of flat prairie in the Middle west, or in the hot deserts of the southwest. You may meet it by some mountain lake, or as you push your boat through the winding salty creeks of a coastal marsh. Wherever you meet this sign, respect it. It means that the land behind the sign has been dedicated by the American people to preserving, for themselves and their children, as much of our native wildlife as can be retained along with our modern civilization. Wild creatures, like men, must have a place to live. As civilization creates cities, builds highways,

and drains marshes, it takes away, little by little, the land that is suitable for wildlife. And as their space for living dwindles, the wildlife populations themselves decline. Refuges resist this trend by saving some areas from encroachment, and preserving in them, or restoring where necessary, the conditions wild things need in order to live."

Which brings me back to why I was telling you about Rachel in the first place. For those of us

who work for the Service, we hold a special place of honor for her as a fellow employee and I wanted to share that with you. She accomplished great things for the Service as a biologist and a writer, and she also helped to make our planet a little safer and our eagles fly a little longer. P. S. Thanks to Rachel Carson, an investigation into DDT was begun and, in 1974, the use of DDT was banned in the United States.



Buffalo Day!!!

On Saturday, June 10, 2000, the Neal Smith National Wildlife Refuge will celebrate its third annual Buffalo Day. Activities will be from 10:00 a.m. until 3:00 p.m. at the Prairie Learning Center. This event honors the large animals that once roamed our prairies. Bring friends and family to view our herd of over 52 buffalo and 10 elk.

Arts and crafts, flint knapping, pottery making, wildlife walks, and presentations on buffalo are activities that will last the entire day. Keith Bear, from the Mandan/ Hidatsa tribe in North Dakota, will take you back to peaceful days with his Native American flute music and Louis Larose, from the Winnebago tribe in Nebraska, will present information on the buffalo's importance to Native Americans. Buffalo burgers and hotdogs will be available for lunch. A buffalo chip throwing contest will complete the day's activities.

For more information see the website www.tallgrass.org or call the Neal Smith National Wildlife Refuge at (515) 994-3400. The Refuge is located just south of Prairie City half way between Des Moines and Pella. To reach the Refuge and the Prairie Learning Center, take exit 18 off of Highway 163 and follow the Refuge signs.

A Message from the Friends President

Friends Mission

Increase public awareness and appreciation of the Refuge

Encourage public participation in prairie restoration and preservation

Promote public use and enjoyment of the Refuge

It is a wonderful time of year on the prairie! The grass is growing and flowers are in

bloom. Young buffalo calves are exploring the world and new generations of their smaller friends are learning about life on the prairie. Make sure you visit the refuge and enjoy the season of growth.

Many people help the prairie each year by participating in the reconstruction efforts. I really enjoy working on the ground and getting dirt under my fingernails. By doing these kinds of activities we can feel we are having a direct impact on improving the biological future of the prairie. I commend everyone for your efforts!

There is another aspect of supporting the refuge that is not as direct but just as important. Many tasks take place behind the scenes and are always in need of additional help. Friends have two important areas that need ongoing support now. The first is

weekend staffing of Prairie Point Bookstore. We have a great group of weekday volunteers who do an excellent job. The continuing challenge is for workers on the weekend, often the busiest time of the week. Please spend a few hours on a weekend to help keep the bookstore open. Call Mary Jordan, Prairie Point Manager, at the refuge for more information or to volunteer (515) 994-3400.

The second place Friends need your support is on our board of directors. We currently do not have someone to handle the financial responsibilities of the organization. This primarily involves paying bills and working with the budget. You do not need to be a financial wizard to help as we retain an accountant for the annual reporting responsibilities. If you are willing to learn our system and want to support the organization, you are qualified. The board meets the fourth Tuesday of every month from 6:00 to 8:00 PM at the refuge. If you are interested in serving as Treasurer or in any other capacity, please contact me at work: (515) 787-5705 or home: (515) 792-7805. Thank you!

Friends of



the Prairie Learning Center

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PRAIRIE WIND

VOLUME 7 - NUMBER 3

WWW.TALLGRASS.ORG

FALL 2000

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Seed Collecting at Engeldinger Marsh

By Jonathan Yentis

On July 8, 2000, the Friends of the Prairie Learning Center collected sedge seeds at Engeldinger Marsh. The plan was to meet at the Prairie Learning Center (PLC) and then go to the marsh for seed collecting and return to the Refuge to plant the seed immediately. It saved me fifty miles of driving by going directly to the marsh, and I arrived early

I arrived at Engeldinger Marsh before 9:00 a.m., earlier than the rest of the collectors from the PLC, but at the time some of the County Conservation people were starting. By 11:00 I was too hot to continue and headed back to the Refuge.

I had offered to set up a small test to see what the actual seed count and weight would be on a dry basis. Pauline thought this would be a good indicator even though it was seed from only one collector. I weighed everything and then passed all of the material through a #5 screen, and then did a second pass through the #5 screen after removing the remaining seed from the stems. I then weighed both the stems and the freshly harvested seedmass. I then pulled a random 10 grams of seed for drying, cleaning and weighing.

When the rest of the seed collectors (I believe there were seven of us) arrived back at the PLC, we pooled everything for weighing and then proceeded to plant the newly harvested seeds – that is everything but my sample and the sticks and stems from my collecting.

The sedge seeds were scattered in the wet “marshy” area about 200 feet from the building and parking area. The area is on both sides of the entry road at the lowest point just as you come up to the building. There were already some sedges present, but in the next few years this should become

“sedge heaven.”

After the planting, (I figure we put in about 14 man hours collecting, and FIVE MINUTES planting) Pauline offered her usual ‘walking-talking-ask-and-answer’ session. Did you know that compass plants tend to bloom all together across the state – but not every year?

Thus another super-good Friends workday.

Thanks to Phyllis for the super-abundant supply of cookies.

July 21, 2000 The seeds (my 10 gram retained sample) are now dry. I passed them through a #16 screen, or rather I rubbed them through the screen using a four inch length of “plastic” hose. Then I screened them through a #18 screen, over a #30, and finally blew away the chaff. After a little calculating, and adjusting for windage and the full moon and high tide, I come up with an estimate of a yield of about 21.7% seed based on the dry seed to wet harvested mass of material. Another quick calculation after weighing 100 seeds – there are about 980,000 seeds per pound. We “planted” something in excess of 180,000 seeds.

If all of this screening information seems like Greek, then come and join the seed collectors, and or seed cleaners. We have screening material available, and will give you different mesh sizes so that you can make a set of hand screens that are of professional quality.

PRAIRIE WIND

Fall 2000

Volume 7/Number 3

Published by the
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Penny Thomsen
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Prairie Wind is a newsletter about the activities of the Friends of the Prairie Learning Center/Neal Smith National Wildlife Refuge. To subscribe, send your name and address to Friends of the Prairie Learning Center, P.O. Box 399, Prairie City, Iowa 50228. Visit our website at www.tallgrass.org.

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SEED CLEANING AT THE NEAL SMITH NATIONAL WILDLIFE REGUGE

by Jonathan Yentis

Seed cleaning is not for everyone. Seed cleaners and seed collectors can have very different kinds of personalities, and athletic desires.

Let me explain.

Seed Collectors out on the prairie know they will be collecting spring and early summer seeds, and late summer and fall seeds. It means they willingly will endure the cold wet mornings of early spring and late fall, and intolerable heat, humidity, and insects of mid-summer. Flies, spiders, ants in the pants and ticks in the head are considered a normal part of the operation. You gotta be nuts to go out in conditions like that! And you get to take pictures of plants and animals and enjoy the prairie while never seeing the flowers that produce the seed you pick. Luckily, you are out there with others of the same mentality. Sound like fun? It is!

Seed Cleaners on the other hand have to endure other demons. The cleaners of the seed are inundated with hundreds or thousands of bags of seed and a time limit. Cleaning must be done now based on seed viability, stratification needs, or scarification requirements. Then there is the issue of, "do I do the easy ones first, or maybe the valuable ones first?"

Seed cleaning is going to be exacting, sometimes boring, sometimes painful (*Stipa and Echinacea*) and always behind in schedule. Seed cleaners get to breathe both plant and insect dust, experimenting to see which gives the worst allergies.

Then there is the issue of methodology for cleaning seeds and documenting that methodology. It's nice to start with a shopping bag of mysterious contents (brown paper only please, it allows the

moisture to escape). The bag is full of seedpods, leaves, twigs, spiders, a piece of leftover beef jerky and one green M&M, along with the seed tag (I know already who collected this sample).

Then comes the breaking of pods, removal of sticks, stems and leaves. Followed by preliminary sifting to remove the coarse junk and chaff and non-seed plant organic material. This calls for decisions; more sifting or perhaps a trip through the Dakota Cleaner. Then it's done! Sitting there is the most beautiful 1/3-cup of golden brown seeds, a grand total of 42 grams (1^o ounces).

So, you finish up the work, documenting everything on the seed tag, put the seed in an airtight container, attach the tag and put the seeds in a "finished" box so they can be entered into the computer system and stored properly. Don't forget to clean up the lab mess.

And did I say that you know the seed is valued at \$960 per pound. But no one in the world has any for sale, anywhere. What you have is unique to both the prairie and the world.

Come and join the seed cleaners, or the seed collectors. Or better yet, join in on both adventures! Do we have a job for you! Remember we start collecting and cleaning in June, and we never catch up by next June.

Call Callie at 319-994-3400 to volunteer your services as a seed collector or cleaner. You'll be glad you did.

Know Your Prairie Plants

by Penny Thomsen

Fall is the height of the prairie blooming season not to mention the height of the prairie grasses. Here are a few you will see.

Downy Gentian: *Gentiana puberulenta*

This plant is found in mesic to dry upland prairies and open savannas. It is one of the last to make an appearance on the prairie and often survives a hard frost. It has an unbranched stem that is less than 20" tall with opposite leaves. The flowers are in a cluster at the top of the plant and are a deep blue in color. The cup-shaped flower is often marked with white and pale green lines within, and has 5 pointed spreading lobes with alternating small fringed segments.



Downy Gentian

Bottle Gentian: *Gentiana andrewsii*

This is another of the gentians that we wanted to show for a comparison of appearance and characteristics. The bottle gentian is found in wetter areas

It too can survive past frost. What makes this gentian different are the flowers, which are barrel-shaped and remain closed. The bright blue to light blue flowers are joined by a whitish membrane. This gives the appearance of a flower that is about to open but never does. Most are self-fertilized due to the closed blossoms and only the most persistent bees can force their way in. The Meskwaki and the Potawatomi used this plant to treat snakebite.

Big Bluestem: *Andropogon gerardi*

King of the native grasses this is often the predominant species, which once covered thousands of square miles throughout the Midwest. Like most native grasses, this plant grows in clumps, which continue to grow from April through summer. Big blue spreads by seeds and rhizomes. The root system is well anchored in the soil to depths of 12 feet. Plant stems grow to a height of 8 feet with nodes of a bluish cast, thus the name. Unlike most grasses the stems are solid not hollow. The seed head divides into three branches giving it the nickname of turkey foot. The Chippewa used this grass as medicine for indigestion and stomach pains. Legend has it that Ponka-sa who, after learning how to knit, lost her needles and made a set from the stem of big bluestem. Thanks to big blue Iowa has some of the best corn land around.



Bottle Gentian

Photos by Dan Fenimore

Did you know?

Friends' members receive a discount at the Prairie Point Bookstore!

Friends' members with a current membership card and at least \$25 giving level -- 5% on consignment items and 10% on all other items. No credit card sales.

Refuge Staff -- 5% on all items. If Friends' member, then Friends' discount only applies. No credit card sales.

Prairie Point Staff who are not Friends -- Same discount as Friends if worked more than 30 hours in 1999.

Browsing with Mary -- An update from Prairie Point Bookstore

The name of the bookstore Prairie Point Bookstore indicates that, yes indeed, we offer an outstanding array of books about all phases of prairie restoration and life. I thought it would be interesting to see just what books we have that have the word "prairie" in the title.

First, there are those titles dealing with the technical aspects of restoration like *Introduction to Prairie Restoration*; *Prairie Restoration*; *Restoring the Tallgrass Prairie*; *The Tallgrass Prairie Restoration Handbook*; *Prairies, Forests and Wetlands*, and *Restoring Prairie Wetlands*.

Among the titles which have proven most helpful to those who are interested in starting their own prairies, no matter how small, are: *Iowa Prairies* from ISU Extension, *Prairie Primer* developed through UNI and *Prairie Propagation* from the Wehr Nature Center in Wisconsin.

To help with the identification and care of prairie plants, we offer *An Introduction to Iowa Prairie Plants* by

Christianson, *Prairie Seedlings Illustrated* by Jackson, *Tallgrass Prairie Wildflowers* by Ladd, *Wildflowers of the Tallgrass Prairie* by Runkel and *The Prairie Garden*. For more specialized reading, we have *Medicinal Wild Plants of the Prairie*.

Books written to explain the history and culture of prairie, often beautifully illustrated include: *Prairie Time*, one of our newest books, *Tallgrass Prairie* by Madsen and *Recovering the Prairie* which contains a chapter written by Pauline Drobney, the refuge biologist.

Teachers will appreciate *Exploring Prairie Wildlife*, a very interesting curriculum, while young readers will find *One Day on the Prairie* full of fascinating facts. Rounding out our "prairie" titles are *The Prairie*, the American novel by Cooper and Doug Bauer's, *Three Seasons at Home in Prairie City, Iowa*.

Prairie Point Bookstore is THE place for prairie resources including many more that don't mention the word "prairie" in their titles.

Come Grow With Us

The power of a Friends group is its members. We represent a variety of interests, talents and financial support allowing the Friends of the Prairie Learning Center to meet its mission and goals. We encourage you to renew your support or become a new Friend by completing the membership form below. Friends of the Prairie Learning Center is a nonprofit organization and all donations are tax deductible.

\$25 -- Big Bluestem Friend

\$100 -- Savannah Saver

Other -- \$ _____

\$50 -- Buffalo Buddy

\$250 -- Prairie Patron

Please circle one.

New Member

Renewal

Be sure to check and see if your company matches contributions....

Name _____

Address _____

City _____ State _____ Zip _____

Phone _____ Date _____

E-mail _____

Circle your donation level and mail to Friends of The Prairie Learning Center, PO Box 399, Prairie City, Iowa 50228

Callie's Corner

This section is written by Callie Le'au Courtright, Park Ranger/Volunteer Coordinator for the Neal Smith National Wildlife Refuge-Prairie Learning Center. Callie's Corner will be updates from her or a feature article on a volunteer.

Like the blink of an eye, summer is over. Thank you to all the volunteers who braved the crowds and heat to put in a little work to meet our Refuge's needs.

Busy as bees around here we successfully finished our first-ever Volunteer Environmental Educator's Training in June. Also in June, we held several trainings just for volunteers on prairie plants, insects, birds and bison.

A handful of volunteers showed up for our Volunteer Meet and Eat with Refuge staff. This was a chance for volunteers who have completed an orientation to join the staff for a potluck lunch and catch up on Refuge news. June ended with a bang and reports show that volunteer hours totaled around 1,865 hours, with the bookstore volunteers averaging 17 hours per person.

A huge thank you to all of those dedicated volunteers that slaved away in the hot sun harvesting seeds, clipping, cutting and pulling non-native plants.

Karen Balmer and Lynn Huebler were two of these devoted volunteers. On many occasions, visitors stopped to watch the two of them pull and clip Queen Anne's Lace and Birdsfoot Trefoil from in front of the building. In a few brief moments with those visitors they passed on their enthusiasm and knowledge on prairie reconstruction. The humidity didn't stop them. The day camps didn't stop them. The rain didn't stop them. Nothing held them back. With a smile, a dandelion digger, some clippers and a few plastic tubs they worked. It takes a special couple to handle a task quite this big. It takes a special couple to find pleasure in a hard day's labor pulling weeds. It takes a special couple to have hearts big enough to share their passion and caring for this place and for the prairie with one young Volunteer Coordinator. Thank you Lynn and Karen for all your hard work.

Karen Balmer and Lynn Huebler hauling truckloads of Birdsfoot Trefoil to a compost pile.

HELP WANTED

-- *Prairie Point Bookstore volunteers to work weekends. Contact Mary Jordan, Prairie Point Manager, directly for more information, at 515-994-3400.*

-- *Calling all Authors! We need writers for the newsletter. Example articles include human interest stories, articles on staff members, board members and volunteers or articles about the plants of the tallgrass prairie and oak savanna.*



Web Update

Our web site, tallgrass.org is about two years old now.

Although the number of people viewing the pages has usually increased each month, we are planning to revise many of the pages. We would like your help in determining what our members would like to see on the site.

If you have some ideas or suggestions, please e-mail us at buffalo@tallgrass.org.

The Friends of the Prairie Learning Center website has been spotlighted in the Blue Goose Flyer, a newsletter for the National Wildlife Refuge Association.

Volunteer Calender

The volunteers at the Neal Smith National Wildlife Refuge-Prairie Learning Center give a large amount of their personal time to aiding our mission. In order to achieve our mission the Refuge volunteers need to be well trained and recognized appropriately for their efforts. Anyone may attend Stewardship Saturday hosted by the Friends of the Prairie Learning Center.

Please call Callie at (515)994-3400 if you would like to join our volunteer program, register for orientations, classes or training. All dates and times are subject to change or cancellation, please call to verify and receive current information.

The following is a schedule of volunteering opportunities, orientations and classes.

September 9-Stewardship Saturday 9:00 a.m.-12:00 p.m.

Join the Friends of the Prairie Learning Center for a fun-filled morning working on the Friends' Prairie. Activities may include collecting prairie seeds, planting prairie plants, cutting brush and cleaning seeds.

September 9-Iowa Prairie Celebration 12:00 p.m.-2:00 p.m.

Visit one of the nation's largest tallgrass prairie reconstruction projects during Iowa Prairie Week and be reminded of the sweeping grasslands of the Native Americans and early pioneers. Speakers and activities will be held.
Sign-up deadline: August 24

September 23-Volunteer General Orientation 8:00 a.m.-12:30 p.m.

Join new & old volunteers for an exciting and entertaining introduction to the National Wildlife Refuge System. Go on a behind-the-scenes Refuge tour. Play Refuge Jeopardy to test your knowledge. Coffee & donuts provided.
Sign-up deadline: September 5

October 14-Stewardship Saturday 9:00 a.m.-12:00 p.m.

Join the Friends of the Prairie Learning Center for a fun-filled morning working on the Friends' Prairie. Activi-

ties may include collecting prairie seeds, planting prairie plants, cutting brush and cleaning seeds.

November 3-Project Bluestem 9:00 a.m.-4:00 p.m.

Project Bluestem is a series of activities for educator to help their students experience prairies and savannas. The Friends of the Prairie Learning Center sponsor Project Bluestem workshops. The day-long workshop includes a tour of the Refuge and Prairie Learning Center, an interactive introduction to Project Bluestem and a stewardship project to give hands-on experience restoring the prairie and savanna. Cost is \$25 which includes lunch and the 250 page Project Bluestem curricula. Volunteer Environmental Educators must take this as part of their training.

Sign-up deadline: October 26

November 4-Volunteer General Orientation 9:00 a.m.-2:00 p.m.

Join new & old volunteers for an exciting and entertaining introduction to the National Wildlife Refuge System. Go on a behind-the-scenes Refuge tour. Play Refuge Jeopardy to test your knowledge. Coffee & donuts provided.

Registration deadline: October 27

Regal Fritillary Update

The regal fritillary butterfly was sighted in the Savanna Trail parking lot by Pauline. This is the first time these rare butterflies has been seen at the refuge. The following article contains information about the research being conducted at the refuge:

Restoring a Prairie to Attract a Rare Butterfly - May 11, 2000 By Susan Thompson

There are more than 100 species of butterflies in Iowa. One of the rarest is the regal fritillary. A new home for this beautiful butterfly is being created at the Neal Smith National Wildlife Refuge in Jasper County.

The regal fritillary is native to Midwestern prairie states. It's found as far east as Pennsylvania, but is even rarer there than in Iowa. It is large, the size of a monarch, with white spots on its orange and black -wings. Look closely and you'll see a purplish tint on the wings. Diane Debinski assistant professor of animal ecology at Iowa State University, is leading this effort to increase Iowa's regal fritillary population.

"I work on butterflies because they are good indicators of ecosystem health, they are easy to survey and they are very diverse," she says. "It's also easy to get people interested in helping on a project like this because most folks cannot help but have fun when you put a butterfly net in their hands."

"For the most part, the regal lives in unplowed prairies with prairie violets. Last fall we put in 20 plots of 99 plants per plot at the refuge," Debinski says. "We are testing effects of bison grazing, burning and no treatment on violet growth and survival."

Debinski and her team of volunteers conducted a visual survey in late April and early May to see how the new plants survived the winter. "These plants

must be counted when the purple flowers can be seen. After that, looking for a 3-inch plant in a sea of prairie forbs and grasses is nearly impossible," she says.

The hope is that pregnant female regals can be released in cages at the refuge this summer. But that may be the most difficult part of the project. "Last year we searched for females hoping to take 10 percent of a population and move it to the refuge. We found just one female regal in the Loess Hills and didn't capture it because of the small population size," she says.

Debinski calls herself a conservation biologist. She studies rare species, patterns of species distribution across the landscape, habitat fragmentation and prairie restoration.

The Neal Smith National Wildlife Refuge is an exciting place to work, according to Debinski. It encompasses more than 6,000 acres, with a goal of 8,600 acres when land acquisition is completed. "It has the potential to become a functioning ecosystem with butterflies, plants, mammals, snakes, birds, earthworms, microbes and more, all native to the prairie," she says. "This project is a chance to put the pieces back together."

Susan Thompson is a communications specialist with the Iowa State University College of Agriculture.

Project Update

On Thursday, July 13, 2000, Dr.

Debinski led a crew to a prairie at the Ringgold Wildlife Area in Southern Iowa. They captured a total of 19 Regals, but based on the observed population size, brought back only two potential mating pairs to Neal Smith NWR and released the others.

These butterflies, along with those captured in the future, will be placed in cages with the violet plots, which are currently closed to the public. It is hoped the females will lay their eggs near the violets, which are the preferred food source of the larvae.

A Message from the Friends President

by Dave Penning

Friends Mission

Increase public awareness and appreciation of the Refuge

Encourage public participation in prairie restoration and preservation

Promote public use and enjoyment of the Refuge

Saturday July 22 was a magical

day. The weather was cool and dry with blue skies. That evening we had our Picnic on the Prairie at the refuge. After a wonderful dinner we learned about new life on the prairie. Young bison and elk have joined the herds. Regal fritillary butterflies have found their way back to our prairie. The spring drought resulted in a very successful burn season and a record year for using this prairie regeneration tool.

For me the highlight of the evening was a walk on the prairie with Pauline, the refuge biologist. She showed us how the reconstruction efforts are progressing and explained ongoing challenges. We enjoyed the purple spires of prairie

blazing star, the subtle beauty of prairie clovers and many other wonderful flowers. Birds and insects serenaded us as we explored. Clumps of big bluestem were beginning to set seed. The compass plants were in full bloom and towered over the landscape, showing off their golden flowers. We even did a little stewardship work and enjoyed each others' antics as sweet clover was uprooted.

For me the compass plants were particularly inspiring, they seemed to be showing the way. Even though there were not many, they stood as harbingers of things to come. They were showing us that the prairie is returning, that it is working. We are successful in our stewardship and the tall grass prairie is returning to Iowa.

Friends of



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PRAIRIE WIND

VOLUME 7 - NUMBER 4

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WINTER 2000

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The Manager's Corner -- Crop Circles ?

By Nancy Gilbertson

Crop circles? Giant gopher mounds? Do you ever wonder what the heck we are doing with the prairie when you visit the refuge?

It sometime looks as though the tractor operator was asleep at the wheel when he or she mowed the fields. The mowing patterns aren't uniform like those found in an agricultural field. Because the outcome of our planting is to have a healthy native prairie, we sometimes "spot" mow only the troublesome areas, whereby saving the well-established areas to do their thing. Spot mowing is a part of a program to control plants such as Canada thistle and sweet clover. It may look like crop circles but it's no mystery and eventually we won't have to do it.

Onto the next mystery – those big brown defoliated areas. This is a product of herbicide application to, again, reduce certain "weedy" non-native plant species. For a variety of reasons – poor soil condition, unusual weather patterns, low viability of seed – certain plantings are not as successful and develop more weeds. The solution may be to apply one or more of these treatments including herbicide application, mowing, and/or burning. In the case of the herbicide applications along the entrance road, we are in the process of replanting these areas.

Number 3: "What are all those flags

doing out there? It looks like a circus!" The flags are a necessary part of a monitoring program. Once the projects are completed, the flags will be removed. We are gathering information on such projects as monitoring the prairie violets that were planted in conjunction with the regal fritillary butterfly reintroduction study; marking tree stumps that need to be treated with an herbicide; locating vegetation transects (we establish transects and monitor the vegetation to measure the condition of our prairie reconstruction efforts); and so on.

Are you wondering about the "gopher tunnel" around the back of the building? We installed some drainage tile along the building and back-filled the ditch. We had been waiting for some rain (remember when we were in a drought?) to compact the soil. Now that it has rained, and the soil is "settled" we will finish packing the soil and contouring the area to match the surrounding site this fall. In this way, we hope to avoid it caving in, causing an unsightly dip.

I can't tell you how many times in my life I have driven by something and wondered, "why are they doing that?" I'll bet that most of the time, if I had stopped and asked they would have gladly explained. If you ever have a question about what's going on, give us a call, write, email, or stop by and ask. We are always glad to unravel yet another mystery of the refuge system!

PRAIRIE WIND

Fall 2000

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Know Your Prairie Plants, *In Winter*

by Penny Thomsen

Winter is approaching and with it will come a change in our view of the prairie. Gone will be the purple of New England Aster and the yellow of Stiff Goldenrod. This will be replaced with the brown twisted shapes of the past seasons' growth.

The lower picture of **Compass Plant** (*Silphium laciniatum L.*) which was featured in the summer issue, now shows a different but very distinct look. The leaves, which grew to a length of one foot are now a curled and smaller version of its summer glory. Yet its leaves cannot be mistaken for any thing but compass plant. Even in its dormant state it is still a flagship of the winter prairie.

This second picture is of **Indian grass**: *Sorghastrum nutans*.

Indian grass shares the prairie with big bluestem, although it likes more mesic sites. It can compete with Big Blue in height, growing as much as eight feet, the stems are stout, erect and unbranched. Scaly rhizomes, which form an extensive root system, are just one way it reproduces. The leaves are less than 2 feet

long and spread at a 45 degree angle from the stem. As the seed matures the tip begins to nod. Indian grass is nutritious forage, which can be used as hay. It also makes a great border for wildflower gardens. Looking at this picture it is hard to imagine that this plant once towered above most of its prairie neighbors.

Get out and discover the winter images that the prairie has to reveal. Hope to see your tracks in the snow along with mine.



Indian Grass



Compass Plant

Intern Update

The following are reports from our summer interns, Jennifer Bovee and Rene Richter.

Butterfly Project - Summer 2000 Jennifer Bovee

My internship at the Neal Smith NWR has been a great learning experience. Before I began, I had no idea what to expect. I was hired to work on the butterfly re-introduction that was being led by Dr. Diane Debinski from Iowa State University. I soon found that there was a lot of preparation to be done before we brought a rare butterfly, the Regal Fritillary (*Speyeria idalia*), to the Refuge.

The Prairie Violet (*Viola pedatifida*) is one of the host plants for the Regal Fritillary larvae. Over the past two years, thousands of violets have been planted on the Refuge in twenty-five plots in five different locations. Each plot is eight meters by ten meters and each contains 99 plants. In the spring when the violets were blooming, they were counted to find out how many had survived. The violet mortality ranged from 50% on the bison plots, to 94% on the burn plots.

The Regal Fritillary usually emerges in July, with the males emerging about two weeks before the females. We have taken four collecting trips to look for Regals this summer, but we only brought butterflies to the Refuge from two of them. We have placed a total of four female butterflies on the prairie, all of which came from Ringgold Prairie in southern Iowa. Once we brought the butterflies to the refuge, they were placed in a mesh cage on top of a violet. We added nectaring flowers and we moved the cage daily in hopes that the female would lay her eggs near more than one violet. We have also seen Regals on the prairie! I have had two sightings of a female and Pauline Drobney, the Refuge biologist, saw a male Regal in the savanna parking lot in June.

As an intern, I also had the opportunity to be involved in many different

learning experiences. I had the opportunity to attend the North American Prairie Conference in Mason City, banded Canada Geese at Union Slough NWR, and I learned about prairie plants from Pauline. I also did a lot of stewardship work around the prairie, especially in the area of weed suppression. I really appreciate the opportunity that I have been given to spend the summer working at the Refuge.

The Canada Thistle Suppression Study Rene Richter

This is the second summer of the Canada Thistle Suppression Study. The first intern, last summer, was Angela Sokolowski. She was able to obtain and gather biological and physiological data on the Canada Thistle. She was also able to decide where the study should be performed; it was on a site south of the Learning Center and a rough estimate of where the thistle populations were the densest.

My internship is a spin-off of Angela's, because my main objective was a little different. I was to find some background data, the perimeter of the plots and to set up how the rest of the experiment was to go. I accomplished the first goal with a lot of help from volunteers and Angela. We went out into the field and measured and used the global positioning system machine or GPS to record the points. We also recorded the area of our cores on two-foot contour topography maps. The second goal is what took the longest, after many weeks of looking for thistles in the tall grass we finally were able to complete a map of all the populations of thistles. This was especially difficult because we would think that we had two separate populations within fairly close proximity of each other, but then later realize that there was a small corridor

of thistles connecting the two. In fact, the area was so heavily infested that one population just about took over our entire map. My final goal, setting up the rest of the project was accomplished with much brain storming and idea refining with the help of Pauline Drobney, Steve Holland and Angela Sokolowski. The project now involves five techniques for extinguishing the thistle, including the control. These techniques involve different timing of mowing, burning and spraying. Monitoring the different techniques invoked different problems, which by the help of Phil Dixon and Tom Jurik, I think we were able to solve. Each treatment will have three study areas and each study area will have two permanent belt transects, ten meters long. One transect will be put in a dense patch and another in a very sparse patch. Percent cover will be used to show variations in thistle density and species diversity.

My aspirations for the future intern include: setting up the transects within the fifteen areas, gaining a percent cover for the area prior to treatment, and bagging treatments. Monitoring will hopefully continue for two to three growing seasons, when there will be enough data to find the best Canada Thistle technique for Neal Smith National Wildlife Refuge.

These internships were funded with proceeds from the Prairie Point Bookstore. Thanks to all the volunteers who work in the store and all of you shoppers!!

Did you know?

Friends' members receive a discount at the Prairie Point Bookstore!

Friends' members with a current membership card and at least \$25 giving level -- 5% on consignment items and 10% on all other items. No credit card sales.

Refuge Staff -- 5% on all items. If Friends' member, then Friends' discount only applies. No credit card sales.

Prairie Point Staff who are not Friends -- Same discount as Friends if worked more than 30 hours in 1999.

Browsing with Mary -- *An update from Prairie Point Bookstore*

With the holidays rapidly approaching, thoughts of gift giving crowd into our minds. With 400 titles from which to choose, Prairie Point is the perfect place to buy a gift of reading for everyone on your list. However, don't forget the vast array of non-book gifts which Prairie Point offers, ranging from just a dime to just under one hundred dollars.

Any hostess would enjoy receiving some of our "Song Shade Coffee" which environmentalists approve; we have both bean and grind in six flavors. Help your friends start the new year right with a colorful 2001 calendar: we have designs featuring wildflowers, wolves, butterflies or herbs. Other unique gifts include pottery by Joel Geske, framed and matted wildflower arrangements by Marilyn McGlothlen and mounted geodes from Mike Blair.

Collectors of all kinds will be pleased with gifts from our store, such as Neal Smith NWR thimbles, bison and eagle figurines in several sizes, buffalo plates and spoons, plus elk spoons. Hand-

carved wooden wildlife miniatures and bird pins by the Wheats and carved wooden bison 3-pieces "puzzles" make attractive gifts for the person who has everything. A great many of these gifts are priced under ten dollars.

Stuffed bears are popular with both young and old, so you can't go wrong with the new "T.R." Bear complete with Teddy Roosevelt eyeglasses, made to help the U.S. Fish and Wildlife Service celebrate its Centennial in 2003.

Don't forget those stocking stuffers: ladybug and butterfly rings, "How Sweet It Is" chocolates, and the newest hit, "Cricket Licket" suckers will make Santa's work so much easier!

This Christmas make it books, videos, cassettes and unforgettable gift items from Prairie Point, that "little bookstore on the prairie".

Come Grow With Us

The power of a Friends group is its members. We represent a variety of interests, talents and financial support allowing the Friends of the Prairie Learning Center to meet its mission and goals. We encourage you to renew your support or become a new Friend by completing the membership form below. Friends of the Prairie Learning Center is a nonprofit organization and all donations are tax deductible.

\$25 -- Big Bluestem Friend

\$100 -- Savannah Saver

Other -- \$ _____

\$50 -- Buffalo Buddy

\$250 -- Prairie Patron

Please circle one.

New Member

Renewal

Be sure to check and see if your company matches contributions....

Name _____

Address _____

City _____ State _____ Zip _____

Phone _____ Date _____

E-mail _____

Circle your donation level and mail to Friends of The Prairie Learning Center, PO Box 399, Prairie City, Iowa 50228

Callie's Corner

This section is written by Callie Le'au Courtright, Park Ranger/Volunteer Coordinator for the Neal Smith National Wildlife Refuge-Prairie Learning Center. Callie's Corner will be updates from her or a feature article on a volunteer.

It's that time of year when we give thanks for all the wonderful things that grace our lives. So many times we let people slip in and out of our lives, never stopping to let them know how much they have meant to us. Volunteers are a constant presence. Many times they try to slip in and slip out unnoticed, quietly changing the future of this place. They put in countless dedicated hours alone working with seed until their hands are numb, waiting for the next visitor to come in, entering data into computers, or simply waiting to observe a bird. Our volunteers are numerous and so are their acts of kindness. We want you to know all the work you do does not go unnoticed. We give thanks for each and everyone of you. Thank you for the limitless hours of volunteer work you put in. We appreciate all that you have done and continue to do.

Since 1994, the Refuge has been blessed with an outstanding volunteer named Jonathan Yentis. His sparkling personality and bubbly sense of humor make him a shoe-in as our Friend's Board Membership Chair and resident chili-maker. Jonathan's regular job, if you find him at work, is for the Tone's Spice Company. Not too many people are as passionate about seeds as Jonathan is. He spends numerous hours collecting and cleaning seed for us, as well as serving on the Botanical Center Board and volunteering as the Food Logistics Chair for the National Association for Interpretation's 2001 National Interpreter's Workshop.

An agronomist by training, he grew up in Virginia and after much moving, growing and learning he ended up in good ol' Iowa. He has two sons, a daughter and a loving wife that he often abandons to volunteer with us. Jonathan has been wonderful for our public relations and could be seen at the Des Moines Downtown Farmer's Market in our buffalo costume this summer. We are so grateful to have someone so dedicated that can enrich our lives and our stomachs as well as work tirelessly to help us achieve our goals. Thank you Jonathan.

HELP WANTED

-- *Prairie Point Bookstore volunteers to work weekends. Contact Mary Jordan, Prairie Point Manager, directly for more information, at 515-994-3400.*

-- *Calling all Authors! We need writers for the newsletter. Example articles include human interest stories, articles on staff members, board members and volunteers or articles about the plants of the tallgrass prairie and oak savanna.*

Volunteer Calender

The volunteers at the Neal Smith National Wildlife Refuge-Prairie Learning Center give a large amount of their personal time to aiding our mission. In order to achieve our mission, the Refuge volunteers need to be well trained and recognized appropriately for their efforts. Anyone may attend Stewardship Saturday hosted by the Friends of the Prairie Learning Center.

Please call Callie at (515)994-3400 if you would like to join our volunteer program, register for orientations, classes or training. All dates and times are subject to change or cancellation, please call to verify and receive current information.

The following is a schedule of volunteering opportunities, orientations and classes.

December 9 and January 13 - Stewardship Saturday

9:00 a.m.- 12:00 p.m.

Join the Friends of the Prairie Learning Center for a fun-filled morning working on the Friends' Prairie. Activities may include collecting prairie seeds, planting prairie plants, cutting brush and cleaning seeds.

November 18-Volunteer General Orientation

8:00 a.m.-12:30 p.m.

Join new & old volunteers for an exciting and entertaining introduction to the National Wildlife Refuge System. Go on a behind-the-scenes Refuge tour. Play Refuge Jeopardy to test your knowledge. Coffee & donuts provided. *Registration deadline: November 14*

December 17-Holiday Meet & Eat 12:00 p.m.-1:00 p.m.

Join staff and volunteers for a prairie potluck. A chance to refresh your Refuge memory and renew friendships.

January 19-Annual Volunteer Recognition Banquet

6:00 p.m.-9:00 p.m.

Join the Friends of the Prairie Learning Center and the Staff of the Neal Smith

National Wildlife Refuge in celebrating the achievements of our volunteers over the past year. Count on a fun evening of dinner, awards and educational entertainment.

Invitations will be sent out. Please RSVP by January 5, 2001.

January 13, 14, 20- EE Volunteer Training

9:00 a.m.-3:30 p.m.

Have you ever wanted to change the world? Enroll in training to become an Environmental Educator. It's your chance to educate the public, help them appreciate and care for our history and our future. Training will include identification of plants, birds, mammals and insects. Volunteers will learn teaching and learning styles as part of their training. Bring a sack lunch. (Must also enroll in a Project Bluestem training within the year)

Registration deadline: December 15, 2000

Bison Gathering

November is a time when the bison at Neal Smith NWR realize that it is better to be seen than to be "herd." Refuge staff interacted with other Fish & Wildlife professionals on November 1, 2000 to gather the buffalo in the tall grass prairie. Employees from the National Bison Range in Montana and Fort Niobrara in Nebraska provided their "cowboy" expertise while Tom Roffe, D.V.M. of the U.S. Geological Survey collected biological data.

The herd size for this gathering was estimated at 53 animals but only 36 animals were captured. Each bison was checked for overall health; a micro-chip was placed under the skin behind each animal's ear which can be read with an electronic scanner and will identify individual animals for future research and reference (in this way we don't have a

need to mark with brands or plastic eartags); blood was drawn to document genetic history and diversity of the herd. These samples will be important in determining the health factors of the herd. Please note that no animals will be sold or removed from the herd this year.

Christy Smith, Senior Refuge Operations Specialist for the refuge coordinated and participated in the bison gathering and is looking forward to the new information the effort has brought. Smith said, "Everything went smoothly. I was anxious to get to know these animals "up-close" so that I would be more familiar with their behavior."

Look for more information and pictures in up-coming editions of the Prairie Wind newsletter.

Friends Prairie Update

September Workday 9-9-2000

Over thirty people came to the workday including a group from Grinnell College, class of middle school kids from West Des Moines and a bunch of individuals from all over. Smaller groups were formed to; hand harvest in the production plots, plant seeds north of the Prairie Learning Center, clip silver plume grass and dock seed heads, tree clearing, gather plants for a labeled identification display and scratch and sniff display of native grasses and forbs and set up a seed cleaning display. What a variety to choose from!

October Workday 10-14-2000

A big BIG thank you to the 26 plus volunteers that came for a really nice day of seed collecting and cleaning. Since it had rained the night before, the group started in the seed lab cleaning seeds. At 10:00 a group went outside to collect prairie seeds for a couple of hours. They collected at least eight different species. Much to Jonathan Yentis' surprise, there were not many wet bags of seed. After drying and labeling the seeds, the total count was 28 pans. Way to go collectors!!!

NEXT WORKDAY Nov 11th.

A Message from the Friends President

by Dave Penning

Friends Mission

Increase public awareness and appreciation of the Refuge

Encourage public participation in prairie restoration and preservation

Promote public use and enjoyment of the Refuge

Over the past three years I have used this column to encourage people to become more involved with Friends and Neal Smith NWR. There are many opportunities available for people to use their talents and develop new ones. It is especially rewarding to watch someone accept a challenge in an unfamiliar area and grow as they learn new skills. Many people have ventured into new areas and their individual accomplishments have contributed tremendously to the success of Friends and the refuge.

I want to thank two groups of volunteers for their contributions, the Prairie Point Bookstore staff and your Friends board members. Mary Jordan's leadership has guided Prairie Point into becoming a wonderful source of information about prairies and restoration. Mary and her husband, Larry, were recognized this year by the Fish and Wildlife Service for over 2500 hours of service. Many other people have contributed to Prairie Point's success and all of you

should be proud of the store and its financial performance. Your efforts are greatly appreciated.

Your Friends board works behind the scenes to support the refuge and our organization. I want to thank two retiring board members for their many hours of work over the years. Penny Thomsen was the founding force for Friends and served as our first President. Her leadership started Prairie Point and has helped this newsletter grow. Phyllis Johnson has developed our intern program and guides the Friends workdays every second Saturday morning. Their wisdom and guidance have made significant contributions to our success. Thank you!

It has been observed that volunteer organizations begin to take on a life of their own. Friends has truly evolved to this point and I am confident that Tom Prall's leadership will guide us into the future. Remember there will always be many opportunities to serve Friends and the refuge. Please continue to help return the tallgrass prairie to Iowa.

Friends of



the Prairie Learning Center

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