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Notes on Rare Iowa Plants — II

By ROBERT F. THORNE

Much new information about the vascular plants of Iowa has resulted from three years of botanical exploration in various parts of the state since the first "Notes" were presented in 1953. Some of the more interesting results of the author's botanical gleanings in the period 1953-1955 have been published (Aikman and Thorne 1956, Beal and Monson 1954, Cooperrider 1955a and 1955b, Grant and Thorne 1955, and Thorne 1955.) Much more data, however, about species not previously reported from Iowa or rarely collected in the state should be placed on record for interested botanists. This information, with supplementary data from overlooked specimens of earlier collectors, is here presented by families in Englerian sequence, with pertinent comments on the known distribution in Iowa of the rare species. For some of these, associated rare or otherwise noteworthy plants are listed to indicate the richness of several of the habitats. Introduced species, where recognized as such, are indicated by an asterisk. Numbers not preceded by a name represent the author's collection numbers. All of these collections are deposited in the Herbarium of the State University of Iowa.

GRAMINEAE

Buchloë dactyloides (Nutt.) Engelm., buffalo grass, in Iowa is native apparently only in Lyon County, but it occurs sporadically in lawns and pastures in other parts of the state. Goodman (1942) reported it from an Ottumwa yard in Wapello County. In 1955 Mr. Don Sinek, in charge of landscaping on the University campus, called to the author's attention a small, dense patch of this species on the grassy banks of the Iowa River in Iowa City, Johnson County, 17520, Oct. 18, 1955. Only pistillate plants were found. Other recent collections include Lyon: dry, shallow soil on outcrops of Sioux quartzite, Gitche Manitou State Park, Sioux Twp., 14219, June 26, 1954, and 16087, June 22, 1955; similar outcrops 2 miles farther east, 14247, June 26, 1954; Woodbury: hardpacked, overgrazed pasture, Sergeant Bluff, Woodbury Twp., 13375, Aug. 13, 1953, there growing with *Aristida oligantha* Michx., 13376, *Sporobolus neglectus* Nash, 13380, and *Dyssodia papposa* (Vent.) Hitchc., 13365.

**Miscanthus sacchariflorus* (Maxim.) Hack., reported in the first "Notes" from eastern and southern Iowa, has spread also to northwestern Iowa. Cherokee: margin of artificial lake on the Nestor L. Stile place, Silver Twp., Sec. 31, 14708, Aug. 17, 1954. In as much as Mr. Stile affirmed that he had not introduced the

species, it would be interesting to trace its origin. Although the nearest known location of a naturalized stand is a slough in *Montgomery* County, this ornamental grass is frequently cultivated and might have escaped locally.

Muhlenbergia sobolifera (Muhl.) Trin. is probably not so rare a grass as available collections would seem to indicate. *Johnson*: dry, calcareous bluff, McBride State Park, Big Grove Twp., 17508, Oct. 11, 1955. There are other specimens in the University herbarium from *Guthrie*, *Hardin*, *Jones*, and *Madison* counties.

Also found near the dam impounding McBride Lake were several other species of *Muhlenbergia*. *M. brachyphylla* Bush, 17507, like the preceding an addition to the *Johnson* County flora, is otherwise represented at the University from *Cedar* and *Muscatine* counties. *M. sylvatica* Torr., 17509, too is seldom collected, whereas *M. schreberi* J. F. Gmel., 17506, is common. The relatively rare *Diarthra americana* Beauv., 17504, is abundant on an adjacent rocky slope.

Panicum boreale Nash seems to be unreported from Iowa. There is in the University herbarium a specimen of this grass, misidentified as *P. huachucae* Ashe var. *silvicola* H. & C., from *Clayton* County: prairie along railroad northwest of Edgewood, B. Shimek, June 15, 1923.

Panicum depauperatum Muhl., though listed by Cratty (1933) as frequent in dry soils, seems to be one of the rarest species of the genus in Iowa. It is represented at the University by specimens from *Muscatine*: dry cliff at Wild Cat Den, W. D. Barnes, June 1895; *Winneshiek*: sandy talus from St. Peter sandstone one mile northeast of Hesper, Hesper Twp., Sec. 12, 12417, June 10, 1953. It has also been reported by Tolstead (1938) from sandy soil at Pike's Peak State Park, *Clayton* County. The three stations possess in common sandy talus from sandstone outcrops.

Some characteristic associates of sandstone crevices and sandy talus at the Hesper station are *Selaginella rupestris* (L.) Spreng., 11162, *Woodsia ilvensis* (L.) R. Br., 11169, *Agrostis scabra* Willd., 12415, *Aristida basiramea* Engelm., 11165, *Carex muhlenbergii* Schk., 12416, *Cyperus filiculmis* Vahl, *Betula alba* L. subsp. *papyrifera* (Marsh.) Spach., 11167, *Polygonella articulata* (L.) Meisn., 11154, *Polygonum tenue* Michx., 11163, *Silene antirrhina* L., *Amelanchier interior* Nielson, 11157, 12413, *Potentilla tridentata* Ait., 11160, 12412, *Prunus pennsylvanica* L. f., 11168, 12410, *Prunus pumila* L., 11158, 12420, *Pyrus melanocarpa* (Michx.) Willd. 11166, 12411, *Rubus flagellaris* Willd., 12419, *Helianthemum canadense* (L.) Michx., *Lechea stricta* Leggett, 11155, and *Viola pedata* L., 11156, 12484.

Panicum philadelphicum Bernh., one of our rarest grasses, was collected from the wet, sandy, eastern margin of Round Lake, *Clay*

County, 13548, Aug. 20, 1953. Although reported from Iowa by Fernald (1950), Hitchcock (1951), and Conard (1951), this species is not mentioned in "The Iowa Flora" by Cratty (1933), nor its supplements by Goodman (1940, 1942) and Hayden (1940, 1945), nor by Hayden (1943) in her flora of Clay and Palo Alto counties.

CYPERACEAE

Carex careyana Torr., not reported by Gilly (1946) in "The Cyperaceae of Iowa" and reported only from Dubuque County by Bennett (1948), is represented in the University herbarium by specimens from *Delaware*: rich talus, Backbone State Park, W. A. Anderson 1613, May 14, 1939; *Dubuque*: White Pine Hollow State Park, Liberty Twp., foot of rich, loamy wooded slope, 14023, May 15, 1954; lower, wooded rocky slopes, B. Shimek, May 11-12, 1901.

Collected with this sedge in the same rich loam in hardwood forest were such Iowa rarities as *Carex pedunculata* Muhl., 14016, *C. woodii* Dewey, *Aplectrum hyemale* (Muhl.) Torr., 14021, *Hydrastis canadensis* L., 14020, *Jeffersonia diphylla* (L.) Pers., 14019, *Dicentra canadensis* (Goldie) Walp., 14018, *Hybanthus concolor* (T. F. Forst.) Spreng., 14040. The writer has seen no richer woods in Iowa.

Carex conoidea Schk. is reported from Fayette County by Gilly (1946) and is represented at the University by specimens from *Linn* and *Scott* counties. It is now also known from *Johnson* County: sandy, seepage slopes along small branches, Cedar Twp., Sec. 35, 15800, 15833.

From this habitat several other sedges were added in 1955 to the county flora: *Eleocharis wolfii* Gray, *Carex tetanica* Schk., 15800a, 15845, *C. interior* Bailey, 15812. Several other species of bogs, seepage slopes, and swales, rare in the county, were also collected: *Thelypteris palustris* Schott, 15815, *Carex buxbaumii* Wahl., 15806, *Phlox maculata* L., 15827, 17360, *Pedicularis lanceolata* Michx., 15824, *Aster lucidulus* (Gray) Wieg., 15852, *Cacalia tuberosa* Nutt., 15802, 17363, and *Liatris pycnostachya* Michx., 15834.

Carex gracillima Schwein., reported as rare by Cratty (1933) and Gilly (1946), has been collected recently in several counties. *Clayton*: Meyer woodlot near Garnavillo, 15936, May 30, 1955; *Johnson*: rich wooded slope, McBride State Park, Big Grove Twp., 14102, May 27, 1954; *Winneshiek*: open woods near Hesper, Hesper Twp., Sec. 14, 12424, June 10, 1953. This sedge is known also from *Cedar*, *Chickasaw*, and *Emmet* counties.

Carex limosa L. had not been found in Iowa since Cratty collected specimens in 1892 from an *Emmet* County bog, long-since drained. It was, however, collected in 1955 on the floating sphagnum mat in Dead Man's Lake, Pilot Knob State Park, *Hancock*

County, 15940, June 12, and 16269, Aug. 4. Growing with it were the equally rare Iowa sedges, *Carex muricata* L. var. *cephalantha* Bailey, *C. chordorrhiza* L. f., and *Eriophorum gracile* Koch.

In addition to *C. limosa* the following species, previously unreported from Dead Man's Lake by Grant and Thorne (1955) were found in 1955: *Calamagrostis canadensis* (Michx.) Nutt., 16262, *Carex lupulina* Muhl., 16267, *C. stipata* Muhl., 15954, *Eleocharis ovata* (Roth.) R. & S., *Iris virginica* L. var. *shrevei* (Small) E. Anders., *Liparis loeselii* (L.) Richard, 15949, seedlings of *Populus tremuloides* Michx., 15947, and *Prunus serotina* Ehrh., 16267, *Salix interior* Rowlee, 15961, *Polygonum coccineum* Muhl., 16263, *P. pennsylvanicum* L., 16264, *Cardamine pennsylvanica* Muhl., 15957, and *Solidago gigantea* Ait., 16268. Further investigations will undoubtedly add to the 88 vascular plants already listed.

Carex peckii Howe, not reported from Iowa by Gilly (1946) nor by Bennett (1948), has been collected in several northeastern counties. *Allamakee*: north facing bluff along Yellow River near Old Stone House, Post Twp., Sec. 12, 12455, June 10, 1953; *Dubuque*: White Pine Hollow State Forest, Liberty Twp., steep, wooded slope under pines, 12327, June 8, 1953; on limestone talus in cool air drainage on north-facing slope, 14035, May 15, 1954; *Winneshiek*: north-facing, forested bluff along Upper Iowa River near Bluffton, Bluffton Twp., Sec. 10, 14131, June 10, 1954.

Carex woodii Dewey, likewise overlooked by Gilly and Bennett, is known from rich woods in two northeastern Iowa counties. *Delaware*: rich talus, Backbone State Park, W. A. Anderson, May 14, 1939; *Dubuque*: rich woods, White Pine Hollow State Forest, Liberty Twp., 14022, May 15, 1954, with *C. careyana* Torr. and the associated species listed above.

Eleocharis ovata (Roth) R. & S. is a northern spike-rush whose Iowa reports have been based usually on specimens of *E. obtusa* (Willd.) Schultes. This species, however, is common in wet mud at the edge of the floating bog mat of Dead Man's Lake, Pilot Knob State Park, Hancock county, 14355, July 8, 1954, and 15958, June 12, 1955. The former collection was reported in error by Martin and Thorne (1955) as *E. obtusa*.

Eleocharis tenuis (Willd.) Schultes was reported by Beal and Monson (1954) from 14 eastern and northern Iowa counties. Specimens from eastern Iowa appear to be the var. *verrucosa* (Svens.) Svens., those from northern Iowa the var. *borealis* (Svens.) Gleas. (*E. elliptica* Kunth). Recent collections of the former variety are from Johnson County: moist prairie remnant along railroad, Scott Twp., Sec. 19, 10589, May 25, 1952; sandy seepage slope, Cedar Twp., Sec. 35, 15826a, May 14, 1955. Most recent collections of the latter variety are from Dickinson County: moist swales in Cayler Prairie, Lakeville Twp., Sec. 17, 16067, June 21,

1955; 16149, 16170, July 9, 1955. One collection from *Emmet* County, in marl of large fen, since drained, along Des Moines River, Emmet Twp., Sec. 21, 13103, July 25, 1953, matches neither variety due to the unusually large size of its achenes, about 1.5-1.6 mm., including the tubercle.

Eleocharis wolfii Gray was reported by Beal and Monson (1954) only from *Cedar*, *Emmet*, and *Union* counties. It was recently collected in *Johnson* County; wet, sandy, seepage slopes along small branches, Cedar Twp., Sec. 35, 15820, and Sec. 36, 15850, May 14, 1955.

Scleria verticillata Muhl. is apparently restricted in Iowa to marl fens along the Des Moines River in *Emmet* County. With the tiling in 1953 of the large fen in Sec. 21, Emmet Twp., this sedge now faces extinction in the state. It was abundant there when collected in 1953 on July 25, 13097, and Aug. 17, 13441. A trip to the fen in June 29, 1954, showed that the fascinating calcicolous flora had been eliminated by a combination of drainage, fencing, and heavy grazing.

To indicate what has been lost by the destruction of this fen, some of the rarer plants collected there in 1953 are listed: *Triglochin palustris* L., 13081, *T. maritima* L., 13082, *Calamagrotis inexpansa* Gray, 13094, *Muhlenbergia glomerata* (Willd.) Trin., 13096, 13441, *Carex aquatilis* Wahl., 13105, *C. interior* Bailey, 13106, *C. prarisa* Dew., 13104, *C. tetanica* Schk., 13107, *Eleocharis pauciflora* (Lightf.) Link var. *fernaldii* Svens., 13102, *Eriophorum angustifolium* Honck., 13099, *Rhynchospora capillacea* Torr., 13098, *Scirpus americanus* Pers., 13101, *Zigadenus elegans* Pursh, 13086, *Spiranthes romanzoffiana* Cham., 13085, *Parnassia glauca* Raf., 13084, *Gentiana procera* Holm, 13448a, *Gerardia paupercula* (Gray) Britt., 13445, *Lobelia kalmii* L., 13083, *Aster junciformis* Rydb., 13088, 13448, *Aster umbellatus* Mill., 13087, 13450, and *Solidago riddellii* Frank, 13451.

PONTEDERIACEAE

Heteranthera limosa (Sw.) Willd., reported only from *Fremont* and *Muscatine* counties by Beal and Monson (1954), is also known now from the northwestern corner of the state. *Lyon*: small, mud-bottomed pool, up to 4 inches deep, on Sioux quartzite, Gitchee Manitou State Park, Sioux Twp., Thorne and Grant 14246, June 26, 1954. Growing in the pool with it was *Bacopa rotundifolia* (Michx.) Wettst., 14245.

Some other noteworthy species on the Sioux quartzite outcrops, in temporary pools, and in adjacent dry prairie include *Selaginella rupestris* (L.) Spreng., 9787, *Woodsia oregana* D. C. Eat., 14240, 14631, *Aristida curtisii* (Gray) Nash, 14621, *Buchloë dactyloides*

(Nutt.) Engelm., *Schedonardus paniculatus* (Nutt.) Trel., 14216, *Cyperus acuminatus* Torr. & Hook., 14627, *Polygonum tenue* Michx., 14614, *Talinum parviflorum* Nutt., 14212, *Rorippa sinuata* (Nutt.) Hitchc., 14250, *Potentilla pensylvanica* L., 14248, 16089, *Prunus pumila* L., 14617, *Euphorbia dictyosperma* Fisch. & Mey., 14205, *Opuntia fragilis* (Nutt.) Haw., 14211, *Collomia linearis* Nutt., 14206, *Penstemon gracilis* Nutt., 14232, 16091, *P. grandiflorus* Nutt., 14233, *Chrysopsis villosa* (Pursh) Nutt. var. *angustifolia* (Rydb.) Cron., 14210, 16092, and *Ratibida columnifera* (Nutt.) Wooton & Standl., 9774.

JUNCACEAE

Juncus greenii Oakes & Tuckerm. is apparently unreported from Iowa. It was recently discovered by Ernest Beal in the University herbarium misidentified as *Juncus vaseyi* Engelm. *Winneshiek*: low ground, Ft. Atkinson, B. Shimek, Aug. 11, 1903. This correction may eliminate the basis for the Iowa reports of *J. vaseyi* Engelm.

LILIACEAE

Streptopus roseus Michx., reported from Iowa as *S. longipes* Fern. by Rydberg (1932), has recently been collected in north-eastern Iowa. *Dubuque*: on limestone talus in cold air drainage on yew-covered, north facing bluff, White Pine Hollow State Forest, Liberty Twp., 14046, May 15, 1954. It had just previously been collected by Dr. Martin Grant at Bixby State Park, Clayton County.

Occupying the same *Taxus*-covered slope in White Pine Hollow are such Iowa "boreal" rarities as *Lycopodium obscurum* L., 14051, *Carex peckii* Howe, *C. pedunculata* Muhl., 14036, *Luzula acuminata* Raf., 14017, *Chrysosplenium ioense* Rydb., 14033, *Ribes hudsonianum* Richards, 14043, *Amelanchier sanguinea* (Pursh) DC., 14050, *Rubus pubescens* Raf., 14047, *Rhamnus alnifolia* L'Her., 14045, *Viola renifolia* Gray, 14049, *Circaea alpina* L., and *Adoxa moschatellina* L., 14034.

ORCHIDACEAE

Habenaria hookeri Gray has been collected in *Clayton*, *Fayette*, and *Winneshiek* counties. On June 8, 1953, it was collected also in *Dubuque* County: wooded, west-facing slope near crest of bluff, White Pine Hollow State Forest, Liberty Twp., 12338.

Growing on the same slope with this rare orchid or on similar wooded, rocky slopes in the Hollow are *Goodyera pubescens* (Willd.) R. Br., 12339, *Habenaria viridis* (L.) R. Br., 12340, *Cypripedium calceolus* L., 12341, *Oryzopsis racemosa* (Sm.) Ricker, *Poa wolfii* Scribn., 12332, 12335, *Schizachne purpurascens* (Torr.) Swallen, 12334, *Maianthemum canadense* Desf., 12319, *Lathyrus*

ochroleucus Hook, 12311, *Clematis verticillaris* DC., 12320, *Mono-
tropha uniflora* L., 12336, *Viburnum opulus* L. var. *americanum*
Ait., 12307, *V. rafinesquianum* Schultes, 12317, and other uncom-
mon species.

URTICACEAE

Pilea fontana (Lunnell) Rydb. has apparently been overlooked in Iowa as a depauperate form of *P. pumila* (L.) Gray. It is probably frequent around springheads. Dickinson: wet, springy marl of fen by Silver Lake, Silver Lake Twp., Sec. 32, 16209, July 28, 1955. Associated with it was the very rare *Berula pusilla* (Nutt.) Fern., 16134, 16204.

Several species not listed by Anderson (1943) nor by Grant (1953) have in recent years been added to the flora of Silver Lake Fen, including *Eleocharis pauciflora* (Lightf.) Link var. *fernaldii* Svens., 13053, *Juncus balticus* Willd. var. *littoralis* Engelm., 13062, *Juncus* x *nodosiformis* Fern., 13061, apparently a sterile hybrid growing with its putative parents, *J. alpinus* Vill. and *J. nodosus* L., *Habenaria hyperborea* (L.) R. Br. var. *huronensis* (Nutt.) Farw., 16135, 16202, and *Utricularia minor* L., 13048, 16206.

CRUCIFERAE

**Erucastrum gallicum* (Willd.) O. E. Schulz is a rare weed apparently not reported previously in Iowa. Woodbury: quarry in loess bluff, Sergeant Bluff, Woodbury Twp., Sec. 30, 14341, July 2, 1954.

Several other introduced or native weeds rare or infrequent in the rest of the state were also collected in the vicinity of the loess bluffs of western Iowa, mostly on bare pastures or roadsides. They are, with counties given in parentheses, *Stipa viridula* Trin. (Lyon), *Cleome serrulata* Pursh (Plymouth), **Carduus acanthoides* L. (Lyon), **C. nutans* L. (Lyon), *Dyssodia papposa* (Vent.) Hitchc. (Plymouth, Woodbury), and *Grindelia squarrosa* (Pursh) Dunal (Lyon).

CALLITRICHACEAE

Callitriche heterophylla Pursh is a rare aquatic of shallow ponds, known previously from Cedar, Louisa, Muscatine, Palo Alto, and Ringgold counties (Beal and Monson 1954). It appeared in abundance in a temporary pond in sand hills near the Cedar River, Johnson County: Cedar Twp., Sec. 12, 15858, May 14, 1955.

LIMNANTHACEAE

Floerkea proserpinacoides Willd., false mermaid, represents a new genus and family for the Iowa flora. Dubuque: wet ground of springy ravine under hardwoods, White Pine Hollow State For-

est, Liberty Twp., 14037, May 15, 1954. In the springy ground with it was the rare eastern Iowa fern, *Athyrium pycnocarpon* (Spreng.) Tidestr., 14037a.

MALVACEAE

Callirrhoe alcaeoides (Michx.) Gray, a poppy mallow, must have its range, given by Fernald (1950) as Illinois, Missouri, and Nebraska south to Alabama and Texas, extended to include north-western Iowa. *Dickinson*: one plant in rolling prairie, Cayler tract, Lakeville Twp., Sec. 17, Anderson and DeKock, 1955.

GUTTIFERAE

Hypericum boreale (Britt.) Bickn., although reported from eastern Iowa by Fernald (1950), is not included in Cratty's "Iowa Flora" (1933). *Linn*: boggy margin of marsh in pasture, 2½ miles south of Coggon, Jackson Twp., Sec. 27, 10844, July 19, 1952.

This shallow marsh with its surrounding sand hills and sterile pasture has yielded a surprising number of rare plants, several new to the state when collected there, as *Ophioglossum vulgatum* L., 14112, *Botrychium simplex* E. Hitchc., 14013, 14113, (see Cooper-rider 1955a), and *Potamogeton vaseyi* Robbins, 10852, 12285. Other rarities found there are *Sparganium americanum* Nutt., 10843, *Carex interior* Bailey, 12292, *Dulichium arundinaceum* (L.) Britt., 10851, *Eriophorum angustifolium* Honck., 12288, *Brasenia schreberi* Gmel., 10855, *Helianthemum canadense* (L.) Michx., *Oenothera laciniata* Hill, 14115, *Gaylussacia baccata* (Wang.) K. Koch, 10856, and *Houstonia minima* Beck, 14114.

CISTACEAE

Helianthemum canadense (L.) Michx. has largely been neglected by Iowa authors although it is represented at the University by specimens from several eastern counties. *Johnson*: sand hills near Cedar River, Cedar Twp., Sec. 1, 17422a, June 10, 1955, growing with *H. bicknellii* Fern., 17422; *Linn*: sandy slope near shallow pond in pasture, Jackson Twp., Sec. 27, 14117, June 10, 1954; *Muscatine*: sandhills along Cedar River in open woods, F. Reppert, June 12, 1892; *Winneshiek*: sandy talus from St. Peter sandstone outcrops, 1 mile northeast of Hesper, Hesper Twp., Sec. 12, Thorne and Davidson 11161, Aug. 22, 1952; 12483, June 10, 1953.

VIOLACEAE

Viola lanceolata L., a rare white-flowered violet known previously from moist, sandy soil in Cedar and Muscatine counties (Russell 1953), can now be added to the flora of *Johnson* County: wet margin of shallow pond in sandhills, Cedar Twp., Sec. 1, 17423, June 10, 1955. *Scirpus acutus* Muhl., 17415, from the same pond is also an addition to the county flora.

ELEAGNACEAE

Shepherdia argentea Nutt., buffalo berry, seems to be one of the rarest shrubs in western Iowa. It was collected recently in Sioux City, Woodbury County: dry slope leading down into gully in loess bluffs, Stone State Park, 13358, Aug. 13, 1953. It is known also from Emmet County (Wolden 1932).

On dry slopes nearby were found other Great Plains species, such as *Calamovilfa longifolia* (Hook.) Scribn., 13352, *Sporobolus cryptandrus* (Torr.) Gray, 13353, *Dalea enneandra* Nutt., 13355, *Astragalus lotiflorus* Hook., 13356, and *A. missouriensis* Nutt., 13357, 16352.

LYTHRACEAE

**Lythrum salicaria* L., the showy loosestrife, is a welcome, though hitherto unrecognized, member of the Iowa flora. Buena Vista: marshy area near outlet of Storm Lake, Hayes Twp., Sec. 5, 16314, Aug. 11, 1955. No doubt this species, well-established in this marsh, will soon be distributed in other marshy areas in the state.

UMBELLIFERAE

Sanicula trifoliata Bickn. is more frequent in northeastern Iowa than the single report from Jackson County (Murley 1945) would indicate. Allamakee: rich woods, north-facing bluff near mouth of Yellow River, Fairview Twp., Sec. 34, 12357, June 9, 1953; bluff along Bear Creek at Quandahl, Waterloo Twp., Sec. 30, Thorne and Davidson 11187, Aug. 23, 1952; Jackson: B. Shimek, Aug. 1894; Winneshiek: rich woods along Canoe Creek, Canoe Twp., Sec. 8, Thorne and Davidson 11151, Aug. 22, 1952.

ERICACEAE

Pyrola secunda L., reported by Cratty (1933) as rare, seems to be limited to northeastern Iowa. The University specimens are from Allamakee: cool, moss-covered limestone talus on lower slope of Yellow River bluff near Old Stone House, Post Twp., Sec. 12, 12457, June 10, 1953; Winneshiek: Decorah, E. W. D. Holway, July 2, 1893; Decorah, T. E. Savage, May 29, 1899; upland woods, Hesper, B. Shimek, Aug. 18, 1903.

Growing in the cool air drainage on the north-facing bluff along the Yellow River with this shin-leaf is an interesting assemblage of "boreal" species, including *Cryptogramma stelleri* (Gmel.) Prantl, 12434, *Gymnocarpium dryopteris* (L.) Newm., 12459, *G. robertianum* (Hoffm.) Newm., 12456, *Carex peckii* Howe, *Alnus rugosa* (DuRoi) Spreng., *Aconitum noveboracense* Gray, 12451, *Arabis lyrata* L., 12447, *Chrysosplenium ioense* Rydb., 12450, *Viola pal-*

lens (Banks) Brainerd, 12463, 12442, *Acer spicatum* Lam., 12476, and *Rhamnus alnifolia* L'Her., 12475, along with other more common species. Several other noteworthy plants found on the bluff include *Abies balsamea* (L.) Mill., 12474, *Taxus canadensis* (L.) Mill., 12258, *Schizachne purpurascens* (Torr.) Swallen, 12440, *Ulmus thomasi* Sarg., 12441, 12453, *Corylus cornuta* Marsh., 12435, *Diervilla lonicera* Mill., and *Solidago sciaphila* Steele, 12259.

Vaccinium angustifolium Ait. was reported, possibly in error, by Cratty (1933) from Jones and Allamakee counties. It does occur on sandy talus from St. Peter sandstone in Clayton County: Pike's Peak State Park, 10044, July 28, 1951.

Associated with it on the sandy talus are another blueberry, *Vaccinium myrtilloides* Michx., 10045, *Selaginella rupestris* (L.) Spreng., *Polypodium vulgare* L., *Danthonia spicata* (L.) Beauv., *Panicum depauperatum* Muhl., *Maianthemum canadense* Desf., 10833, *Betula alba* L. subsp. *papyrifera* (Marsh.) Spach., *Aralia nudicaulis* L., and *Diervilla lonicera* Mill.

Two heaths not reported from Iowa by Cratty (1933) are represented by collections of B. Shimek located in the herbarium of Iowa State College at Ames. *Arctostaphylos uva-ursi* (L.) Spreng. was collected on a prairie ridge northeast of Hesper, Winneshiek County (presumably on sandy talus from St. Peter sandstone), Aug. 11, 1930, and *Monotropa hypopithys* L. in deep upland woods at McGregor Heights, Clayton County, Aug. 14, 1921. Another rare heath collected by Shimek is *Chimaphila maculata* (L.) Nutt. from upland woods, Hesper, Aug. 18, 1903.

PRIMULACEAE

Dodecatheon radicum Greene (*D. amethystinum* (Fassett) Fassett) occurs in northeastern Iowa apparently only on bluffs along the Mississippi River. *Allamakee*: limestone outcrops near crest of north-facing bluff near mouth of Yellow River, Fairview Twp., Sec. 34, 12365, June 9, 1953; lower half of wooded slopes south of Yellow River, B. Shimek, May 16, 1920; cliff 4 miles north of Lansing (Tolstead 1938); *Clayton*: limestone ledges north of Marquette, B. Shimek, May 16, 1920; rocky cliff south of McGregor, B. Shimek, May 17, 1920; *Dubuque*: John A. Anderson, May 1900.

SCROPHULARIACEAE

**Cymbalaria muralis* Gaertn., Mey. & Scherb., Kenilworth-ivy, in Iowa rarely spreads from cultivation. *Linn*: Vernon Heights and across road from Douglas place on Linden Drive, Cedar Rapids, G. H. Berry, Aug. 19, 1913.

Linaria canadensis (L.) Dumont, reported by Cratty (1933) as rare in sandy soil, is represented at the University by several spec-

imens from eastern Iowa. *Clinton*: sandy terrace, Comanche, B. Shimek, June 6, 1930; *Johnson*: dry sand, Cedar Twp., Sec. 12, 15853, May 14, 1955. *Jones*: Hale Twp., Sec. 6, R. G. Brown 624, May 11, 1949; *Louisa*: Big Sand Mound, B. Shimek, June 6, 1923; *Muscatine*: Muscatine Island, F. Reppert, May 1898 and June 1891.

In addition to the *Linaria* and other species discussed above, the sandy soils of Cedar Twp. have in 1955 yielded as additions to the Johnson County flora *Delphinium virescens* Nutt., 17387, *Agrimonia parviflora* Ait., 15843, *Onosmodium hispidissimum* Mack., 17399, *Scleria triglomerata* Michx.

Penstemon albidus Nutt., reported by Hayden (1940) from Sioux County, is represented at the University by specimens from *Lyon*: low gravelly prairie ridge west of Granite, B. Shimek, June 18-24, 1897, and Sept. 14, 1921. *Plymouth*: loess bluffs along Big Sioux River south of Joy Creek, Sioux Twp., Sec. 29 and 30, 13341, Aug. 13, 1953; high loess hills north of Joy Creek, B. Shimek, June 4, 1921, and May 25, 1929.

Associated with this western beard-tongue on the dry, loess bluffs south of Joy Creek are several other Great Plains species, that in Iowa mostly reach their eastern terminus on the loess bluffs east of the Big Sioux and Missouri rivers. Among them are *Aristida longiseta* Steud., 14330, 14674, *Yucca glauca* Nutt., 14679, *Astragalus lotiflorus* Hook. 13339, 14678, *A. missouriensis* Nutt., 13338, 14332, *Dalea enneandra* Nutt., 14679, *Petalostemon occidentalis* (Gray) Fern., 13343, 14331, *Linum rigidum* Pursh, 13340, *Mentzelia decapetala* (Pursh) Urban & Gilg., 13335, 14333, 14680, and *Gaura coccinea* Pursh, 13348. Other principally western plants found on the Joy Creek bluffs include *Calamovilfa longifolia* (Hook.) Scribn., *Muhlenbergia cuspidata* (Torr.) Rydb., 13336, *Sporobolus cryptandrus* (Torr.) Gray, 13337, *Anemone patens* L. var. *wolfgangiana* (Bess.) Koch, *Oxytropis lambertii* Pursh, 14337, *Petalostemon purpureus* (Vent.) Rydb., 13344, *Euphorbia marginata* Pursh, *Oenothera serrulata* Nutt., *Lithospermum incisum* Lehm., *Castilleja sessiliflora* Pursh, 14334, *Gerardia aspera* Dougl., 14672, *Penstemon grandiflorus* Nutt., 14338a, *Aster oblongifolius* Nutt., *Aster sericeus* Vent., *Echinacea pallida* Nutt., var. *angustifolia* (DC.) Cron., 13342, *Happlopappus spinulosus* (Pursh) DC., *Liatris punctata* Hook., and *Lygodesmia juncea* (Pursh) D. Don.

**Verbascum lychnitis* L. ranges, according to Fernald (1950), from Massachusetts to Ontario, south to Virginia and West Virginia. B. Shimek, however, on Aug. 21, 1917, collected this species in a prairie opening on the Backbone, southwest of Winterset, Madison County.

**Veronica longifolia* L., not reported by Cratty (1933), is represented at the university by two specimens from Linn County: mead-

ow south of Beaver Park, Cedar Rapids, G. H. Berry, July 9 and 17, 1912.

OROBANCHACEAE

Orobanche fasciculata Nutt., reported only from Dickinson County by Cratty (1933), is very rare in Iowa. *Allamakee*: apparently attached to the roots of *Betula alba* L. subsp. *papyrifera* (Marsh.) Spach. in sandy talus below outcrop of St. Croix sandstone, bluff several miles south of New Albin, Iowa Twp., Thorne and Fay 12402, June 9, 1953.

Several other interesting species found on the sandy talus, rock outcrops, or dry prairie of the bluff include *Pellaea atropurpurea* (L.) Link, 12404, *Polypodium vulgare* L., 12401, *Maianthemum canadense* Desf., 12409, *Prunus pumila* L., 12389, *Viola pedata* L., 12390, *Scutellaria leonardii* Epl., 12388, *Castilleja sessiliflora* Pursh, 12397, and *Campanula rotundifolia* L., 12393.

COMPOSITAE

**Bellis perennis* L., English daisy, is an occasional escape or lawn weed in Iowa, though doubtfully naturalized. *Johnson*: collected in 1955 in lawns at two locations in Iowa City by Charles Sche, May 4, and Robert Davidson, June 19; *Linn*: growing as escape by side of road in Flemingville, G. H. Berry, July 18, 1907.

**Matricaria chamomilla* L. is another occasional escape in Iowa. *Johnson*: on street near greenhouse, Iowa City, B. Shimek, June 27, 1927 (as *Anthemis nobilis* L.); *Muscatine*: waste ground in Muscatine, F. Reppert, Aug. 1895 (as *Anthemis arvensis* L.) These specimens were studied and the identifications corrected by Robert A. Davidson. Like the preceding species, this composite is an addition to the Johnson County flora.

Senecio congestus (R. Br.) DC. var. *palustris* (L.) Fern. was reported by Davidson (1953) from sandy beaches and marshy places in several counties in north central Iowa, the region covered by the Mankato lobe of the Wisconsin glacier. It was recently collected in a moist, cool fir forest on a north-facing bluff along the Upper Iowa River near Bluffton, Winneshiek County, Bluffton Twp., Sec. 10, 14122, June 10, 1954.

Some of the "boreal" species found on the bluff are *Cryptogramma stelleri* (Gmel.) Prantl, 11137, *Gymnocarpium robertianum* (Hoffm.) Newm., 11142, *Abies balsamea* (L.) Mill., 11121, *Juniperus communis* L., *Taxus canadensis* Marsh., 11139, *Carex pedunculata* Muhl., 11123, 14134, *Allium cernuum* Roth, 11114, *Maianthemum canadense* Desf., 14120, *Betula alba* L. subsp. *papyrifera* (Marsh.) Spach., *Corylus cornuta* Marsh., 11145, *Cerastium arvense* L., 14143, *Arabis lyrata* L., 11126, 14145, *Potentilla fruticosa* L., 11146, *Prunus pennsylvanica* L. f., *Rhus typhina* L., 11124,

Rhamnus alnifolia L'Her., 11140, 14124, *Diervilla lonicera* Mill., *Sambucus pubens* Michx., 11119, and *Viburnum opulus* L. var. *americanum* Ait. In alluvial soil along the river at the foot of the bluff were found two rare species of northeastern Iowa, *Napaea dioica* L., 14126, and *Mertensia paniculata* (Ait.) G. Don., 14138.

SUMMARY

Notes on the distribution and habitats in Iowa of 35 indigenous and eight introduced vascular plants are presented. Fourteen species have apparently not previously been reported from Iowa, and 24 are not included in Cratty's list (1933) of vascular plants represented in the Iowa State College Herbarium nor in the several supplements to that list by Goodman (1939, 1942) and Hayden (1940, 1945). One species had not been collected in Iowa for 63 years when found in 1955. The remainder of the species discussed are rare in Iowa or restricted to special habitats or small sections of the state.

Characteristic or otherwise noteworthy plants are listed for a number of especially rich habitats. Among those considered briefly are the sandhills along the Cedar River, rich woods and "boreal" communities of White Pine Hollow State Forest, rocky bluffs along the Mississippi, Yellow, and Upper Iowa rivers, sandy talus from outcrops of St. Peter and St. Croix sandstone in northeastern and Sioux quartzite in northwestern Iowa, Pilot Knob sphagnum bog, lake district marl fens, and loess bluffs along the Big Sioux and Missouri rivers on the western edge of Iowa.

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