

Proceedings of the Iowa Academy of Science

Volume 68 | Annual Issue

Article 24

1961

A Preliminary Report on the Vascular Flora of Northwestern Iowa

Jack L. Carter
Simpson College

Copyright ©1961 Iowa Academy of Science, Inc.

Follow this and additional works at: <https://scholarworks.uni.edu/pias>

Recommended Citation

Carter, Jack L. (1961) "A Preliminary Report on the Vascular Flora of Northwestern Iowa," *Proceedings of the Iowa Academy of Science*, 68(1), 146-152.

Available at: <https://scholarworks.uni.edu/pias/vol68/iss1/24>

This Research is brought to you for free and open access by the Iowa Academy of Science at UNI ScholarWorks. It has been accepted for inclusion in Proceedings of the Iowa Academy of Science by an authorized editor of UNI ScholarWorks. For more information, please contact scholarworks@uni.edu.

A Preliminary Report on the Vascular Flora of Northwestern Iowa

JACK L. CARTER¹

Abstract. This survey brings together the available information on the flora of ten northwestern Iowa counties—the species of vascular plants occurring in the area, their relative frequencies, and the habitats in which they exist. The major collecting was done throughout the growing seasons of 1956 and 1957. Over 4,000 collections were made, and the probable number of specimens is over 9,000. The author examined and annotated over 1,100 specimens which had been previously collected and deposited in the major herbaria of the state. Plants characteristic of several of the typical plant communities are listed.

This study of the vascular flora of northwestern Iowa is part of a comprehensive study of the plants of Iowa and will provide the information necessary for a flora of Iowa, to be published by Dr. R. F. Thorne at a later date.

The area under consideration includes ten counties—Cherokee, Crawford, Ida, Lyon, Monona, O'Brien, Osceola, Plymouth, Sioux, and Woodbury. Several habitats within this area have been heavily botanized during the past century, but the total area has received very little attention in the way of systematic collecting. It is the purpose of this study to bring together all the available information on the flora of northwestern Iowa, including the species of vascular plants occurring in the area, their relative frequencies, and the habitats in which they exist.

The field studies began in August, 1955, with most of the collecting being done throughout the growing seasons of 1956 and 1957. Additional collecting trips are being made each growing season, and particular habitats and species are being studied.

Over 19,000 miles have been traveled and over 4,200 collections have been made. These specimens were collected at approximately 120 stations, each of which was visited at least once, with some stations being visited as many as 13 times. In locating the various collecting stations the author utilized available soil, topographic, and geologic maps. Many persons, such as previous collectors in the area, county extension agents, state park conservationists, and residents of the area have been very helpful in locating some of the more interesting collecting stations.

Very little published material on the flora of the area is available. The annual reports of the Iowa Geological Survey published check lists which were of some value for several of the counties considered in this study. Such people as B. Shimek, L. H. Pam-

¹ Department of Biology, Simpson College, Indianola, Iowa.

mel, T. H. MacBride, and H. F. Bain were responsible for these studies. M. L. Grant and R. F. Thorne have done considerable collecting in the area, and many of their specimens were in the Iowa Lakeside Laboratory herbarium. Dr. Thorne has also maintained check lists of the plants observed and collected in the area over the past ten years. These proved very helpful.

Since no other listing of the vascular flora of northwestern Iowa is available, I have included several habitat lists of those species which comprise the typical plant communities of the area. The nomenclature used closely follows *Gray's Manual of Botany, 8th Edition*, and the *New Britton and Brown Illustrated Flora*. Included also is a statistical summary of the species collected and identified from northwestern Iowa, or species which have been previously collected for which there were voucher specimens on deposit in the herbarium of the Iowa Lakeside Laboratory, Iowa State University, or the State University of Iowa.

PLANT COMMUNITIES

1. Rich woods and ravines, W½ Sec. 33, and NE¼ Sec. 5, T-90N, R-40W, Cherokee County.

- | | |
|-----------------------------------|------------------------------------|
| <i>Acalypha rhomboidea</i> | <i>Dicentra cucullaria</i> |
| <i>Acer saccharinum</i> | <i>Digitaria sanguinalis</i> |
| <i>Acer saccharum</i> | <i>Echinochloa pungens</i> |
| <i>Actaea rubra</i> | <i>Ellisia nyctelca</i> |
| <i>Agastache nepetoides</i> | <i>Elymus villosus</i> |
| <i>Agrimonia gryposepala</i> | <i>Elymus virginicus</i> |
| <i>Agrimonia pubescens</i> | <i>Erigeron annuus</i> |
| <i>Allium tricoccum</i> | <i>Erythronium albidum</i> |
| <i>Amphicarpa bracteata</i> | <i>Euonymus atropurpureus</i> |
| <i>Anemone virginiana</i> | <i>Eupatorium purpureum</i> |
| <i>Aquilegia canadensis</i> | <i>Eupatorium rugosum</i> |
| <i>Arabis perstellata</i> | <i>Festuca obtusa</i> |
| <i>Arctium minus</i> | <i>Fragaria vesca</i> |
| <i>Arisaema triphyllum</i> | <i>Fraxinus pennsylvanica</i> |
| <i>Botrychium virginianum</i> | <i>Galium aparine</i> |
| <i>Brachyelytrum erectum</i> | <i>Galium boreale</i> |
| <i>Carex albursina</i> | <i>Galium concinnum</i> |
| <i>Carex bebbii</i> | <i>Galium triflorum</i> |
| <i>Carex blanda</i> | <i>Geum canadense</i> |
| <i>Carex brevior</i> | <i>Geum laciniatum</i> |
| <i>Carex davisi</i> | <i>Gleditsia triacanthos</i> |
| <i>Carex gravida</i> | <i>Gymnocladus dioica</i> |
| <i>Carex grisea</i> | <i>Hackelia virginiana</i> |
| <i>Carex oligocarpa</i> | <i>Helianthus strumosus</i> |
| <i>Carex rosea</i> | <i>Hepatica acutiloba</i> |
| <i>Carex sparganioides</i> | <i>Heracleum lanatum</i> |
| <i>Carex spregelii</i> | <i>Humulus lupulus</i> |
| <i>Carya cordiformis</i> | <i>Hydrophyllum virginianum</i> |
| <i>Caulophyllum thalictroides</i> | <i>Impatiens pallida</i> |
| <i>Celtis occidentalis</i> | <i>Isopyrum biternatum</i> |
| <i>Chelidonium majus</i> | <i>Juglans nigra</i> |
| <i>Chenopodium gigantospermum</i> | <i>Lactuca floridana</i> |
| <i>Chenopodium standleyanum</i> | <i>Laportea canadensis</i> |
| <i>Cinnia arundinacea</i> | <i>Leersia virginica</i> |
| <i>Circaea quadrifurcata</i> | <i>Lysimachia ciliata</i> |
| <i>Claytonia virginica</i> | <i>Menispermum canadense</i> |
| <i>Cornus drummondii</i> | <i>Morus alba</i> |
| <i>Crataegus mollis</i> | <i>Nepeta cataria</i> |
| <i>Crataegus punctata</i> | <i>Oryzopsis racemosa</i> |
| <i>Crataegus succulenta</i> | <i>Osmorhiza claytoni</i> |
| <i>Cryptotaenia canadensis</i> | <i>Osmorhiza longistylis</i> |
| <i>Cuscuta cuspidata</i> | <i>Ostrya virginiana</i> |
| <i>Cystopteris fragilis</i> | <i>Panax quinquefolius</i> |
| <i>Desmodium glutinosum</i> | <i>Parietaria pensylvanica</i> |
| <i>Diarrhena americana</i> | <i>Parthenocissus quinquefolia</i> |

| | |
|----------------------------------|------------------------------------|
| <i>Phlox divaricata</i> | <i>Smilacina stellata</i> |
| <i>Phryma leptostachya</i> | <i>Smilax ecirrhata</i> |
| <i>Plantago rugelii</i> | <i>Smilax herbacea</i> |
| <i>Polemonium reptans</i> | <i>Smilax hispida</i> |
| <i>Polygonatum canaliculatum</i> | <i>Solanum nigrum</i> |
| <i>Polygonum virginianum</i> | <i>Symphoricarpos occidentalis</i> |
| <i>Prunus americana</i> | <i>Taraxacum erythrospermum</i> |
| <i>Prunus virginiana</i> | <i>Thalictrum dasycarpum</i> |
| <i>Quercus macrocarpa</i> | <i>Thaspium barbinode</i> |
| <i>Ranunculus abortivus</i> | <i>Tilia americana</i> |
| <i>Rhus glabra</i> | <i>Trillium nivale</i> |
| <i>Rhus radicans</i> | <i>Ulmus americana</i> |
| <i>Ribes cynosbati</i> | <i>Ulmus rubra</i> |
| <i>Ribes missouriense</i> | <i>Ulmus thomasi</i> |
| <i>Robinia pseudo-acacia</i> | <i>Urtica dioica</i> |
| <i>Rosa blanda</i> | <i>Uvularia grandiflora</i> |
| <i>Rubus occidentalis</i> | <i>Verbena urticifolia</i> |
| <i>Rudbeckia laciniata</i> | <i>Virburnum rafinesquianum</i> |
| <i>Sambucus canadensis</i> | <i>Viola pensylvanica</i> |
| <i>Sanquinaria canadensis</i> | <i>Viola sororia</i> |
| <i>Sanicula canadensis</i> | <i>Vitis riparia</i> |
| <i>Sanicula gregaria</i> | <i>Xanthoxylum americanum</i> |
| <i>Sanicula marlandica</i> | <i>Zizia aurea</i> |

2. Prairie flora of the Sioux quartzite and adjacent prairie, Gitchie Manitou State Park, Lyon County.

| | |
|-----------------------------------|--------------------------------|
| <i>Agrimonia striata</i> | <i>Corydalis micrantha</i> |
| <i>Agropyron desertorum</i> | <i>Crataegus succulenta</i> |
| <i>Agropyron repens</i> | <i>Cyperus inflexus</i> |
| <i>Agropyron smithii</i> | <i>Delphinium virescens</i> |
| <i>Agropyron trachycaulum</i> | <i>Descurainia sophia</i> |
| <i>Agrostis hyemalis</i> | <i>Echinocystis lobata</i> |
| <i>Agrostis perennans</i> | <i>Eleocharis engelmanni</i> |
| <i>Agrostis scabra</i> | <i>Equisteum laevigatum</i> |
| <i>Allium canadense</i> | <i>Eragrostis ciliensis</i> |
| <i>Allium stellatum</i> | <i>Eragrostis pectinacea</i> |
| <i>Alopecurus aequalis</i> | <i>Euronymus atropurpureus</i> |
| <i>Amaranthus albus</i> | <i>Euphorbia dictyosperma</i> |
| <i>Ambrosia artemisiifolia</i> | <i>Euphorbia glyptosperma</i> |
| <i>Amorpha canescens</i> | <i>Euphorbia heterophylla</i> |
| <i>Amorpha fruticosa</i> | <i>Euphorbia maculata</i> |
| <i>Andropogon gerardi</i> | <i>Festuca octoflora</i> |
| <i>Andropogon scoparius</i> | <i>Fragaria virginiana</i> |
| <i>Androsace occidentalis</i> | <i>Fraxinus pensylvanica</i> |
| <i>Anemone caroliniana</i> | <i>Gentiana puberula</i> |
| <i>Anemone patens</i> | <i>Geranium carolinianum</i> |
| <i>Arabis hirsuta</i> | <i>Gerardia tenuifolia</i> |
| <i>Aristida curtisii</i> | <i>Glyceria grandis</i> |
| <i>Artemisia caudata</i> | <i>Grindelia squarrosa</i> |
| <i>Artemisia ludoviciana</i> | <i>Hedeoma hispida</i> |
| <i>Asclepias verticillata</i> | <i>Helianthus annuus</i> |
| <i>Aster ericoides</i> | <i>Heuchera richardsonii</i> |
| <i>Beckmannia syzigachne</i> | <i>Hordeum pusillum</i> |
| <i>Bouteloua gracilis</i> | <i>Humulus lupulus</i> |
| <i>Brassica kaber</i> | <i>Isoetes macrospora</i> |
| <i>Bromus commutatus</i> | <i>Juncus interior</i> |
| <i>Bromus japonicus</i> | <i>Kochia scoparia</i> |
| <i>Bromus inermis</i> | <i>Koeleria cristata</i> |
| <i>Buchloe dactyloides</i> | <i>Kuhnia eupatorioides</i> |
| <i>Calamovilfa longifolia</i> | <i>Lactuca canadensis</i> |
| <i>Carex annectens</i> | <i>Lappula echinata</i> |
| <i>Carex bebbii</i> | <i>Lespedeza capitata</i> |
| <i>Carex bicknellii</i> | <i>Liatris punctata</i> |
| <i>Carex brevior</i> | <i>Lindernia dubia</i> |
| <i>Carex cristatella</i> | <i>Linum sulcatum</i> |
| <i>Carex eleocharis</i> | <i>Linum usitatissimum</i> |
| <i>Carex festucacea</i> | <i>Lithospermum canescens</i> |
| <i>Carex gravida</i> | <i>Lithospermum incisum</i> |
| <i>Carex lasiocarpa</i> | <i>Lomatium orientale</i> |
| <i>Carex pensylvanica</i> | <i>Lygodesmia juncea</i> |
| <i>Carex tetanica</i> | <i>Mirabilis hirsuta</i> |
| <i>Cerastium viscosum</i> | <i>Mirabilis nyctaginea</i> |
| <i>Chaenorrhinum minus</i> | <i>Monarda fistulosa</i> |
| <i>Chamaecrista fasciculata</i> | <i>Oenothera serrulata</i> |
| <i>Chenopodium gigantospermum</i> | <i>Opuntia fragilis</i> |
| <i>Chenopodium leptophyllum</i> | <i>Orobanche ludoviciana</i> |
| <i>Chrysopsis villosa</i> | <i>Oxalis stricta</i> |
| <i>Cicuta maculata</i> | <i>Oxalis violacea</i> |
| <i>Cirsium discolor</i> | <i>Panicum capillare</i> |
| <i>Cirsium flodmani</i> | <i>Panicum implicatum</i> |
| <i>Collomia linearis</i> | <i>Panicum scribnerianum</i> |
| <i>Comandra umbellata</i> | <i>Panicum virgatum</i> |
| <i>Convolvulus arvensis</i> | <i>Panicum wilcoxianum</i> |
| <i>Conyza canadensis</i> | <i>Parthenocissus vitacea</i> |

| | |
|----------------------------------|------------------------------------|
| <i>Pedicularis canadensis</i> | <i>Rosa suffulta</i> |
| <i>Penstemon albidus</i> | <i>Rumex a'ttissimus</i> |
| <i>Penstemon gracilis</i> | <i>Salix humilis</i> |
| <i>Penstemon grandiflorus</i> | <i>Salix rigida</i> |
| <i>Phlox pilosa</i> | <i>Salvia reflexa</i> |
| <i>Physalis heterophylla</i> | <i>Sambucus canadensis</i> |
| <i>Physalis virginiana</i> | <i>Scrophularia lanceolata</i> |
| <i>Plantago purshii</i> | <i>Schedonardus paniculatus</i> |
| <i>Poa arida</i> | <i>Se'acine'lla rumestris</i> |
| <i>Poa palustris</i> | <i>Senecio plattensis</i> |
| <i>Poa pratensis</i> | <i>Silene antirrhina</i> |
| <i>Polygala verticillata</i> | <i>Silene stellata</i> |
| <i>Polygonatum canaliculatum</i> | <i>Sisyrinchium campestre</i> |
| <i>Polygonum aviculare</i> | <i>Solidago gigantea</i> |
| <i>Polygonum convolvulus</i> | <i>Solidago missouriensis</i> |
| <i>Polygonum erectum</i> | <i>Solidago nemoralis</i> |
| <i>Polygonum lapathifolium</i> | <i>Sorghastrum nutans</i> |
| <i>Polygonum punctatum</i> | <i>Spartina pectinata</i> |
| <i>Polygonum ramosissimum</i> | <i>Sphenopholis obtusata</i> |
| <i>Polygonum scandens</i> | <i>Sporobolus crytandrus</i> |
| <i>Polygonum tenue</i> | <i>Sporobolus heterolepis</i> |
| <i>Portulaca oleracea</i> | <i>Sporobolus vaginiflorus</i> |
| <i>Potentilla arguta</i> | <i>Stvia spartea</i> |
| <i>Potentilla pensylvanica</i> | <i>Symphoricarpos occidentalis</i> |
| <i>Prenanthes aspera</i> | <i>Talinum parviflorum</i> |
| <i>Prunus americana</i> | <i>Tradescantia bracteata</i> |
| <i>Prunus pumila</i> | <i>Tradescantia ohniensis</i> |
| <i>Prunus virginiana</i> | <i>Trifolium repens</i> |
| <i>Psoralea argophylla</i> | <i>Triodanis perfoliata</i> |
| <i>Psoralea esculenta</i> | <i>Typha latifolia</i> |
| <i>Ranunculus abortivus</i> | <i>Verbena bracteata</i> |
| <i>Raphanus raphanistrum</i> | <i>Verbena simplex</i> |
| <i>Ratibida columnifera</i> | <i>Verbena stricta</i> |
| <i>Rhus glabra</i> | <i>Vicia americana</i> |
| <i>Rhus radicans</i> | <i>Viola papilionacea</i> |
| <i>Ribes missouriense</i> | <i>Viola pedatifida</i> |
| <i>Rorippa sinuata</i> | <i>Viola sororia</i> |
| <i>Rosa carolina</i> | <i>Woodstia oregana</i> |

3. Prairie flora of the high loess bluffs. Four examples are: Se-geant Bluff, Iowa, and Stone State park, Woodbury County; Joy Creek Bluffs, Plymouth County; and the loess bluffs of western Monona County.

| | |
|---------------------------------|---------------------------------|
| <i>Achillea millefolium</i> | <i>Carex gravida</i> |
| <i>Agoseris cuspidata</i> | <i>Carex pensylvanica</i> |
| <i>Agropyron desertorum</i> | <i>Carex saximontana</i> |
| <i>Allium canadense</i> | <i>Castilleja sessiliflora</i> |
| <i>Amaranthus graecizans</i> | <i>Ceanothus ovatus</i> |
| <i>Ambrosia artemisiifolia</i> | <i>Celtis occidentalis</i> |
| <i>Ambrosia psilostachya</i> | <i>Cenchrus pauciflorus</i> |
| <i>Amorpha canescens</i> | <i>Chamaecrista fasciculata</i> |
| <i>Andropogon gerardi</i> | <i>Chenopodium album</i> |
| <i>Andropogon scoparius</i> | <i>Cirsium flodmani</i> |
| <i>Anemone canadensis</i> | <i>Comandra umbellata</i> |
| <i>Anemone cylindrica</i> | <i>Convolvulus sepium</i> |
| <i>Anemone patens</i> | <i>Conyza canadensis</i> |
| <i>Antennaria neglecta</i> | <i>Crotalaria sagittalis</i> |
| <i>Apocynum cannabinum</i> | <i>Croton monanthogynus</i> |
| <i>Aristida longiseta</i> | <i>Da'ea alopecuroides</i> |
| <i>Aristida oligantha</i> | <i>Da'ea enneandra</i> |
| <i>Artemisia dracunculus</i> | <i>Delphinium virescens</i> |
| <i>Artemisia ludoviciana</i> | <i>Digitaria sanguinalis</i> |
| <i>Asclepias auriculata</i> | <i>Dussodia papposa</i> |
| <i>Asclepias tuberosa</i> | <i>Echinacea pallida</i> |
| <i>Asclepias verticillata</i> | <i>Echinach'oa crus-galli</i> |
| <i>Asclepias viridiflora</i> | <i>Elymus canadensis</i> |
| <i>Aster ericoides</i> | <i>Equisetum laevigatum</i> |
| <i>Aster laevis</i> | <i>Eragrostis cilianensis</i> |
| <i>Aster oblongifolius</i> | <i>Eragrostis spectabilis</i> |
| <i>Aster sericeus</i> | <i>Erigeron annuus</i> |
| <i>Astragalus crassicaarpus</i> | <i>Erigeron strigosus</i> |
| <i>Astragalus lotiflorus</i> | <i>Eupatorium altissimum</i> |
| <i>Astragalus missouriensis</i> | <i>Euphorbia corollata</i> |
| <i>Bouteloua curtipendula</i> | <i>Euphorbia dentata</i> |
| <i>Bouteloua gracilis</i> | <i>Euphorbia falcata</i> |
| <i>Brassica kaber</i> | <i>Euphorbia glytosperma</i> |
| <i>Bromus japonicus</i> | <i>Euphorbia heterophylla</i> |
| <i>Caca'ia tuberosa</i> | <i>Euphorbia maculata</i> |
| <i>Ca'amovifla longifolia</i> | <i>Euphorbia marginata</i> |
| <i>Cannabis sativa</i> | <i>Euphorbia supina</i> |
| <i>Carex brevior</i> | <i>Fragaria virginiana</i> |
| <i>Carex cholanensis</i> | <i>Scilla coccinea</i> |

| | |
|---------------------------------|------------------------------------|
| <i>Gentiana puberula</i> | <i>Physalis longifolia</i> |
| <i>Gerardia aspera</i> | <i>Physalis virginiana</i> |
| <i>Glycyrrhiza lepidota</i> | <i>Plantago purshii</i> |
| <i>Haplopappus spinulosus</i> | <i>Polanisia graveolens</i> |
| <i>Hedeoma hispida</i> | <i>Polygala verticillata</i> |
| <i>Helianthus annuus</i> | <i>Polygonum convolvulus</i> |
| <i>Helianthus laetiflorus</i> | <i>Polygonum persicaria</i> |
| <i>Heliopsis helianthoides</i> | <i>Polygonum ramosissimum</i> |
| <i>Heuchera richardsonii</i> | <i>Potentilla arguta</i> |
| <i>Houstonia nigricans</i> | <i>Psoralea argophylla</i> |
| <i>Hpericum perforatum</i> | <i>Psoralea esculenta</i> |
| <i>Isanthus brachyatus</i> | <i>Ratibida columnifera</i> |
| <i>Kochia scoparia</i> | <i>Ratibida pinnata</i> |
| <i>Koeleria cristata</i> | <i>Rhus glabra</i> |
| <i>Kuhnia eupatorioides</i> | <i>Rosa blanda</i> |
| <i>Lactuca ludoviciana</i> | <i>Rosa suffulta</i> |
| <i>Lactuca pulchella</i> | <i>Rubus occidentalis</i> |
| <i>Lappula echinata</i> | <i>Salix humilis</i> |
| <i>Lappula redowskii</i> | <i>Salsola kali</i> |
| <i>Lepidium desiflorum</i> | <i>Salvia reflexa</i> |
| <i>Lespedeza capitata</i> | <i>Schedonardus paniculatus</i> |
| <i>Liatris punctata</i> | <i>Scrophularia lanceolata</i> |
| <i>Linum rigidum</i> | <i>Senecio plattensis</i> |
| <i>Linum sulcatum</i> | <i>Setaria italica</i> |
| <i>Lithospermum canescens</i> | <i>Setaria viridis</i> |
| <i>Lithospermum incisum</i> | <i>Shepherdia argentea</i> |
| <i>Lygodesmia juncea</i> | <i>Silphium laciniatum</i> |
| <i>Medicago lupulina</i> | <i>Sisyrinchium campestre</i> |
| <i>Medicago sativa</i> | <i>Solanum rostratum</i> |
| <i>Melilotus alba</i> | <i>Solidago altissima</i> |
| <i>Melilotus officinalis</i> | <i>Solidago gigantea</i> |
| <i>Mentzelia decapetala</i> | <i>Solidago missouriensis</i> |
| <i>Mirabilis hirsuta</i> | <i>Solidago nemoralis</i> |
| <i>Monarda fistulosa</i> | <i>Solidago rigida</i> |
| <i>Morus alba</i> | <i>Solidago speciosa</i> |
| <i>Muhlenbergia cuspidata</i> | <i>Sorghastrum nutans</i> |
| <i>Muhlenbergia frondosa</i> | <i>Spartina pectinata</i> |
| <i>Nepeta cataria</i> | <i>Sphaeralcea coccinea</i> |
| <i>Oenothera biennis</i> | <i>Sporobolus asper</i> |
| <i>Oenothera serulata</i> | <i>Sporobolus cryptandrus</i> |
| <i>Onosmodium occidentale</i> | <i>Stipa spartea</i> |
| <i>Oxalis stricta</i> | <i>Strophostyles leiosperma</i> |
| <i>Oxalis violacea</i> | <i>Symphoricarpos occidentalis</i> |
| <i>Oxytropis lambertii</i> | <i>Tephrosia virginiana</i> |
| <i>Panicum scribnerianum</i> | <i>Tradescantia bracteata</i> |
| <i>Panicum wilcoxianum</i> | <i>Trifolium pratense</i> |
| <i>Penstemon albidus</i> | <i>Trifolium repens</i> |
| <i>Penstemon grandiflorus</i> | <i>Ulmus americana</i> |
| <i>Petalostemum candidum</i> | <i>Verbena bracteata</i> |
| <i>Petalostemum multiflorum</i> | <i>Verbena stricta</i> |
| <i>Petalostemum occidentale</i> | <i>Vicia americana</i> |
| <i>Petalostemum purpureum</i> | <i>Violeta pedatifida</i> |
| <i>Phlox pilosa</i> | <i>Yucca glauca</i> |

4. Dry gravel hills. Interesting habitats have been formed in areas where the glacial till eroded away and left the exposed gravel. Two examples are: NE $\frac{1}{4}$ Sec. 23, T-94N, R-39W, O'Brien County; W $\frac{1}{2}$ Sec. 10, T-92N, R-40W, Cherokee County.

| | |
|--------------------------------|---------------------------------|
| <i>Agoseris cuspidata</i> | <i>Camelina microcarpa</i> |
| <i>Allium stellatum</i> | <i>Carex brevior</i> |
| <i>Ambrosia artemisiifolia</i> | <i>Carex eleocharis</i> |
| <i>Ambrosia psilostachya</i> | <i>Carduus acanthoides</i> |
| <i>Amorpha canescens</i> | <i>Castilleja sessiliflora</i> |
| <i>Andropogon scoparius</i> | <i>Ceanothus americanus</i> |
| <i>Anemone cylindrica</i> | <i>Ceanothus ovatus</i> |
| <i>Anemone patens</i> | <i>Cenchrus pauciflorus</i> |
| <i>Androsace occidentalis</i> | <i>Chamaecrista fasciculata</i> |
| <i>Apocynum cannabinum</i> | <i>Chenopodium leptophyllum</i> |
| <i>Aristida bastramea</i> | <i>Cirsium flodmani</i> |
| <i>Artemisia ludoviciana</i> | <i>Comandra umbellata</i> |
| <i>Asclepias tuberosa</i> | <i>Conyza canadensis</i> |
| <i>Asclepias viridiflora</i> | <i>Corcopsis palmata</i> |
| <i>Aster ericoides</i> | <i>Corydalis micrantha</i> |
| <i>Aster laevis</i> | <i>Cuscuta polygonorum</i> |
| <i>Aster oblongifolius</i> | <i>Delphinium virecens</i> |
| <i>Aster sericeus</i> | <i>Descurainia pinnata</i> |
| <i>Astragalus canadensis</i> | <i>Descurainia sophia</i> |
| <i>Astragalus caryocarpus</i> | <i>Desmodium illinoense</i> |
| <i>Astragalus lotiflorus</i> | <i>Draba reptans</i> |
| <i>Bouteloua curtipendula</i> | <i>Dyssodia papposa</i> |
| <i>Bouteloua gracilis</i> | <i>Echinacea pallida</i> |
| <i>Bouteloua hirsuta</i> | <i>Echinochloa crus-galli</i> |
| <i>Calamovilfa longifolia</i> | <i>Echinocystis lobata</i> |

| | |
|----------------------------------|------------------------------------|
| <i>Elymus canadensis</i> | <i>Panicum scribnerianum</i> |
| <i>Equisetum laevigatum</i> | <i>Panicum virgatum</i> |
| <i>Eragrostis cilianensis</i> | <i>Parietaria pennsylvanica</i> |
| <i>Erigeron strigosus</i> | <i>Penstemon grandiflorus</i> |
| <i>Euphorbia dentata</i> | <i>Petalostemum purpureum</i> |
| <i>Euphorbia esula</i> | <i>Physalis virginiana</i> |
| <i>Euphorbia glyptosperma</i> | <i>Plantago purshii</i> |
| <i>Euphorbia maculata</i> | <i>Poa compressa</i> |
| <i>Euphorbia marginata</i> | <i>Poa pratensis</i> |
| <i>Festuca octoflora</i> | <i>Polanisia graveolens</i> |
| <i>Gentiana puberula</i> | <i>Polygonum convolvulus</i> |
| <i>Haploppappus spinulosus</i> | <i>Polygonum pennsylvanicum</i> |
| <i>Hedoma hispida</i> | <i>Polygonum persicaria</i> |
| <i>Helianthus annuus</i> | <i>Polygonum ramosissimum</i> |
| <i>Helianthus grosseserratus</i> | <i>Potentilla arguta</i> |
| <i>Helianthus laetiflorus</i> | <i>Psoralea esculenta</i> |
| <i>Helianthus maximiliani</i> | <i>Rumex altissimus</i> |
| <i>Heuchera richardsonii</i> | <i>Scutellaria parvula</i> |
| <i>Hypericum perforatum</i> | <i>Senecio plattensis</i> |
| <i>Koeleria cristata</i> | <i>Setaria lutescens</i> |
| <i>Kuhnia eupatorioides</i> | <i>Setaria viridis</i> |
| <i>Lactuca ludoviciana</i> | <i>Silene antirrhina</i> |
| <i>Lactuca pulchella</i> | <i>Sisymbrium altissimum</i> |
| <i>Liatis aspera</i> | <i>Solidago missouriensis</i> |
| <i>Liatis punctata</i> | <i>Solidago nemoralis</i> |
| <i>Lithospermum incisum</i> | <i>Solidago rigida</i> |
| <i>Lomatium orientale</i> | <i>Sporobolus cryptandrus</i> |
| <i>Medicago lupulina</i> | <i>Sporobolus heterolepis</i> |
| <i>Mirabilis albidia</i> | <i>Stipa comata</i> |
| <i>Mirabilis hirsuta</i> | <i>Stipa spartea</i> |
| <i>Muhlenbergia cuspidata</i> | <i>Symphoricarpos occidentalis</i> |
| <i>Oenothera serrulata</i> | <i>Tradescantia bracteata</i> |
| <i>Onosmodium occidentale</i> | <i>Verbena bracteata</i> |
| <i>Panicum capillare</i> | <i>Verbena stricta</i> |
| <i>Panicum leibergii</i> | <i>Xanthium strumarium</i> |

STATISTICAL SUMMARY

A. Components of the flora of northwestern Iowa:

| Major Groups of Tracheophyta | Species | Genera | |
|------------------------------|------------|-------------|------------|
| | Native | Naturalized | |
| "Pteridophytes" | 10 | 0 | 8 |
| Conifers | 1 | 0 | 1 |
| Monocotyledons | 184 | 26 | 80 |
| Dicotyledons | 429 | 97 | 282 |
| Total | 624 | 123 | 371 |

B. Total number of families represented: 99

C. Largest families with total number of species in each:

| | | | |
|-----------------------|-----|----------------------------|----|
| Gramineae | 104 | Labiatae | 23 |
| Compositae | 95 | Ranunculaceae | 21 |
| Cyperaceae | 53 | Scrophulariaceae | 20 |
| Leguminosae | 48 | Polygonaceae | 18 |
| Rosaceae | 30 | Umbelliferae | 18 |
| Cruciferae | 27 | | |

D. Largest genera with number of species in each:

| | | | |
|---------------------|----|----------------------|---|
| Carex | 36 | Panicum | 8 |
| Euphorbia | 13 | Salix | 8 |
| Asclepias | 9 | Solidago | 8 |
| Aster | 8 | Viola | 8 |
| Cyperus | 8 | Potentilla | 7 |

E. Total number of vascular plants known from northwestern Iowa: 747

Literature Cited

Bain, H. F. 1895. Geology of Woodbury County. Iowa Geological Survey
 5, 241-299
<https://scholarworks.uni.edu/pias/vol68/iss1/24>

- 1897. Geology of Plymouth County. Iowa Geological Survey 8: 339-367.
- Fernald, M. L. 1950. Gray's Manual of Botany. 8th ed. American Book Co. New York, N. Y.
- Gleason, H. A. 1952. New Britton and Brown Illustrated Flora. New York Botanical Garden. Lancaster Press. Lancaster, Pa.
- Grant, M. L. 1953. Notes on Iowa vascular plants. Proc. Iowa Acad. Sci. 60: 141-149.
- MacBride, T. H. 1899. Geology of Osceola and Dickenson Counties. Iowa Geological Survey 10: 185-241.
- 1901. Geology of Cherokee and Buena Vista Counties. Iowa Geological Survey 12: 303-353.
- 1905. Geology of Sac and Ida Counties. Iowa Geological Survey 16: 509-562.
- Shimek, B. 1899. Flora of Lyon County. Iowa Geological Survey 10: 157-184.
- 1909. Geology of Harrison and Monona Counties. Iowa Geological Survey 20: 271-484.
- Thorne, R. F. 1954. Present status of our knowledge of the vascular plant flora of Iowa. Proc. Iowa Acad. Sci. 61: 177-183.
- 1956. Notes on rare Iowa plants II. Proc. Iowa Acad. Sci. 63: 214-227.