For the Love of Grass

A sojourn through the Flint Hill of Kansas and the Sand Hills of Nebraska



By Curtis Sharp, Bob MacLauchlan, Jack Carlson and Wendall Oaks





For the Love of Grass

Four friends and colleagues traversed three states and 2000 miles simply for the love of viewing plants in their native environment. Our principal destinations were the Flint Hill of Kansas and the Sandhills of Nebraska. This is a brief summary of what we saw and where we saw our plant friends.

We assembled in Julesburg, CO about noon on September 9, 2008, and departed shortly thereafter.

Day 1, Observational Stops 1 - Western Kansas

Our destination for the evening was Garden City, KS. Our route took us south on US 385, then east into Kansas on US 34. We made three stops; one just north of St. Francis, one just north of Scott City, KS and our last stop was the Sandsage Bison Range and Wildlife Area, slightly southwest of Garden City KS. All the plants we saw at the three sites are listed below. Although the Sandsage Bison Range and Wildlife Area site was disappointing in that the range was badly infested with a host of invasive plants, it contained multiple species.

Species identified among the three stops included:

Grasses

Andropogon gerardii Vitman Andropogon hallii Hack. Bothriochloa ischaemum (L.) Keng Bothriochloa laguroides (DC.) Herter ssp. Laguroides big bluestem sand bluestem yellow bluestem silver bluestem



Tenpetal blazingstar at Sandsage Bison Range and Wildlife Area

Bouteloua curtipendula (Michx.) Torr. Bouteloua dactyloides (Nutt.) J.T. Columbus Bouteloua gracilis (Willd. ex Kunth) Lag. ex Griffiths Eragrostis trichodes (Nutt.) Alph. Wood Schizachyrium scoparium (Michx.) Nash Sorghastrum nutans (L.) Nash Sporobolus cryptandrus (Torr.) A. Gray Panicum virgatum L.

sideoats grama buffalograss blue grama sand lovegrass little bluestem indiangrass sand dropseed switchgrass



Seed heads of indiangrass and big bluestem, with some switchgrass in background

Legumes, Forbs, Shrubs, and Trees

Artemisia filifolia Torr.

sand sagebrush Desmanthus illinoensis (Michx.) MacMill. ex B.L. Rob. & Fernald

Euphorbia marginata Pursh Grindelia squarrosa (Pursh) Dunal Gutierrezia sarothrae (Pursh) Britton & Rusby Helianthus annuus L. *Liatris aspera* Michx. Mentzelia decapetala (Pursh ex Sims) Urb. & Gilg ex Gilg Rhus trilobata Nutt.

Illinois bundleflower snow-on-the-mountain curlycup gumweed

broom snakeweed common sunflower tall blazing star tenpetal blazingstar skunkbush sumac

We retired for the evening in Garden City, KS

Day 2, Observational Stop 2 - The Belpre Wayside

On the morning of September 10 we proceeded east, had breakfast in Dodge City, and continued towards Hutchinson, KS. Zooming along, near Belpre a most robust native grass prairie was observed on the north side of Route US 50. We stopped and were delighted with what we found. It was not being grazed, and could be a CRP planting. The four horseman, switchgrass, big and little bluestem and indiangrass were the dominate species, with switchgrass the most dominate. Several plants exceeded 7 feet. Plants identified:

<u>Grasses</u>

Andropogon gerardii Vitman Panicum virgatum L. Schizachyrium scoparium (Michx.) Nash Sporobolus airoides (Torr.) Torr. Sorghastrum nutans (L.) Nash big bluestem switchgrass little bluestem alkali sacaton Indiangrass

<u>Forbs</u>

Lotus unifoliolatus (Hook.) Benth. Solanum L.

American bird's-foot trefoil nightshade



Very tall grass, and it is switchgrass

Day 2, Observational stop 3 - Dillon Nature Center

From The Belpre Wayside we proceed to the Dillon Nature Center, just on the northeast edge of Hutchinson, KS. What a gem. We found:

Grasses

Andropogon gerardii Vitman
Bouteloua curtipendula (Michx.) Torr.
Eragrostis trichodes (Nutt.) Alph. Wood
Panicum virgatum L.
Schizachyrium scoparium (Michx.) Nash
Sorghastrum nutans (L.) Nash
Tridens flavus (L.) Hitchc.

big bluestem sideoats grama sand lovegrass switchgrass little bluestem Indiangrass purpletop tridens

tall false foxglove

partridge pea

Legumes, Forbs, Shrubs

Agalinis aspera (Douglas ex Benth.) Britton Chamaecrista fasciculata (Michx.) Greene Cirsium altissimum (L.) Hill Commelina erecta L.

Croptilon hookerianum (Torr. & A. Gray) House var. graniticum (E.B. Sm.) E.B. Sm.

Froelichia floridana (Nutt.) Moq.
Gaillardia aestivalis (Walter) H. Rock var. aestivalis
Helianthus maximiliani Schrad.
Lespedeza capitata Michx.
Oenothera biennis L.
Salvia azurea Michx. ex Lam. var. grandiflora Benth.
Solidago altissima L.
Verbena stricta Vent.

tall thistle
whitemouth dayflower
um (E.B. Sm.) E.B. Sm.
Hooker's scratchdaisy
plains snakecotton
lanceleaf blanketflower
Maximilian sunflower
roundhead lespedeza
common evening primrose
pitcher sage
Canada goldenrod
hoary verbena



There were other species believed to be introduced: *Bothriochloa bladhii* (Retz.) S.T. Blake *Hippuris vulgaris* L

Caucasian bluestem common mare's-tail

Upon leaving Dillon Nature Center one member of our foursome recalled leaving his coat at the Center, so we returned. Of course we will never mention his name.



Day 2, Observation Stop 4 - Tallgrass Prairie National Preserve, School Site

Our arrival in Cottonwoods Falls was near sunset on September 10th. But our zeal drove us to the Tallgrass Prairie National Preserve, mostly acquired by the Nature Conservancy and operated by the National Park Service. Available daylight suggested a short visit instead to the Lower Fox Creek School, which was part of the Preserve. The site for the schoolhouse was donated by Stephen F. Jones, former owner of the ranch which is now part of the Tallgrass Prairie National Preserve. The deed stipulated that the property would revert back to the ranch owner when the place was no longer used as a school. The first school term began on September 1, 1884, and closed in 1930.

Lower Fox Creek School



Visiting the school did not damper our plant identification spirit. In the school yard and surrounding area we observed several plants, and identified those below.

Grass

Bouteloua curtipendula (Michx.) Torr.

sideoats grama

Forbs

Gaura longiflora Spach Helianthus annuus L. Liatris punctata Hook.

common sunflower dotted blazing star pitcher sage

Salvia azurea Michx. ex Lam. var. grandiflora Benth.

Canada goldenrod

longflower beeblossom

Solidago altissima L.

Day 3, Observational Stop 5 - Tallgrass Prairie National Preserve and Surrounding Countryside

In the Flint Hills, we drove south on Highway 177, stopping at a rest stop before the Bazaar turn-off. Then a left turn through the village of Bazaar following the back roads denoted on the maps contained in the Prairie Eyrth book by William Least-Heat Moon, English professor at the University of Missouri. Then past the Kansas Turnpike and around to Matfield Green, then north on 177 past the Knute Rockne crash site through Cottonwood Falls to the Tallgrass Prairie National Preserve.

Plants identified on the route, including the Tallgrass Prairie National Preserve bus tour, are below.

Grasses

Andropogon gerardii Vitman
Bouteloua curtipendula (Michx.) Torr.
Bouteloua gracilis (Willd. ex Kunth) Lag. ex Griffiths
Eragrostis trichodes (Nutt.) Alph. Wood
Panicum virgatum L.
Schizachyrium scoparium (Michx.) Nash
Sorghastrum nutans (L.) Nash
Spartina pectinata Bosc ex Link
Sporobolus heterolepis (A. Gray) A. Gray
Tridens flavus (L.) Hitchc.

big bluestem sideoats grama blue grama sand lovegrass switchgrass little bluestem Indiangrass prairie cordgrass prairie dropseed purpletop tridens

Legumes, Forbs, Shrubs

Amorpha canescens Pursh
Artemisia filifolia Torr.
Helianthus annuus L.
Oenothera macrocarpa Nutt.
Salvia azurea Michx. ex Lam. var. grandiflora Benth.
Solidago altissima L.
Symphoricarpos orbiculatus Moench

leadplant
sand sagebrush
common sunflower
bigfruit evening primrose
pitcher sage
Canada goldenrod
coralberry

The following exotic species were observed. The broomweed infestation was severe.

Amphiachyris dracunculoides (DC.) Nutt. Nepeta cataria L. prairie broomweed catnip





The broomweed is in the foreground of the left picture. Most of the plants in the background of both pictures are indiangrass.

We enjoyed a nice lunch in Cottonwood Falls, and had the good fortune to bump into our lodging proprietor of the following evening. It was fortunate in that he advised us of the items left behind, which we recovered. From there we proceeded north to the Konza Prairie, just south of Manhattan, KS.

Day 3, Observation Site 6 - Konza Prairie Biological Station, Kansas State University

This was a delightful site. The Konza Prairie Long-Term Ecological Research has an education and outreach program about one of the most productive grasslands in North America, the tallgrass prairie. The Konza Prairie program began 1982 with a focus on fire, grazing, and climatic variability as three key drivers that affect ecological pattern and process in grasslands worldwide.

Plants identified included:

Grasses

Andropogon gerardii Vitman
Bouteloua curtipendula (Michx.) Torr.
Bouteloua gracilis (Willd. ex Kunth) Lag. ex Griffiths
Eragrostis trichodes (Nutt.) Alph. Wood
Panicum virgatum L.
Schizachyrium scoparium (Michx.) Nash
Sorghastrum nutans (L.) Nash
Sporobolus heterolepis (A. Gray) A. Gray
Tridens flavus (L.) Hitchc.

big bluestem sideoats grama blue grama sand lovegrass switchgrass little bluestem Indiangrass prairie dropseed purpletop tridens

Legumes, Forbs, Shrubs, Trees

Allium stellatum Fraser ex Ker Gawl.

Ceanothus americanus L.

Eupatorium altissimum L.

Helianthus annuus L.

Helianthus maximiliani Schrad.

Helianthus tuberosus L.

Liatris punctata Hook.

Oenothera macrocarpa Nutt.

Oligoneuron rigidum (L.) Small var. glabratum (E.L. Braun) G.L. Nesom

Quercus macrocarpa Michx.

Rhus trilobata Nutt.

Rhus glabra L.

Salvia azurea Michx. ex Lam. var. grandiflora Benth.

Solidago altissima L.

Stenosiphon linifolius (Nutt. ex James) Heynh

Verbena stricta Vent.

autumn onion
New Jersey tea
tall thoroughwort
common sunflower
Maximilian sunflower
Jerusalem artichoke
dotted blazing star
bigfruit evening primrose

stiff goldenrod bur oak skunkbush sumac smooth sumac pitcher sage

Canada goldenrod false gaura

hoary verbena





Some members of the group were so overcome with the grass they chose to lie down and roll in it, appropriately dubbed Homo sapiens ssp. wallowensis. We all marveled at its beauty.

We retired for the evening in Manhattan.

Day 4, Observational Site 7 - NRCS Manhattan Plant Materials Center

September 12 was the undesignated rain day, which it did. We enjoyed a morning visit at the NRCS Plant Materials Center, reviewing their activities and physical plant. Unfortunately, the downpour kept us out of the fields.

Day 4, Observational Site 8 - Homestead National Monument

By late morning we departed, drove north into Nebraska, then west to Beatrice, Nebraska and the Homestead National Monument. We took in the displays and short movie, then out to circumnavigate the 100 acre restored prairie.

Grasses

Andropogon gerardii Vitman Sorghastrum nutans (L.) Nash Spartina pectinata Bosc ex Link big bluestem Indiangrass prairie cordgrass

Forbs, Trees

Maclura pomifera (Raf.) C.K. Schneid. osage orange

Populus deltoides Bartram ex Marsh. ssp. monilifera (Aiton) Eckenwalder
plains cottonwood

Solidago altissima L. Canada goldenrod

And one dominant introduced grass:

Bromus inermis Leyss.

smooth brome



Daniel and Agnes Freeman were the first homesteaders arriving 1863. The museum is in the background.

Day 5, Observational Site 9 - Willa Cather Memorial Prairie, Red Cloud, NB



Saturday morning, September 13, broke clear in Red Cloud, NB. We were off to the Willa Cather Memorial Prairie 5 miles south of town. This prairie was established in the spring of 2006 in order to "-- restore and conserve the rare native grasses, plant life, and wildlife of its delicate ecology". It had previously been grazed at varying intensities, which were reflected in the vegetation, as shown below.



Both sides of the fence were part of the Memorial Prairie.

Plants observed were similar but not identical to those at the Konza Prairie. The two new species observed are listed first.

Onosmodium bejariense DC. ex A. DC. Astragalus canadensis L.

soft-hair marbleseed Canadian milkvetch

Repeats included:

<u>Grasses</u>

Andropogon gerardii Vitman
Bouteloua curtipendula (Michx.) Torr.
Bouteloua gracilis (Willd. ex Kunth) Lag. ex Griffiths
Eragrostis trichodes (Nutt.) Alph. Wood
Panicum virgatum L.
Schizachyrium scoparium (Michx.) Nash
Sorghastrum nutans (L.) Nash
Sporobolus heterolepis (A. Gray) A. Gray
Tridens flavus (L.) Hitchc.

big bluestem sideoats grama blue grama sand lovegrass switchgrass little bluestem Indiangrass prairie dropseed purpletop tridens



Our undesignated, but immensely effective, leader can be seen in the distance of this lovely site

Legumes, Forbs, Shrubs, Trees

Eupatoriadelphus fistulosus (Barratt) King & H. Rob.

Euphorbia marginata Pursh

Juniperus virginiana L.

Oligoneuron rigidum (L.) Small var. glabratum (E.L. Braun) G.L. Nesom

Rhus typhina L. Salvia azurea Michx. ex Lam. var. grandiflora Benth. Stenosiphon linifolius (Nutt. ex James) Heynh Symphoricarpos albus (L.) S.F. Blake Trumpetweed (Joe-Pye weed) snow on the mountain eastern redcedar S.L. Nesom stiff goldenrod staghorn sumac pitcher sage false gaura common snowberry

Unidentified species included:







...blooming cow pies

...mama and baby blooms

...the whole family

Following a pleasant detour to a Red Cloud book store, we were off to the Sand Hill of Nebraska.

Day 5, Observational Site 10 - Samuel R. McKelvie National Forest

Not far into the Sand Hills we made our first observational site at the Samuel R. McKelvie National Forest. There it was, completely hand planted, competing for our beloved native grass.



While we did not see it, blowout penstemon (*Penstemon haydenii*), the rarest plant species native to the Great Plains, which grows only in the Sandhills, can be found in the forest. Other plants observed at the site include:

Andropogon gerardii Vitman Calamovilfa longifolia (Hook.) Scribn. Eriogonum annuum Nutt. Oenothera biennis L.

Panicum virgatum L. Schizachyrium scoparium (Michx.) Nash Sorghastrum nutans (L.) Nash prairie sandreed annual buckwheat common evening primrose switchgrass little bluestem Indiangrass

big bluestem

Trees used to establish the forest were:

Juniperus virginiana L. Pinus banksiana Lamb. Pinus ponderosa C. Lawson Pinus sylvestris L. eastern redcedar jack pine ponderosa pine Scots pine

The survival of this forest is questionable without on-going human intervention.

Day 5, Observational Site 11 – Valentine National Wildlife Refuge

Leaving the Samuel R. McKelvie National Forest, we traveled north on highway US 83 to the Valentine Wildlife Refuge is south of the city of Valentine, Nebraska. Although it was Saturday, and no employees were on site, it was available for our botanizing. We found a rich flora of:

Grasses

Agrostis stolonifera L.
Andropogon gerardii Vitman
Andropogon hallii Hack.
Bouteloua curtipendula (Michx.) Torr.
Calamovilfa longifolia (Hook.) Scribn.
Eragrostis trichodes (Nutt.) Alph. Wood
Koeleria macrantha (Ledeb.) Schult.
Muhlenbergia pungens Thurb.
Panicum virgatum L.
Paspalum setaceum Michx.
Schizachyrium scoparium (Michx.) Nash
Sorghastrum nutans (L.) Nash
Sporobolus heterolepis (A. Gray) A. Gray

creeping bentgrass big bluestem sand bluestem sideoats grama prairie sandreed sand lovegrass prairie junegrass sandhill muhly switchgrass thin paspalum little bluestem Indiangrass prairie dropseed



Five or six foot bluestem in the Sandhills is impressive

Grass-like, Legume, Forb, Shrub

Amorpha canescens PurshleadplantApocynum cannabinum L.IndianhempArtemisia campestris L.field sagewortArtemisia filifolia Torr.sand sagebrush

Carex L. (three possible species, C. duriscula, C. filifolia, C. inops)

sedge

Cycloloma atriplicifolium (Spreng.) J.M. Coult. Glycyrrhiza lepidota Pursh Ipomopsis longiflora (Torr.) V.E. Grant ssp. longiflora Prunus pumila L. Solidago missouriensis Nutt. Symphoricarpos albus (L.) S.F. Blake Symphyotrichum ericoides (L.) G.L. Nesom

winged pigweed American licorice flaxflowered ipomopsis sandcherry Missouri goldenrod common snowberry white heath aster

Winged pigweed (Cycloloma atriplicifolium), a low tumbleweed of the sandhills.



Starts green turns a little red then redder last brown and breaks off

Another 'almost lost or forgot' item bedeviled us at this site; a lost blueber--, uh blackberry. A return to and sweep of the area by calling its number soon returned the lost berry.

Following the recovery we retired in the community of Valentine, NB for the evening.

Day 6, Observational Site 12 - Fort Niobrara National Wildlife Refuge.

On our drive through the Refuge on the morning of September 13, we found many old fiends, including:

Grass

Andropogon gerardii Vitman
Andropogon hallii Hack.
Bouteloua curtipendula (Michx.) Torr.
Bouteloua dactyloides (Nutt.) J.T. Columbus
Bouteloua gracilis (Willd. ex Kunth) Lag. ex Griffiths
Elymus canadensis L.
Hesperostipa comata (Trin. & Rupr.) Barkworth
Panicum virgatum L.
Pascopyrum smithii (Rydb.) A. Löve
Schizachyrium scoparium (Michx.) Nash
Sorghastrum nutans (L.) Nash
Spartina pectinata Bosc ex Link
Sporobolus heterolepis (A. Gray) A. Gray

big bluestem
sand bluestem
sideoats grama
buffalograss
blue grama
Canada wildrye
needle and thread
switchgrass
western wheatgrass
little bluestem
Indiangrass
prairie cordgrass
prairie dropseed

<u>Tree</u> *Pinus ponderosa* C. Lawson

ponderosa pine

Plus a few other interesting species.



While the entire day could have been spent at the Fort Niobrara National Wildlife Refuge, there was more sites to be seen, so we headed west on US 20, stopping first at a private ranch about 30 mile west of Valentine.

Day 6, Observational Site 13 - Route US 20 Private Ranch.



Excellent managed pasture, containing:

Grass

Andropogon hallii Hack.
Calamovilfa longifolia (Hook.) Scribn.
Koeleria macrantha (Ledeb.) Schult.
Hesperostipa comata (Trin. & Rupr.) Barkworth
Panicum virgatum L.
Pascopyrum smithii (Rydb.) A. Löve
(This was the dominate plant in the stand.)
Schizachyrium scoparium (Michx.) Nash
Sorghastrum nutans (L.) Nash

Legume, Forb, Shrub

Artemisia ludoviciana Nutt. Helianthus annuus L. Psoralidium tenuiflorum (Pursh) Rydb. sand bluestem prairie sandreed prairie Junegrass needle and thread switchgrass western wheatgrass

little bluestem Indiangrass

white sagebrush common sunflower slimflower scurfpea



How sweet it is!!

Shortly after departing this site, sand lovegrass became prevalent along the highway roadside, green due to rain runoff from the asphalt. A brief stop at the Arthur Bowring Sandhills Ranch State Historical Park, near Merriman, Nebraska suggested some excessive grazing practices, and limited opportunity for new plant finds. Jack did go behind a red cedar and emerged with a *Poa* species that was not identified, but looks like *Poa pratensis* L. Kentucky bluegrass. Also observed was a typical plant of *Muhlenbergia pungens* Thurb., sandhill muhly, showing the typical growing out to a ring, or center died out.



We arrived in Chadron in time for lunch at Helens. Upon our departure we were refueling when Wendall's phone rang. It was the most delightful young woman who served us at Helens. Someone had left their coat, and in the pocket was a cell phone. But who to call? Fortunately, the bill was paid with credit card, so she called the matching name. Another bullet dodged. We collected the coat and header east, towards Gordon, on US 20.

Day 6, Observational Site 14 - The Old Jules Excursion

The balance of the afternoon was devoted to the **Old Jules Excursion**. Jules Sandoz emigrated from Switzerland and homesteaded on the northern edge of the sandhills in the 1880's. Fortunately, but not unusual, Jack had memorized the maps in the book *Old Jules* by Mary Sandoz, his daughter. He directed us to as close as the roads would get us to the Jules home site.



This wasn't as close as Jack had hoped, but he accepted the situation until Wendall, who was driving, insisted we drive to the top of yonder hill.

Things began to fall into place. First we saw a cemetery, which contained the remains of several Santoz. While there, a local rancher, Ken Frey, came along. Old Jules in the early 20th century had sent advertisements back to Switzerland in an effort to get Swiss immigrants to come and homestead close to him. Ken was the grandson of a man who had responded.

He knew his way around and led us to the exact spot of Old Jules home site, provided other detailed information and directed us to early land holdings of Old Jules. There we found the grave site of author Mary Sandoz, and a nearly 100 year old orchard established by Old Jules.







Old Jules Home Site, pictures and a stone marker behind the pictures.



It's great when a plan comes together (grave site of Mary Sandoz).



Leaving the orchard, after a successful quest for Old Jules.

Throughout the quest for Old Jules we continued to evaluate the flora. The first three are exotic grasses.

Agropyron cristatum (L.) Gaertn. Bromus tectorum L. Vulpia myuros (L.) C.C. Gmel.

crested wheatgrass cheatgrass rat-tail fescue

Native Grass

Bouteloua dactyloides (Nutt.) J.T. Columbus Bouteloua gracilis (Willd. ex Kunth) Lag. ex Griffiths Schizachyrium scoparium (Michx.) Nash buffalograss blue grama little bluestem

Forb

Argemone polyanthemos (Fedde) G.B. Ownbey

crested pricklypoppy

The End

There are no standards to measure the success or failure of such a sojourn. Expectations, yes. On that score card, it far exceeded those of the author.

One related and one unrelated plant item warrants mentioning. First, there was some discussion to the effect that the four horsemen should become 5 horsemen. The new addition is *Tridens flavus* (L.) Hitche. purpletop.

The second item relates to forgotten or lost items. Our youngest member lost or forgot the most, 2nd and 3rd youngest tied, and the oldest lost or forgot nothing.

As the sun disappeared in the western sky, we departed the Jules orchard, and our **For the Love of Grass** sojourn ended. The night was spent in Alliance, NB. On the morning of September 15 drove to Julesburg, CO and parted company, vowing that we would do it again.

Curtis Sharp Jack Carlson Bob MacLauchlan Wendall Oaks



