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A Vascular Plant Checklist for Two Moon Park Near Billings, Montana

Abstract

We list the vascular-plant flora of Two Moon Park, an isolated tract of land located north of the Yellowstone River, east of Billings, Montana. This 61-ha Yellowstone County Park is a designated wildlife Preserve. Over a two-year period, we identified and catalogued 114 vascular-plant species, belonging to 95 genera from 40 families. Voucher specimens and slide photographs of each plant in its natural habitat are located in the MSU-Billings herbarium.

Key words: Two Moon Park, vascular-plant flora, Yellowstone River, Montana

Introduction

Two Moon Park is the largest county park in Yellowstone County, Montana, and its development was a Billings Bicentennial project in the late 1970s. With the first road access to this area in 1961, the current park site and adjacent land became a land developer's dream and generated controversy for more than a decade. Besides frequent natural floods, threats to the Park included potential development of a gravel pit, golf course, motorcycle cross trail, and mobile home court. Through the persistent efforts of Billings environmentalists, concerned citizens, and Yellowstone County commissioners, the Park has been preserved as an ecological area. This has initiated recovery of the site to a natural state from damages caused by human intrusions.

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Designated as a "watchable wildlife viewing area" in 1989 by Montana Fish, Wildlife and Parks, Two Moon Park has a varied vegetative cover with high taxonomic diversity. Until now, however, no systematic study of its vascular plant composition has been conducted. Such information is valuable to both the scientific and nonscientific communities in this region and elsewhere. Therefore, we identified and systematically listed species of vascular plants of this area. Whereas the broader scope of this study was to produce a complete written and pictorial catalogue of all flora of Two Moon Park, this paper is limited to a checklist of vascular-plant species including common and scientific names and family. We intend this effort to serve taxonomists, ecologists, environmentalists, and other interested persons.

Study Area Description

Two Moon Park, located north of the Yellowstone River east of Billings, Montana, was formed when the Yellowstone River channel cut through 46 m (150 ft) of bedrock and then meandered in the opposite direction onto a broad flood plain, leaving a 61-ha

(150-acre) isolated area (Fig. 1). Thus, steep cliffs border Two Moon Park on the north and west, and the Yellowstone River borders it on the south. These features isolated the area from extensive human intrusion until a road was built that accessed the site. The cliffs were formed from the Clagget and Judith River formations. Granite gravel deposits, originating from glaciation of the Beartooth Mountains during the late ice ages, lie on top the cliffs; flooding of the ancient Yellowstone River deposited the outwash there. The thin soil mantle of Two Moon Park developed from recent alluvial deposits of silt, sand, and gravel (Meshnick *et al.* 1972) of which the oldest of these is estimated to be ≤200 years old.

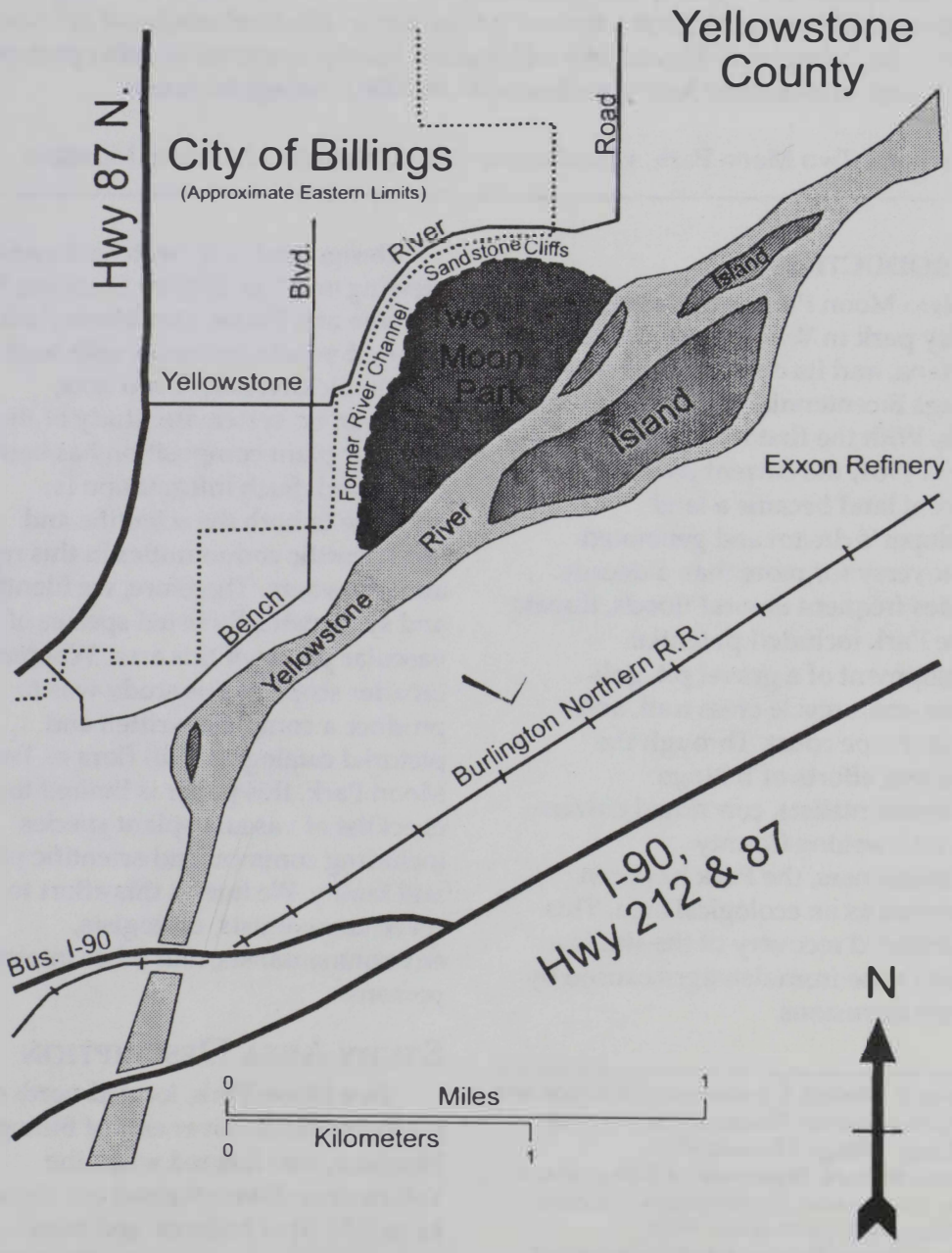

Figure 1. *Billings area map showing the location of Two Moon Park and the Yellowstone River.*

Methods

Plant specimens were collected each week over a two-year period beginning in April 1998. Field notes included location, date, relative abundance, soil type, and special characteristics of each plant. Five specimens were collected for preparation for the herbarium and for identification using the keys relevant to flora of this region (Booth 1966, Cronquist 1981, Dorn 1984, 1992, Hahn 1977, Hitchcock and Cronquist 1973). All taxa were arranged alphabetically by family, genus, and species in a checklist. Current scientific names of all taxa were verified with The PLANTS database published on the Internet (USDA NRCS 1999).

Standard collection and herbarium procedures for vascular plants were used to collect, press, prepare, mount, and label specimens, which were mounted on acid-free herbarium paper and deposited in the MSU-Billings herbarium.

Results and Discussion

We identified 114 species among 40 families and 95 genera of vascular plants (Appendix A). Six families were monocotyledonous (13 genera and 14 species), one family was non-flowering (one genus with a single species), and all other taxa were dicotyledonous. The largest Family was Asteraceae (22 genera and 31 species). The second largest was Brassicaceae with 11 genera and 12 species, the third largest Fabaceae with nine genera and 13 species, and the fourth was Poaceae with six genera and seven species. Seven families were represented with two genera, two families with three genera, and 27 families each had just one genus and a single species.

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Appendix A. *Checklist of vascular plants of Two Moon Park, Yellowstone County, Montana.*

Family	Scientific(botanical) name	Common Name
Aceraceae	*Acer negundo* L.	boxelder
Amaranthaceae	*Amaranthus retroflexus* L.	redroot amaranth
Apiaceae	*Carum carvi* L.	caraway
	Conium maculatum L.	poison hemlock
Apocynaceae	*Apocynum* x *floribundum* Greene (pro sp.) (= *Apocynum medium* Greene)	dogbane
Asclepiadaceae	*Asclepias speciosa* Torr.	showy milkweed
Asteraceae	*Ambrosia psilostachya* DC.	cuman ragweed
	Arctium minus Bernh.	lesser burdock
	Artemisia absinthium L.	absinthium
	Artemisia frigida Willd.	prairie sagewort
	Boltonia asteroides (L.) L'Her.	white doll's daisy
	Centaurea biebersteinii DC. (= *Centaurea maculosa* auct. non Lam.)	spotted knapweed
	Cichorium intybus L.	chicory
	Circium arvense (L.) Scop.	canadian thistle
	Circium brevifolium Nutt.	palouse thistle
	Circium canovirens (Rydb.)Petrak	graygreen thistle
	Circium vulgare (Savi) Ten.	bull thistle
	Conzya canadensis (L.) Cronq.	canadian horseweed
	Erigeron glabellus Nutt. var. *pubescens* Hook.	streamside fleabane
	Erigeron glabellus Nutt. var *glabellus*	streamside fleabane
	Euthamia occidentalis Nutt. (= *Solidago occidentalis* (Nutt.)Torr. & Gray)	western goldentop
	Grindelia squarrosa (Pursh) Dunal	curlycup gumweed
	Lactuca ludoviciana (Nutt.) Riddell	biennual lettuce
	Lactuca serriola L.	prickly lettuce
	Packera cana (Hook.) W.A. Weber & A. Löve (= *Senecia canus* Hook.)	woolly groundsel
	Pyrrocoma integrifolia (Porter ex Gray) Greene (= *Haplopappus integrifolius* Porter ex Gray)	manystem goldenweed
	Ratibida columnifera (Nutt.)Woot. & Standl.	upright prairie coneflower
	Rudbeckia hirta L.	black-eyed susan
	Symphotrichum lanceolatum (Willd.) Nesom ssp. *hesperium* (Gray) Nesom var. *hesperium* (= *Aster hesperius* Gray var. *laetevirens* (Greene) Cronq.)	white panicle aster
	Solidago canadensis L.	canada goldenrod
	Sonchus asper (L.) Hill.	spiny sowthistle
	Sonchus oleraceus L.	common sowthistle
	Tanacetum vulgare L.	common tansy
	Taraxacum officinale G.H. Weber ex Wiggers	common dandeloin
	Tonestus lyallii (Gray) A. Nels. (= *Haplopappus lyallii* Gray)	lyall's goldenweed
	Tragopogon dubius Scop.	yellow salsify
	Xanthium strumarium L.	rough cockleburr
Balsaminaceae	*Impatiens ecalcarata* Blank.	spurless touch-me-not
Boraginaceae	*Cynoglossum officinale* L.	gypsyflower or houndstongue
Brassicaceae	*Alyssum alyssoides* (L.) L.	pale madwort
	Capsella bursa-pastoris (L.) Medik.	shepherd's purse
	Cardaria draba (L.) Desv.	whitetop or hoary cress

Appendix A. continued.

Family	Scientific(botanical) name	Common Name
Brassicaceae (cont)	*Descurainia pinnata* (Walt.) Britt.	western tansy mustard
	Erysimum cheiranthoides L.	wormseed wallflower
	Lepidium densiflorum Schrad.	common pepperweed
	Lepidium perfoliatum L.	clasping pepperweed
	Rorippa sinuata (Nutt.) A.S. Hitchc.	spreading yellowcress
	Sinapsis arvensis L. (= *Brassica kaber* (DC.) L.C. Wheeler)	charlock mustard
	Stanleya pinnata (Pursh)Britt.	desert princeplume
	Thelypodium sagittatum (Nutt. ex Torr. & Gray) Endl.ex Walp.	arrow thelypodium
	Thlaspi arvense L.	field pennycress
Cactaceae	*Opuntia polyacantha* Haw.	plains pricklypear
Caprifoliaceae	*Lonicera involucrata* Banks ex Spreng.	twinberry honeysuckle
	Symphoricarpos occidentalis Hook.	western snowberry
	Symphoricarpos oreophilus Gray	mountain snowberry
Chenopodiaceae	*Endolepis dioica* (Nutt.) Standl. (= *Atriplex dioica* (Nutt.) J.F. Macbr.)	suckley's endolepis
Commelinaceae	*Tradescantia occidentalis* (Britt.) Smyth.	prairie spiderwort
Convolvulaceae	*Convolvulus arvensis* L.	field bindweed
Cornaceae	*Cornus sericea* L. ssp.*sericea* (= *Cornus stolonifera* Michx.)	redosier dogwood
Cyperaceae	*Carex foenea* Willd. var. *foenea* (= *Carex aenea* Fern.)	dryspike sedge
Elaegnaceae	*Elaeagnus angustifolia* L.	russian olive
Equisetaceae	*Equisetum laevigatum* A. Braun	smooth horsetail
Euphorbiaceae	*Euphorbia esula* L.	leafy spurge
Fabaceae	*Astragalus americanus* (Hook.) M. E. Jones.	american milkvetch
	Dalea candida Michx. ex Willd. var. *candida* (= *Petalostemon candidus* Michx.)	white prairie clover
	Glycyrrhiza lepidota Pursh.	american licorice
	Medicago lupulina L.	black medic
	Medicago sativa L.	alfalfa
	Melilotus alba Medic.	white sweetclover
	Melilotus officinalis (L.) Lam.	yellow sweetclover
	Robinia pseudoacacia L.	black locust
	Thermopsis montana Nutt.	mountain goldenbanner
	Thermopsis rhombifolia (Nutt. ex Pursh) Nutt. ex Richards.	prairie thermopsis
	Trifolium pratense L.	red clover
	Trifolium repens L.	white clover
	Vicia americana Muhl. ex Willd.	american vetch
Grossulariaceae	*Ribes aureum* Pursh.	golden currant
Lamiaceae	*Lycopus uniflorus* Michx.	northern bugleweed
	Nepeta cataria L.	catnip
Lemnaceae	*Lemna minor* L.	common duck weed
Liliaceae	*Asparagus officinalis* L.	garden asparagus
	Leucocrinum montanum Nutt. ex Gray	common starlily
	Yucca glauca Nutt.	soapweed yucca

Appendix A. continued.

Family	Scientific(botanical) name	Common Name
Malvaceae	*Malva neglecta* Wallr.	common mallow
Onagraceae	*Gaura mollis* James (= *Gaura parviflora* Dougl. ex Lehm.)	velvetweed
	Oenothera villosa Thunb. ssp. *strigosa* (Rydb.) W. Dietr. & Raven (= *Oenothera strigosa* (Rydb.)Mackenzie & Bush.)	hairy evening primrose
Plantaginaceae	*Plantago major* L.	common plantain
Poaceae	*Agropyron cristatum* (L.) Gaertn.	crested wheatgrass
	Alopecurus arundinaceus Poir.	creeping meadow foxtail
	Bromus anomalus Rupr. ex Fourn.	nodding brome
	Elymus elymoides (Raf.) Swezey ssp. *elymoides* (= *Sitanion hystrix* (Nutt.) J.G. Sm.)	squirreltail
	Elymus repens (L.) Gould. (= *Agropyron repens* (L.) Beauv.)	quackgrass
	Phalaris arundinacea L.	reed canarygrass
	Poa compressa L.	canada bluegrass
Polygonaceae	*Polygonum douglasii* Greene ssp. *austinieae* (Greene) E. Murr. (= *Polygonum austiniae* Greene)	austin knotweed
	Polygonum hydropiper L.	marshpepper knotweed
	Polygonum lapathifolium L.	curlytop knotweed
	Rumex crispus L.	curly dock
	Rumex venosus Pursh	veiny dock
Primulaceae	*Lysimachia ciliata* L.	fringed loosestrife
Ranunculaceae	*Clematis ligusticifolia* Nutt.	western white clematis
	Ranunculus acriformis Gray.	sharpleaf buttercup
Rosaceae	*Malus sylvestris* P. Mill. (= *Pyrus malus* L.)	european crabapple
	Prunus virginiana L.	chokecherry
	Rosa nutkana K. Presl	nootka rose
Rubiaceae	*Galium triflorum* Michx.	fragrant bedstraw
Salicaceae	*Populus deltoides* Bartr. ex Marsh.	eastern cottonwood
	Salix exigua Nutt.	narrowleaf willow
Scrophulariaceae	*Verbascum thapsus* L.	common mullein
Solanaceae	*Solanum dulcamara* L.	climbing nightshade
Tamaricaceae	*Tamarix ramosissima* Ledeb.	saltcedar
Typhaceae	*Typha latifolia* L.	broadleaf cattail
Ulmaceae	*Ulmus pumila* L.	siberian elm
Verbenaceae	*Verbena bracteata* Lag. & Rodr.	bigbract verbena

The scientific and common names conform to those contained in the PLANTS database. published on the Internet; (http://plants.usda.gov/plants), accessed August 28, 2000.