University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

Transactions of the Nebraska Academy of Sciences and Affiliated Societies

Nebraska Academy of Sciences

1-1-1983

An Analysis of Vegetation and Flora of Field-Edges and Roadsides of Agricultural Land in Eastern Nebraska

James Ducey
University of Nebraska-Lincoln, jim.ducey@hotmail.com

Catherine Wiederspan
University of Nebraska-Lincoln

Follow this and additional works at: http://digitalcommons.unl.edu/tnas

Part of the Life Sciences Commons

Ducey, James and Wiederspan, Catherine, "An Analysis of Vegetation and Flora of Field-Edges and Roadsides of Agricultural Land in Eastern Nebraska" (1983). *Transactions of the Nebraska Academy of Sciences and Affiliated Societies.* Paper 245.
http://digitalcommons.unl.edu/tnas/245

This Article is brought to you for free and open access by the Nebraska Academy of Sciences at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Transactions of the Nebraska Academy of Sciences and Affiliated Societies by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Copyright 1983 James E. Ducey. All rights reserved. Article included here with author's written permission.

1983. *Transactions of the Nebraska Academy of Sciences,* XI:19–25.

BIOLOGICAL AND MEDICAL SCIENCES

AN ANALYSIS OF THE VEGETATION AND FLORA OF FIELD-EDGES AND ROADSIDES OF AGRICULTURAL LAND IN EASTERN NEBRASKA

James Ducey* and Catherine Wiederspan

Department of Forestry, Fisheries and Wildlife
University of Nebraska–Lincoln
Lincoln, Nebraska 68583-0819

Five hundred sixty-seven hectares of agricultural cropland in east-central Nebraska were sampled during a vegetative analysis and botanical survey in the summer of 1979. One hundred eighteen species of plants in 39 families were recorded. The number of species recorded in the various edge-areas sampled ranged from six to 34. The differences noted were that species composition varied and some plants were present in small numbers in some areas and absent or undetected in others. Differences could be attributed to variations in slope, soil characteristics, and management of the areas sampled.

† † †

Although cropland agriculture comprises the predominant land use in many areas of eastern Nebraska, there has been little analysis of the plants that are found on farmland. Farms have roadside and irrigation ditches, grass waterways, and fence lines as well as pastures that are areas of permanent vegetative cover.

To evaluate some of the characteristics of the flora of agricultural land, a vegetative analysis and botanical survey was conducted on three east-central Nebraska farms. Plants were examined as a part of the habitat analysis for a comparison of the biological communities of an organic and a conventional farm.

The area studied is agricultural land on the Platte River flood plain 6.4 km north and 3.2 km west of Valley, Douglas County. Soils there are of the Gibbon–Eudora–Wabash association made up primarily of silt and clay with a wide range of moisture drainage. Differences in land topography are slight as the area is nearly flat. Two sections of land were north of Nebraska Highway 36 (Sec. 3 and 4, T. 16 N., R. 9 E.) and a small part (N½ Sec. 10) south of the highway. Three farms comprising 567 ha were systematically surveyed. The greatest number of hectares was devoted to corn production while alfalfa, oats, rye, soybeans, and wheat were other crops produced (Fig. 1). In addition to cropland there was a cool-season grass pasture on the organic farm. The pasture was grazed by 80 cattle during the study period. It was also burned during the spring of 1979.

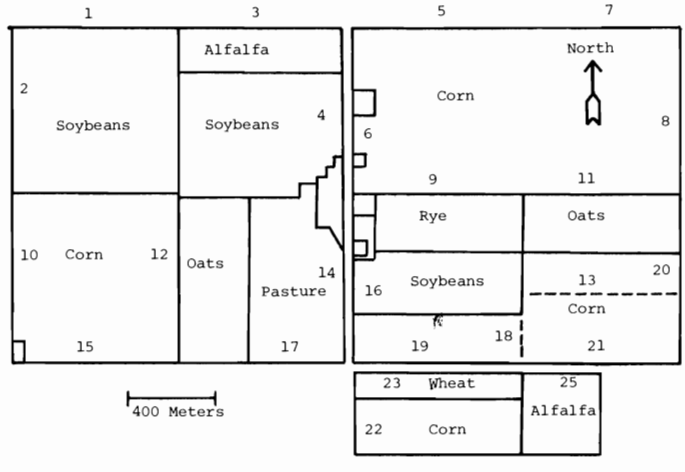

FIGURE 1. Crop type and edge sample area identification numbers of agricultural land studied in east-central Nebraska.

*Current address: Department of Biology, 114 Allwine Hall, University of Nebraska at Omaha, Omaha, Nebraska 68182.

There were several differences in management noted on the farms. One farmer mowed frequently during the growing season while another mowed only some areas and with less frequency. The use of herbicide was another difference. Drift from field applications was noted to have an effect on plants growing adjacent to the area of application. Also, one ditch showed signs of having been burned in 1978.

METHODS

Field work took place from May through August of 1979, with efforts limited to edge-areas that comprised only 16 ha of the total farm area. A map of the study site was prepared and each edge-area was assigned a number. Those ditches and edge-areas oriented north and south were assigned even numbers, while those going east and west were given odd numbers (Fig. 1).

A modified ten-point sampling frame was used to determine percentage of bare ground, litter, and basal cover of vegetation. The sampling device consisted of a metal frame mounted on legs. Ten holes were drilled in the horizontal members to allow steel pins to be inserted and moved vertically. When the frame was set on the ground, each of the ten pins was pushed towards the ground until contact was made with a plant, vegetative litter, or bare ground. This feature was then recorded. In order to have an even sampling intensity the length and width of each area were considered. Longer and wider areas were subject to greater sampling effort. Percent composition was then calculated from the values derived from basal cover. Frequency of occurrence, expressed as a percentage of the area sample quadrats which contained the species, was calculated by use of a 0.1 m^2 quadrat placed on the ground once per 200 m^2 and recording the presence of each species. The number of species recorded in an area served as a measure of species richness.

RESULTS AND DISCUSSION

List of Species

In addition to four crop species, *Glycine max* L. (soybean), *Secale cereale* L. (rye), *Triticum aestivum* L. (wheat), and *Zea mays* L. (corn), 114 species of 39 families were recorded as follow:

Aizoaceae	
Mollugo verticillata L.	Carpetweed
Amaranthaceae	
Amaranthus retroflexus L.	Rough pigweed
Anacardiaceae	
Toxicodendron radicans (L.) O. Ktze.	Poison ivy
Apiaceae	
Cicuta maculata L.	Waterhemlock
Asclepiadaceae	
Asclepias incarnata L.	Swamp milkweed
A. syriaca L.	Common milkweed
A. verticillata L.	Whorled milkweed
Asteraceae	
Ambrosia artemisiifolia L.	Common ragweed
A. psilostachya DC.	Western ragweed
A. trifida L.	Giant ragweed
Artemisia ludoviciana Nutt.	White sage
Aster praealtus Poir.	Willowleaf aster
A. sp.	Aster
Carduus nutans L.	Musk thistle
Conyza canadensis (L.) Cronq.	Horseweed
Erigeron strigosus Muhl.	Daisy fleabane
Helianthus annuus L.	Common sunflower
Lactuca canadensis L.	Wild lettuce
L. oblongifolia Nutt.	Blue lettuce
Ratibida columnifera (Nutt.) Woot and Standl.	Prairie coneflower
Taraxacum officinale Weber	Dandelion
Trapogon dubius Scop.	Goatsbeard
Bignoniaceae	
Catalpa speciosa Warder	Catalpa
Brassicaceae	
Capsell bursa-pastoris (L.) Medic.	Shepherd's purse
Descurainia pinnata (Walt.) Britt.	Tansy mustard
Lepidium virginicum L.	Virginia peppergrass
Rorippa sinuata (Nutt.) Hitchc.	Spreading yellow cre
Thlapsi arvense L.	Penny cress
Cannabaceae	
Cannabis sativa L.	Hemp
Caryophyllaceae	
Stellaria sp.	Chickweed
Celastraceae	
Euonymus atropurpureus Jacq.	Wahoo
Chenopodiaceae	
Chenopodium album L.	Lamb's quarters
Kochia scoparia (L.) Schrad.	Kochia
Commelinaceae	
Commelina communis L.	Dayflower
Tradescantia bracteata Small	Spiderwort
Convolvulaceae	
Convolvulus arvensis L.	Field bindweed

Cornaceae	
Cornus sp.	Dogwood
Cupressaceae	
Juniperus virginiana L.	Red cedar
Equisetaceae	
Equisetum arvense L.	Field horsetail
E. laevigatum A. Br.	Smooth horsetail
Euphorbiaceae	
Euphorbia maculata L.	Spotted euphorbia
E. sp.	Euphorbia
Fabaceae	
Amorpha fruticosa L.	False indigo
Desmanthus illinoensis (Michx.) MacM.	Bundleflower
Medicago lupulina L.	Black medic
M. sativa L.	Alfalfa
Melilotus alba Desr.	White sweet clover
M. officinalis (L.) Lam.	Yellow sweet clover
Strophostyles helveola (L.) Ell.	Wild bean
Trifolium pratense L.	Red clover
T. repens L.	White cover
Vicia americana Muhl.	American vetch
V. villosa Roth	Hairy vetch
Hydrophyllaceae	
Ellisia nyctelea L.	Waterpod
Lamiaceae	
Nepeta cataria L.	Catnip
Liliaceae	
Allium canadense L.	Wild onion
Polygonatum biflorum (Walt.) Ell.	Solomon's seal
Smilacina racemosa (L.) Desf.	False spikenard
Moraceae	
Morus alba L.	White mulberry
M. rubra L.	Red mulberry
Oleaceae	
Fraxinus pennsylvanica Marsh.	Green ash
Oxalidaceae	
Oxalis stricta L.	Yellow wood sorrel
Plantaginaceae	
Plantago rugelii Dcne.	Rugel's plantain
Poaceae	
Agropyron canimum (L.) Beauv.	Slender wheatgrass
A. repens (L.) Beauv.	Quackgrass
A. smithii Rydb.	Western wheatgrass
Agrostis stolonifera L.	Redtop
Andropogon gerardii Vitman	Big bluestem
Avena sativa L.	Oats
Bromus inermis Leyss.	Smooth brome
B. japonicus Thunb.	Japanese brome
B. tectorum L.	Downy brome
Carex sp.	Sedge
Cenchrus longispinus (Hack.) Fern	Field sandbur
Dicanthelium oligosanthes (Shult.) Gould	Small panicgrass
D. wilcoxianum (Vasey) Gould and Clark	Wilcox panicum
Digitaria sanguinalis (L.) Scop.	Crabgrass
Echinochloa crusgalli (L.) Beauv.	Barnyard grass
Elymus canadensis L.	Canada wild rye
Eragrostis cilianensis (All.) E. Mosher	Stink grass
Hordeum jubatum L.	Foxtail barley
H. pusillum Nutt.	Little barley
Leersia oryzoides (L.) Sw.	Rice cutgrass
Panicum virgatum L.	Switchgrass
Phalaris arundinaceae L.	Reed canarygrass
Poa pratensis L.	Kentucky bluegrass
Setaria faberi Herrm.	Chinese foxtail
S. glauca (L.) Beauv.	Yellow foxtail
S. verticillata (L.) Beauv.	Bristly foxtail
S. viridus (L.) Beauv.	Green foxtail
Spartina pectinata Link.	Prairie cordgrass
Sphenopholis obtusata (Michx.) Scribn.	Prairie wedgegrass
Sporobolus cryptandrus (Torr.) Gray	Sand dropseed
S. heterolepis (Gray) Gray	Prairie dropseed
Polygonaceae	
Polygonum arenastrum Jord. ex Bor.	Common knotweed
P. ramosossimum Michx.	Bushy knotweed
P. sp.	Knotweed
Rumex sp.	Dock
Primulaceae	
Lysimachia ciliata L.	Fringed loosestrife
Ranunculaceae	
Anemone canadensis L.	Meadow anemone
Rosaceae	
Potentilla recta L.	Sulphur cinquefoil
Rosa sp.	Rose

Rubiaceae
Galium aparine L. — Catchweed bedstraw

Salicaceae
Salix interior (Rowlee) Cronq. — Long-leaf willow

Solanaceae
Solanum carolinense L. — Horse nettle

Typhaceae
Typha latifolia L. — Common cattail

Ulmaceae
Ulmus americana L. — American elm

Urticaceae
Parietaria pensylvanica Muhl. *ex* Willd. — Pennsylvania pellitory
Urtica dioica L. — Stinging nettle

Verbenaceae
Phyla lanceolata (Michx.) Greene — Fog fruit
Verbena bipinnatifida Nutt. — Vervain
V. bracteata Lag. and Rodr. — Bracted vervain
V. stricta Vent. — Hoary vervain

Violaceae
Viola sp. — Wild violet

Vegetative Analysis

The most common species were three grasses, smooth brome, Kentucky bluegrass, and big bluestem (Tables I and II). Smooth brome was the only species recorded in every area. It was also the most frequent species in the pasture (Table III). Analysis of the pasture showed it had 7.2% vegetative cover, litter was 92.4% of the cover, and bare ground was 0.4%.

Differences were noted between the species composition within the edge-areas with some plants present in small numbers in some locations and absent or undetected in others. These differences could be attributed to slope, soil type and texture, water holding capacity, available moisture, etc., and management that could influence plant distribution and occurrence. Physical barriers such as a ditch with steep side slopes or standing water all or part of the year also would influence the presence of a species. These barriers meant an area was inaccessible to farm machinery and could not be mowed. Also, fence lines would prevent an area directly under the fence strands from being mowed. The tall forbs, shrubs, and tree saplings in such areas provided habitat suitable for wildlife and many birds had nest sites in this upright vegetation (Ducey and Miller, 1980).

Although sampling intensity differed with the size of an area, several ditches were of similar size and thus equally sampled. Comparisons were made between three groups of

TABLE I. Number of species and frequency of occurrence (in percentage) in area sample quadrats which contained the species. Species are listed in order from most to least abundant.

	Area																							
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	25
Total Present	12	17	17	28	15	20	10	21	15	19	19	6	14	21	29	22	30	11	22	34	30	11	25	23
Frequency																								
Bromus inermis	20	50	25	50	100	60	100	55	65	45	30	95	10	85	96	85	78	20	68	20	75	90	95	100
Poa pratensis	–*	40	65	35	35	35	35	35	50	5	–	5	80	5	63	65	44	50	29	13	27	15	55	57
Carex sp.	–	15	40	38	10	35	10	30	3	55	15	–	20	20	23	35	40	–	28	58	37	25	23	10
Viola sp.	–	15	–	8	10	10	–	5	–	5	30	–	10	5	10	15	10	–	3	18	10	5	2	10
Polygonum sp.	–	–	5	33	–	3	3	25	3	20	30	25	15	35	4	5	–	30	12	23	15	15	–	10
Oxalis stricta	8	50	20	15	10	15	–	–	–	65	–	15	–	15	10	25	3	–	2	20	–	–	2	3
Spartina pectinata	15	10	5	3	–	–	–	10	–	–	20	10	–	5	4	5	5	–	3	23	2	–	2	–
Rumex sp.	–	–	–	18	–	5	–	30	3	5	40	5	15	–	–	10	1	40	–	58	7	15	–	–
Ambrosia artemisiifolia	–	–	–	–	30	5	40	3	28	–	25	–	–	5	1	–	–	–	8	18	10	5	10	20
Amaranthus retroflexus	5	–	–	–	–	5	–	20	–	–	25	–	15	10	4	5	–	20	7	–	7	–	8	7
Hordeum jabatum	–	–	–	5	–	–	–	–	15	15	–	–	60	–	3	5	8	60	3	–	3	–	2	–
Cenchrus longispinus	–	30	–	5	15	30	5	–	–	30	–	–	–	5	–	10	–	30	–	3	5	–	–	–
Taraxacum longispinus	–	–	–	8	5	15	–	3	30	5	–	–	20	–	–	30	1	30	–	3	–	–	–	–
Kochia scoparia	3	5	15	–	–	–	–	15	3	–	3	–	–	–	–	10	5	10	–	5	–	–	2	–
Trifolium pratense	–	–	–	5	–	–	–	–	–	–	5	–	–	–	15	35	4	–	3	5	3	–	2	7

TABLE I. Continued.

Species	Area																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	25
Echinochloa crusgalli	–	5	–	–	10	5	15	23	–	20	–	–	10	–	–	6	–	–	–	13	–	–	–	–
Anemone canadensis	–	5	15	10	5	–	–	3	–	–	–	–	–	–	1	5	–	–	–	18	–	–	–	13
Medicago lupulina	–	–	–	–	5	–	–	–	–	–	–	–	–	–	20	30	14	–	18	–	3	–	22	43
Elymus canadensis	30	–	25	–	–	–	–	3	–	10	20	–	10	–	–	–	–	–	–	8	2	–	–	–
Equisetum laevigatum	–	–	–	8	–	20	–	3	–	–	–	–	–	–	1	15	19	–	–	–	25	–	5	–
Chenopodium album	–	5	–	–	–	–	–	3	–	10	–	–	–	5	1	15	–	–	–	13	–	–	–	3
Andropogon gerardii	35	–	5	–	20	–	–	5	–	–	–	–	–	5	3	–	6	–	–	–	–	–	–	–
Melilotus officinalis	–	–	–	–	–	–	–	–	–	–	–	–	35	5	1	10	–	–	–	3	–	–	7	3
Trifolium pratense	–	–	–	–	5	–	5	–	–	–	–	–	–	–	28	10	1	–	2	–	2	–	–	–
Convolvulus arvensis	–	–	–	–	5	5	5	–	–	–	–	–	–	–	1	–	3	–	8	18	–	–	–	–
Ambrosia psilostachya	–	–	–	–	–	5	–	–	–	–	–	–	–	5	4	–	16	–	3	–	2	–	–	7
Lactuca canadensis	–	–	–	3	–	–	–	3	–	–	–	–	–	5	–	–	4	–	–	3	2	–	–	7
Lepidium virginicum	–	–	–	3	–	–	5	–	–	5	15	–	–	–	–	–	–	–	–	10	–	–	2	–
Conyza canadensis	–	–	10	3	–	–	–	–	–	5	–	–	–	5	–	–	5	–	–	10	–	–	–	–
Verbena bracteata	–	–	–	10	5	–	5	–	–	–	5	–	–	5	–	–	–	–	–	–	–	–	–	7
Asclepias syriaca	3	–	–	–	–	5	–	8	–	–	–	–	–	–	–	–	14	–	2	–	–	–	–	–
Bromus tectorum	–	5	–	10	–	–	–	–	–	–	–	–	–	–	3	–	1	–	–	–	7	–	–	7
Setaria verticillata	35	5	–	–	–	–	–	13	–	35	–	–	–	–	–	–	–	–	–	3	–	–	–	–
Hordeum pusillum	–	5	–	–	–	5	–	–	3	35	20	–	–	–	–	–	–	–	–	–	–	–	–	–
Phyla lanceolata	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	9	10	5	–	2	–	–	–
Lactuca oblongifolia	–	–	–	–	–	–	–	–	–	–	–	–	5	–	1	–	–	–	2	3	–	5	–	–
Plantago rugellii	–	–	–	20	–	5	–	–	5	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–
Setaria viridus	–	5	–	3	–	–	–	20	–	–	–	–	–	–	–	–	–	–	–	3	2	–	–	–
Aster sp.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	19	–	–	–	2	–	3	3
Erigeron strigosus	–	–	–	5	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	10	–	–
Rosa sp.	3	–	5	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–
Cannabis sativa	–	–	45	–	–	–	–	–	–	–	45	–	–	–	–	–	–	–	–	3	–	–	–	–
Digitaria sanguinalis	–	10	–	5	–	–	–	–	–	25	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ambrosia trifida	–	–	15	–	–	–	–	–	–	–	5	–	–	5	–	–	–	–	–	–	–	–	–	–
Panicum virgatum	20	–	–	–	–	–	–	–	3	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–
Leersia oryzoides	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	–	–	8	–	–	–	2	–
Potentilla recta	–	–	–	–	–	5	–	–	–	–	–	–	–	5	–	–	–	–	–	–	–	5	–	–
Agrostis stolonifera	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	2	10	–	–
Thlapsi arvense	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	10	–	–	–	–
Sphenopholis obtusata	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	9	–	–	–	2	–	–	–
Desmanthus illinoensis	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	20	–	–	–	–	–	12	–
Setaria glauca	–	–	–	–	–	–	–	–	–	5	20	–	–	–	–	–	–	–	–	–	–	–	–	–
Equisetum arvense	–	–	15	8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Verbena bipinnatifida	–	5	–	–	–	–	–	–	18	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Eragrostis cilianensis	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	15	–	–	–	–	–	–	–	–
Parietaria pensylvanica	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	–	–	–	10	–	–	–	–
Nepeta cataria	–	–	–	–	–	5	–	–	–	–	–	–	–	–	–	–	–	–	–	8	–	–	–	–
Helianthus annuus	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	10
Descurainia pinnata	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	8	–	–	–	3
Polygonum ramosissimum	–	–	–	–	–	–	–	–	55	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Strophostyles helvela	–	–	35	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Secale cereale	–	–	–	–	–	–	–	–	23	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Agropyron caninum	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	20	–	–	–	–	–	–
Vicia villosa	–	–	–	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

*Indicates no value.

TABLE II. Percent basal vegetative cover for species with a cumulative value greater than 10%. Species are listed in order from most to least abundant.

	Area																							
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	25
Bromus inermis	21	20	26	17	72	41	93	46	30	44	12	75	3	59	29	44	30	19	44	12	46	79	50	51
Carex sp.	9	8	7	7	–*	12	–	4	–	6	25	2	4	6	3	12	26	2	23	26	36	17	3	4
Poa pratensis	–	30	62	20	–	20	4	2	46	4	–	–	50	T	26	16	16	39	16	11	6	–	25	26
Andropogon gerardii	44	10	T	1	9	–	3	4	–	–	–	–	–	6	T	–	2	–	–	11	–	4	–	–
Polygonum sp.	–	–	2	3	–	–	–	19	–	–	13	2	3	19	–	–	–	2	T	–	–	–	–	–
Cenchrus longispinus	–	2	–	5	–	–	–	5	–	2	11	–	–	–	1	T	–	3	–	1	–	–	–	–
Rumex sp.	–	–	–	1	–	3	–	–	–	4	6	–	6	–	–	T	–	2	1	3	–	–	–	–
Viola sp.	T	–	–	T	–	–	–	–	–	2	–	–	–	T	–	–	–	–	1	1	T	–	1	–
Hordeum jubatum	T	–	–	1	–	–	–	–	2	4	–	–	8	–	–	–	T	5	–	–	–	–	–	–
Taraxacum officinale	–	–	–	2	–	2	–	8	–	–	–	–	13	–	–	4	–	21	–	–	–	–	–	–
Kochia scoparia	–	–	T	–	–	–	–	5	–	–	11	–	–	–	–	T	1	–	–	11	–	–	–	–
Oxalis stricta	–	6	T	–	–	–	–	–	–	4	–	–	–	2	T	T	–	–	–	–	–	–	–	–
Agropyron smithii	–	–	–	–	–	–	–	1	–	–	–	2	–	–	–	–	2	–	1	1	–	–	3	–
Bromus tectorum	–	–	T	30	–	–	–	–	–	–	–	15	–	–	T	4	–	–	–	–	–	–	–	–
Medicago lupulina	–	–	–	–	–	–	–	–	–	–	–	–	–	–	T	T	5	–	6	–	–	–	–	15
Echinochloa crusgalli	–	–	–	–	–	–	–	–	–	2	–	5	1	3	1	–	–	–	–	–	–	–	–	–
Hordeum pusillum	–	22	–	–	–	–	–	–	2	13	–	–	–	–	–	–	–	–	–	1	–	–	–	–
Trifolium repens	–	–	–	–	2	–	–	–	–	–	–	–	–	–	13	7	–	–	–	–	4	–	–	–
Equisetum arvense	–	–	T	–	–	8	–	–	–	–	–	–	–	–	–	–	3	–	1	–	–	–	–	–
Anemone canadensis	–	–	–	3	–	–	–	–	–	–	–	–	–	–	–	T	–	–	–	6	–	–	–	1
Setaria verticillata	7	–	–	–	–	–	–	3	–	–	–	–	–	–	–	–	–	–	–	9	–	–	–	–
Chenopodium album	11	–	–	T	–	–	–	–	–	–	–	–	–	–	T	–	–	–	–	–	–	–	–	–
Polygonum ramosissimum	–	–	–	–	15	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–
Spartina pectinata	–	–	–	3	–	–	–	–	–	–	–	14	–	–	–	–	–	–	–	–	–	–	–	–
Trifolium pratense	–	–	–	–	–	–	–	–	–	–	–	–	–	–	19	–	–	–	–	–	–	–	–	–

*Indicates no value.
T=Trace value of less than 1%.

edge-areas: (1) 1, 3, 19, and 21; (2) 15, 17, and 23; (3) 4, 5, 6, 7, 8, 9, 11, 14, 16, 20, and 22. The number of species present ranged from 6 to 34 (Table I). Area 6 was a roadside ditch with the low value; area 20, a roadside irrigation ditch, had the most species recorded. A comparison of the three groups showed that site 21 of group 1 had the high value of 31 species. This was a wide roadside ditch adjacent to Nebraska Highway 36. It was subject to only a single pass with a mower next to the shoulder of the road.

Species richness values for group 2 ranged from 27 to 32. Site 17 had the highest number of species and was a wide roadside ditch. Area 20 of the group had 34 species and was a ditch with very steep sides and standing water in the bottom. Mowing was limited to a portion of the ditch that a sickle-bar mower operating from the road could reach. It was interesting that area 8, north of and continuous with area 20, was similar in size and configuration, but only 21 species were recorded. The only apparent difference between the two was that area 20 was adjacent to the organic farm while area 8 was adjacent to conventionally farmed fields. Herbicide drift from the adjacent corn field could have influenced plant species occurrence.

TABLE III. Basal species cover and frequency of plants in a pasture of eastern Nebraska agricultural land. Values given as percentage.

Species	Basal Cover	Frequency
Ambrosia artemisiifolia	–	4
A. psilostachya	–	3
Bromus inermis	71	99
B. tectorum	1	–
Carex sp.	–	2
Chenopodium album	1	1
Euphorbia maculata	–	11
Hordeum jubatum	1	1
Kochia scoparia	1	3
Lepidium virginicum	–	1
Medicago lupulina	1	7
M. sativa	–	5
Melilotus officinalis	–	3
Oxalis stricta	10	–
Poa pratensis	8	9
Taraxacum officinale	6	14

ACKNOWLEDGMENTS

Field research for this study was supported by the Student Originated Studies Program of the National Science Foundation, grant SPI79-05254 awarded to the senior author and the Department of Forestry, Fisheries, and Wildlife at the University of Nebraska-Lincoln. Thomas Bragg and David Sutherland, University of Nebraska at Omaha, provided helpful comments on this paper.

REFERENCES

Ducey, J., and L. Miller. 1980. Birds of an agricultural community. *Nebraska Bird Review,* 48:58–66, 68.