

Aismaceae, J. Engelm. April 1856

Aisma fl. hem. pet. involuta stam. definit. nuces vesticillatae
dorsum dilatata 2-3 carinatae.

Echinodorus fl. hermaphr. petal. imbricat. stam. definit. — indefinit.
nuces capitatae costatae.

Sagittaria fl. monocoii (varius decolor) petal. imbricat. — stam. indefinit.
nuces capitatae compress. dorso alatae.

Aisma Plantago, var. americanum. probably a distinct species, but not sufficiently examined by me
Echinodorus parvulus E. annus foliis ^{caeruleoletis} ^{acutis} spathulatis, ampliis
raphe reptantibus, radicantibus, ~~proliferis~~ ^{proliferis}: rupes umbelliferae
foliis aquatibus paucifloris: floribus 9-andis; style ovini
multo brevioribus; ^{pedunculis protractis} rupibus vix apiculatis, multi-costatis

About St Louis on both sides of River, ^{leaves 6-12 in long} margins of
shallow ponds. — 1-3 meters high, ^{fl. about 3 ft. diam} 12 c. diameter
I have not seen the plant from any where else. A. Americanum
must probably belong to Sagitt. pus. L., not here
E. rostratus E. (A. r. Nott) annus foliis ^{late} ^{obtusis} cordatis nervosis,
raphe eruta, panicula ramosa grande, folia excedens.
fl. 12 andis, style ovini ^{superstigio} ~~septentrio~~, nuces rotundatae
multi-costatae

Illinoian bottoms, common; larger forms 2 feet high,
smaller ones, a few inches high with ^{leaves 2-3 in. long} caeruleoletis leaves
E. radicans E. (A. r. Nott) perennis foliis sessilis attenuatae
late cordatis obtusis nervosis; rame prostrate, rupi
radicans, proliferis; floribus vesticillatis sub 21 andis
style ovini brevioribus; nuces breviter rotundatae costatae
dorso carinato dentatae.

Swamps in the American bottoms, Illinois —
Stems several feet long, leaves oft 6-8 inches long and
wide — sometimes cordate, sometimes more triangular.
flowers 10-15 c. diameter

Sagittaria sagittifolia ^{monococcum} ^{longistylis}
Europe verticillata infima feminina, petiolata
feminina multi brevioribus quam mascula; petalis purpureo-
anguineolatis, strobilis oblique suborbicularis, petiolis
alatis, breviter spiratibus. Filamentis subulate anthers ^{decurrentes}
S. variabilis ^{monococcum} s. *dorsa* scapo simplici ramos.
verticillata infima = pluribus femininis; bracteis acuminatis,
pedicellis femineis mesostilos divaricatos sequentibus, petalis also
anguineolatis, filamentis subulate anthers duplo longioribus
mucro obtusa aliis longius exsertis rotundato, rostro conico
carinato.

Very variable 1-4 feet high, fruit head $\frac{3}{4}$ inch diameter
or more, scapo always 12 angled, leaf $\frac{1}{3}$ or $\frac{1}{2}$ length of fruit
or more, leaves always 12 angled, leaf $\frac{1}{3}$ or $\frac{1}{2}$ length of fruit
See below *s. obtusa* *dorsa*, very large, leaves opp. a pedicel
not opp *s. latifolia* leaves opposite, broad, acute *dorsa*
s. diversifolia, some leaves acute - lanceolate
var. *pubesca* others with one or 2 lobes *Stolonifera*
s. sagittifolia usual form
var. *angustifolia* leaves narrow ^{slightly} linear,
with long linear lobes, first largest, with
beak more or less horizontal. *Stolonifera*
s. gracilis leaves & lobes almost linear,
slender plant from Othis.

S. heterophylla Pursh *monococcum*, scapo simplici debili denum
procumbente (verticillata infima feminina floribus suborbicularibus
bracteis oblongis suborbicularibus) fl. major. Longe pedicellis
filamentis cibis orica glandulosa brevissimis,
strobilis angustior lobatis, longe rotundatis.

Adonis etc. Many varieties e.g. for example
s. elliptica, leaves all elliptic broad, large *Stolonifera*
s. nigra petioles stiff leaves rigid narrow *Purpurascens*
s. angustifolia, leaves nearly linear *Stolonifera*
s. peltata leaves narrow linear, i. wide, *Stolonifera*

s. antipoda & *Adonis* belong here
s. simplex Pursh *monococcum* scapo simplici, glomeris exserta,
pedicellis inferioribus feminis, bracteis tricarpellibus oblongis,
superioribus connatis, pedicellis femineis mesostilos
sequentibus, elongatis granilibus, filaments = *s. heterostylis*
nervis paucis, obvolutis, angusti alatis *Stolonifera* *Crozieri*

Stolonifera etc. - leaves lanceolate ^{acute} *Mitchellii* *Grisebachii*
than in the other species mentioned.

s. pusilla I have only seen = dry specimen from *Purpurascens*
very small, one female flower, with large, fastigiate
read recurved - see *Nathorst*.

The proportion of the pedicels of male & female flowers is
supposed to distinguish the above 3 species in every instance.

s. reticulata I do not know

s. pilosa is also a good species & extremely variable -
does it grow in your dominions? The large forms for
Molles, (Gigantea Adans.) are small & narrow leaved ones
from Tropics & *s. caroliniana* belong here.

182 H. L. " *s. simplex*" is a narrow leaved form of
s. pilosa

183 H. L. "*s. stolonifera*" is a form of *s. simplex*

The varieties of *s. variabilis* I might arrange thus:

a. *dorsa*, scapo plurime ramosis.

s. obtusa = *s. obtusa* Muhl. leaves very large 6-12
inches long, obtuse, lobes parallel or more or less divaricate

s. gracilis leaves broad, acute, lobes mostly linear

b. *monococcum*

s. pubescens = *s. pubescens* Muhl.

s. diversifolia *Stolonifera*, leaves entire, oval, lanceolate
with one or two lobes

s. sagittifolia usual form

s. angustifolia see above, last page

s. hostata = *s. hostata* *Othis*

s. gracilis = *s. gracilis* *Othis*

Sagittaria variabilis, *heterophylla*, *simplex* - floats
natans & *pusilla* I think are the only good species in U.S.
S. natans I have never seen.

The New Mexican *Sagittaria*, collected by Fendler and
Wislizenus seems to be a distinct species, but ripe fruit is
wanting.

I find among Griggs Plants a new *Sagittaria* from
western Mexico, very distinct.

I shall go on examining all my *Sagittariae*, preparing
in that way for examination of specimens - other
Sagittariae - but I find that proportion of
pedicels, length & shape of filament, appearance of style
and of fruit are the characteristics we must rely
on. - Shape of leaves is not so certain, though
simplex is hardly ever, and floats never sagittate,
but size of leaves is of no importance at all.

The shape and size of style is easily seen by looking
at a female flower, which every specimen presents; *Sagittaria*
heterophylla is the most bristly, next *S. variabilis*, then
floats, then *sagittifolia*, *neomexicana*, *mexicana*,
simplex. This last has hardly any style and presents
a very blunt head of carpels.

S. pusilla I have not examined, but consider
it a good and true *Sagittaria*. My specimens have
no fruit; I have it from the Delaware and from
S. Carolina, always with one single ~~detached~~^{carefully}
female fl. - reflexed after floating.

I believe these data will be sufficient
for your present purpose, my dear Doctor,
and I close here my communication to
your Manual - I hope these data will be
of use yet.

Yours truly
John Griggs

Mois April 7th 56



Engelmann, George. 1856. "Engelmann, George Apr. 7, 1856." *George Engelmann letters to Asa Gray*

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