PRELIMINARY REPORTS ON THE FLORA OF WISCONSIN NO. 611.
HYPERICACEAE—ST. JOHN’S-WORT FAMILY

Fred H. Utech and Hugh H. Ittis

The Hypericaceae, a natural group often segregated from the more polymorphic, woody, tropical Guttiferae, has 2 genera and 14 species in Wisconsin. All but the ubiquitous Common St. John’s-wort (Hypericum perforatum) are native and occur either in dry, exposed sands or wet marly marshes or bogs, sandy swales and lake, river or stream-sides. A southern origin for the Great Lakes—Central Wisconsin endemic Hypericum kalmianum is suggested. Three species are reported here as new for the state: Hypericum prolificum, x H. dissimulatum and Triadenium virginicum.

The present treatment revises McLaughlin’s (1931) preliminary report on Hypericaceae. Material from the following herbaria was intensively studied: University of Wisconsin (WIS), University of Wisconsin–Milwaukee (UWM), Milwaukee Public Museum (MIL), University of Minnesota (MIN), University of Minnesota–Duluth (DUL), State University of Iowa (IA), Oshkosh State University, La Crosse State University, Northland College (Ashland, Wis.), Beloit College and the private herbarium of Katherine Rill (Clintonville, Wis.–RILL). We are grateful to the curators of these herbaria for the loans of specimens.

Dots on the maps represent exact locations, triangles, county records. Some locations have been added from Thomas Hartley’s unpublished “Flora of the Driftless Area” (1962), Paul Sorensen’s unpublished range maps from his Glacial Lake Wisconsin studies (1966), Olga Lakela’s Flora of Northeastern Minnesota (1965), Jones and Fuller’s Flora of Illinois (1955) and Frank Seymour’s Lincoln County sight record index (WIS).

The map inset numbers record Wisconsin flowering and fruiting dates; plants with vegetative growth only, in bud or with dispersed fruit were not included. For introduced species the year of earliest collection within a county is also recorded. Nomenclature and order of genera and species follows Gleason and Cronquist (1963) and Fernald (1950).

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Numerous people deserve special recognition for their help in manuscript preparation: Mrs. Katherine Snell, for encouragement and timely aids; Mr. Brian G. Marcks and Mr. Michael H. Nee, for comment and criticism; Mr. Eugene G. Coffman for photographic reproductions; Miss Bethia Brehm and Miss Cynthia Loughran for artistic work; and Dr. John W. Thomson and Dr. Preston Adams for critical manuscript reading.

HYPERICACEAE LINDLEY ST. JOHN’S–WORT FAMILY

Herbs or shrubs with opposite, simple, entire, often pellucid- or black-punctate leaves; stipules lacking. Flowers perfect, regular, hypogynous, solitary, axillary or in cymes. Stamens 5 to over 100; filaments elongate, free or basally connate in 3 or 5 bundles, these opposite petals; anthers 2-celled, longitudinally dehiscent. Ovary superior; carpels 3–6; placentation parietal, pseudo-axile or axile (Fig. 1); styles distinct or united. Capsules septicidal, 1, 3 or 5 loculate. Seeds many, small, without endosperm.

A small family with 12 genera and 600 species, usually segregated from the tropical Guttiferae (Clusiaceae).

KEY TO GENERA

A. Petals yellow to orange, convolute in bud; stamens numerous to few, distinct or united at base into 3 to 5 clusters; hypogynous glands lacking 1. HYPERICUM.

AA. Petals pink to mauve-purple, imbricate in bud; stamens 9, strongly triadphous; hypogynous glands 3, orange, alternate with the stamen bundles 2. TRIADENNUM.

1. HYPERICUM [Tourn.] L. ST. JOHN’S–WORT.

Annual or perennial herbs or shrubs; leaves simple, frequently pellucid or black-dotted, opposite, entire, frequently with axillary decussant branchlets; stipules lacking. Inflorescence cymose. Sepals 5, often unequal, persistent. Petals 5, yellow to orange, convolute in bud, often black-dotted. Stamens numerous or few (small fld. spp.); filaments free or basally connate. Ovary superior; styles united or separate and divergent; stigmas minute or capitate. Placentation parietal (1-celled), pseudo-axile by intrusion of placenta (partially 3- or 5-celled) or axile (completely 3- or 5-celled) (Fig. 1). Capsules septicidal, 1- to 5-carpellate. Seeds small (ours 0.5–3.0 mm), short-cylindric, aerolate.

The largest genus of the Hypericaceae, world-wide, throughout temperate and tropical montane regions, with ca. 300 species of annuals, perennials with persistent rhizomes, and woody shrubs.
KEY TO SPECIES

A. Styles united at base into a single straight beak at anthesis, splitting at maturity; stigmas minute, never capitate; stamens many, distinct. (Sect. MYRIANDRA)

B. Small woody shrubs; leaves and sepals articulate at base; withered stamens deciduous soon after anthesis. (Subsect. Centrosperma).

C. Midstem leaves 2.6–4.5 cm long, sessile; styles and carpels 5; cymes chiefly terminal, 3- to 7-flowered. 

CC. Midstem leaves 3.5–7 cm long, short-petiolate; styles and carpels 3; cymes terminal and axillary, 11- to 19-flowered; rare. 

BB. Perennial herbs slightly suffrutescent at base; leaves and sepals not articulate at base; withered stamens persistent long after anthesis. (Subsect. Pseudobrathyrium).

D. Plants robust, 30–60 cm tall, rhizomatose, the rootstock often woody; leaves linear-elliptic, 30–58 mm long; seeds 2.0–2.7 mm long; rare, moist prairies, Green Co. and Rock Co. 

DD. Plants slender, 15–35 cm tall from horizontal rhizome, the bases herbaceous; leaves elliptic to ovate, 16–33 mm long; seeds 0.5–0.8 mm long; central and northern Wisconsin lakes and river margins.

AA. Styles free to base, the capsules not beaked; stigmas capitate; stamens many to few, connate basally into 3 or 5 bundles (phalanges).

E. Stigmas and styles 5; capsules 5-celled, 8–15 mm wide; flowers 50–60 mm across; stamens 5-delphous, numerous (over 150); larger leaves 5–8 cm long; robust perennial of wet habitats. (Sect. ROSCYNIA)

EE. Stigmas and styles 3; capsules 1- or 3-celled, 1–5 mm wide; flowers 5–30 mm across; stamens 60–5; larger leaves less than 5 cm long.

F. Capsules 3-celled, with azale placentae; flowers 6–32 mm across; corolla black-dotted; stamens 60–27, weakly 3-delphous.

G. Capsules oblong-conic, 4.5–6.5 mm long; styles 4–5 mm long; flowers 15–30 mm across; petals
black-dotted on margin only; stamens (45)-50- (60); common Eurasian weed. (Sect. HYPERICUM) 6. H. PERFORATUM.

GG. Capsules subglobose-ovate, 3.8-4.6 mm long; styles 1.5-2.5 mm long; flowers 6-10 mm across; petals and sepals marked with black dots and lines; stamens (27)-35-(40); native. (Sect. ELINEATATA) 7. H. PUNCTATUM.

FF. Capsule 1-celled, with parietal placentae; flowers 4-7 (-10) mm across; corolla yellow, lacking black dots; stamens 20-5, weakly 5-delphous: (Sect. BRATHYS)

H. Leaves linear to elliptic-ovate, 8-44 mm long, 1-15 mm wide, 3- to 7-nerved; inflorescence cymose.

I. Capsules broadly ellipsoid or oblongoid, the apex rounded to obtuse; inflorescence diffuse and leafy-bracted, not well defined, the angle between a pair of lateral peduncles 70° or more (Fig. 5); sepals oblong to elliptic, widest near middle.

J. Uppermost bracts highly reduced, setaceous; cauline leaves often over 20 mm long, deltoid to ovate, usually cordate-clasping; sepals acute, equaling capsule; plants often 3-5 dm tall; mostly Driftless Area. 8. H. MUTILUM.

JJ. Uppermost bracts foliaceous; cauline leaves 8-15 mm long (rarely longer), ovate to elliptic, sessile but not strongly clasping; sepals obtuse, shorter than capsule; plants usually 1-3 dm tall; widespread. 9. H BOREALE.

II. Capsules ovoid to conic, the apex narrowed; inflorescence rather compact and clearly defined, setaceous-bracted not leafy, the angle between a pair of lateral peduncles 70° or less (Fig. 5); sepals lanceolate to linear, acute or acuminate.

K. Leaves elliptic-lanceolate to oblong, the larger 5-12 mm wide, rarely narrower, the bases subcordate-clasping; sepals 4-6.5 mm
1. HYPERICUM KALMIANUM L.  
Kalm’s St. John’s-Wort.  
Map 1, Figs. 1–4.

Slender shrubs 2–6 (–10) dm high, with branches 4-angled, the branchlets 2-angled. Leaves linear-elliptic to oblanceolate, revolute, coriaceous, sessile, obtuse, mostly 26–45 mm long, 4–8 mm wide (Fig. 4). Cymes 3- to 7-flowered (rarely more), restricted to terminal node (Fig. 2). Flowers 20–35 mm across. Sepals oblong-elliptic, foliaceous, 6–8 mm long. Petals 5–14 mm long. Stamens numerous, distinct. Ovary 1-locular, usually with 5 pseudo-axile intruding placentae (Fig. 1); styles (3)–5–(6); stigmas never capitate. Capsules ovoid, 5-carpellate (rarely 3, 4 or 6), 7–10 mm long, 4–7 mm wide. Seeds light brown, 0.7–1.1 mm long. N = 9 (Hoar & Haertl 1932; Robson & Adams 1968).

Central Wisconsin sand plains and sphagnum-sedge meadows, in rocky shores, sandy swales, behind dunes, and calcareous low prairies about Lakes Michigan, Huron and Erie, to the Ottawa River, Quebec (Fig. 3: cf. maps McLaughlin 1930, Guire & Voss 1963, Adams 1959b), its Wisconsin distribution closely associated with the desiccated beds and outwash plains of Glacial Lakes Wisconsin, Oshkosh and Chicago. Flowering late June to early October; fruiting early July through October.

The history of Hypericum kalmianum is of particular interest, since all its stations are in glaciated territory (Adams 1959b, Guire & Voss 1963, McLaughlin 1931); this restriction suggests either a

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*Hybrids between the species 8–11 are not uncommon (cf. Hybrids of Sect. Brathyx, 12a, 12b, and 12c, pp. 28–32). Depauperate plants are common but can be keyed with help of full grown ones nearby.*
Figure 2. Statistical model and data comparing the inflorescences and degree of dichasia branches of *Hypericum kalmianum*, *H. prolificum* and *H. lobocarpum*. 

**Hypericum kalmianum**

<table>
<thead>
<tr>
<th>Node</th>
<th>A (terminal)</th>
<th>B (axillary)</th>
<th>C (inner)</th>
<th>D (outer)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>37 (7.8%)</td>
<td>168 (35.2%)</td>
<td>19 (3.1%)</td>
<td>3 (0.6%)</td>
</tr>
<tr>
<td>I</td>
<td>245 (51.6%)</td>
<td>10 (2.1%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>23 (4.8%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>4 (0.8%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals / Node</td>
<td>477 (100%)</td>
<td>36 (7.8%)</td>
<td>3 (0.6%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

**Hypericum prolificum**

<table>
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<th>B (axillary)</th>
<th>C (inner)</th>
<th>D (outer)</th>
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<tr>
<td>0</td>
<td>32 (32.2%)</td>
<td>28 (28.3%)</td>
<td>28 (28.3%)</td>
<td>6 (6.6%)</td>
</tr>
<tr>
<td>I</td>
<td>48 (48.8%)</td>
<td>19 (19.1%)</td>
<td>24 (24.3%)</td>
<td>8 (8.3%)</td>
</tr>
<tr>
<td>II</td>
<td>11 (11.5%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>10 (10.0%)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals / Node</td>
<td>91 (90.3%)</td>
<td>90 (90.3%)</td>
<td>60 (60.4%)</td>
<td>6 (6.6%)</td>
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</table>

**Hypericum lobocarpum**

<table>
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<th>Node</th>
<th>A (terminal)</th>
<th>B (axillary)</th>
<th>C (inner)</th>
<th>D (outer)</th>
</tr>
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<td>10 (10.0%)</td>
<td>22 (22.0%)</td>
<td>3 (3.0%)</td>
</tr>
<tr>
<td>I</td>
<td>18 (18.3%)</td>
<td>19 (19.1%)</td>
<td>3 (3.0%)</td>
<td>3 (3.0%)</td>
</tr>
<tr>
<td>II</td>
<td>38 (38.3%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>4 (0.8%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals / Node</td>
<td>61 (60.3%)</td>
<td>50 (50.0%)</td>
<td>26 (26.6%)</td>
<td>3 (3.0%)</td>
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</table>
pre-glacial origin with subsequent survival either in unglaciated or in once-glaciated territory between differentially advancing glacial lobes, or a recent, post-glacial origin from a more wide-spread southern species. The last hypothesis seems to us the most reasonable. Adams (1959b, 1962) thinks this ancestor to be the Gulf Coastal and Mississippian Embayment *H. lobocarpum* Gatt. (= *H. oklahomense* Palmer), since this species and *H. kalmianum* both have mostly 5-carpellate ovaries, differing from the 3-carpellate, but otherwise similar and related *H. prolificum* L. The eastern coastal and inter-montane *H. densiflorum* Pursh is also commonly 3-carpellate: many authors de-emphasize carpel number and follow Svenson (1940) in considering *H. lobocarpum* as a variety of *H. densiflorum*. Carpeler number is extremely variable even in well-defined species of section *Myriandra*. In any case, the fruits of both 5-carpellate taxa (*H. kalmianum* and *H. lobocarpum*) are very similar, except that those of *H. lobocarpum* tend to be smaller on the average and more deeply sulcate.
Comparison of degree of dichasial branching and flowers/in- 
oflorescence (Fig. 2) of *H. kalmianum*, *H. prolificum* and *H. lobo-
carpum* reveals a north to south increase, with the northern *H. kal-
mianum* usually fertile only in the uppermost node, the southern 
*H. lobocarpum* highly floriferous in many (3 to 5 or more) nodes. 
*H. prolificum* has the largest number of inflorescence combinations. 
Both *H. prolificum* and *H. kalmianum* have broad foliaceous sepals 
(4–8 mm long) and flowers to 30 mm wide; *H. lobocarpum* and 
*H. densiflorum* have usually shorter, narrower sepals (2–4 mm 
long) and often smaller flowers (to 20 mm across). Thus, while 
*H. kalmianum* was probably derived from *H. lobocarpum* (or *H. 
densiflorum*), the reduced inflorescence-branching, foliaceous sepals 
and larger flowers suggest some *H. prolificum* introgression into 
*H. kalmianum*, which would not be unlikely, considering the geo-
graphic proximity of the two populations.

2. **Hypericum prolificum** L.  
   *Hypericum spathulatum* (Spach) Steud. of ed. 8, Gray’s 
   Manual.

   Erect bushy shrub 3–9 dm tall, diffusely branched; bark shreedy, 
   gray, the branchlets sharply 2-angled. Leaves oblanceolate-linear, 
   obtuse and often mucronate, the margins strongly revolute, punc-
   tate, the midstem leaves 3.5–7 cm long, 7–15 mm wide (Fig. 4). 
   Petioles 1–4.6 mm long. Cymes 11- to 19-flowered, terminal and 
   axillary (Fig. 2). Flowers 15–27 mm across. Sepals ovate, mucro-
   nate, 4.5–6 mm long. Petals obovate, bright yellow, 7–10 mm long. 
   Stamens numerous, distinct. Ovary 1-locular usually with 3 pseudo-
   axile intruding placentae (Fig. 1); styles 3 (4); stigmas not 
   capitate. Capsules ellipsoid-ovate, 3-carpellate (rarely 4 or 5), 10– 
   13 mm long, 3.5–6 mm wide. Seeds black, 1.2–1.8 mm long. N = 9 
   (Nielsen 1924, Robson and Adams 1968).

   A variable species in eastern and central United States (Fig. 3) 
   on dry creek beds, sandy or rocky slopes, roadsides and old fields, 
   occasionally cultivated, reported here for Wisconsin for the first 
   time, Sweezy’s (1883) use of this name being based on collections 
   of *H. kalmianum* (Lapham s.n. and Hale s.n., WIS, MIL). All 
   collections are recent, perhaps escapes from cultivation. Crawford 
   Co.: town of Clayton, S. 11 SE ½, 9 July 1960, Densmore s.n. 
   (WIS); sandy hillside E of Soldiers Grove on Co. E, with *Silphium 
   perfoliatum*, *Corylus americana*, *Rhus radicans*, 4 Aug. 1960, 
   Schlising & Musolf 1749 (WIS). Dane Co.: Edgerton, Camp 
   Hickory Hill, open, light sandy soil, 5 Aug. 1947, Dorney s.n. 
   (RILL). Flowering late July and early August.
3. Hypericum sphaerocarpum Michx.  
Hypericum cistifolium of authors, not Lamark

Erect perennials from woody branched rootstocks, the deep rhizomes with adventitious shoots. Stems herbaceous, 30–58 cm tall, 4-lined. Leaves linear-oblong to narrowly elliptic, acute to obtuse, sessile, 3–7 cm long, 4–15 mm wide. Cymes compact, compound, many-flowered; bracts lanceolate. Sepals ovate-lanceolate, 2.8–4.8 mm long. Petals yellow, 5.3–8.6 mm long. Stamens numerous. Ovary 1-locular, with 3 intruding parietal placentae. Capsules globose to ovoid, firm, few-seeded, 4.5–6.7 mm long; styles 3, united in sharp beak. Seeds blackish-brown, coarsely reticulate, pitted, 2.0–2.7 mm long, the raphe developed into a keel.

Species of low or mesic prairies, limestone outcrops and cedar glades, Ala. to SW Ark., north to Iowa, Ill. and N Ind., rare in Wisconsin, confined to low wet prairies along the Sugar and Rock Rivers, as in low rich prairie (near Monticello, Green Co.), with scattered willows, dogwood, bur oak, Potentilla argula, Eryngium yuccifolium, and Ratibida pinnata. The plants are almost always pulled up without the very deep slender horizontal rhizomes. Flowering late June to mid-August, fruiting mid-July through August.

4. Hypericum ellipticum Hook.  
Creeping St. John’s-Wort.

Map 4, Fig. 1.

Erect unbranched perennial from a reddish, spongy, slender, creeping rhizome. Stems 15–35 cm tall, obscurely 4-angled. Leaves elliptic to elliptic-lanceolate, the larger 16–33 mm long, 4–13 mm wide, pellucid-punctate, not revolute, the midvein prominent. Cymes terminal, few-flowered; bracts linear to lanceolate. Sepals narrowly obovate to oblongate, 4–6 mm long. Petals oblanceolate, 4.6–8.6 mm long, often reddish in bud. Stamens numerous. Ovary 1-locular with 3 intruding parietal placentae (Fig. 1). Capsules subglobose to ovoid, 4–7 mm long, many-seeded; styles 3, united at base. Seeds dark reddish brown, striated, pitted, 0.5–0.8 mm long. N = 9 (Hoar & Haertl 1982).

A “northern hardwoods” species, from NE Tenn. to Newfoundland, west to Lake Superior, in central and northern Wisconsin along stream banks, pond and lake shores, river flats and sand bars, as in cold streamside Alnus thickets in sunny Carex meadows, Brule River, Florence Co. The northern-most member of the 30 species of section Myriandra (Adams 1962) and the only Wisconsin Hypericum with prominent (off-collected) rhizomes. Flowering late June to early August, fruiting July to latest October.

Submerged aquatic plants with simple sterile stems and round to ovate “feather-veined” leaves, resembling Callitriche, have been
designated as forma SUBMERSUM Fassett (1939, 1960), while terrestrial plants with axillary branches overtopping the mature infructescence, as forma FOLIOSUM Marie–Victorin (Le Nat. Canadien 71: 201. 1944.)

5. HYPERICUM PYRAMIDATUM Ait. Giant St. John’s-Wort. Hypericum ascyron of Am. authors, not L. Map 5, Fig. 1.

Robust erect perennial herbs, 6–16 (–20) dm tall; branches 4-angled; root-crown woody. Leaves ovate-oblong to lanceolate, the larger 5.5–9.6 (–11) cm long, 2.5–4 (–5) cm wide, acute or obtuse, with sessile clasping bases. Stamens numerous (over 150), 5-dellphous; anthers versatile. Sepals ovate-triangular, 6.5–8 mm long. Petals broadly obovate, persistent, 1.8–2.8 cm long. Styles 5, 6–10 mm long, halfway united, divergent above; stigmas capitulate. Capsules conic-ovoid, completely 5-celled, septicidally dehiscent, 15–25 mm long, 8–15 mm wide (Fig. 1). Seeds brown, lustrous, reticulate, 1.1–1.4 mm long, the raphe keeled. N = 9 (Nielsen 1924).

Quebec to Minn., south to Penn., Ind., Mo. and Kansas, in Wisconsin in wet and open habitats as gravelly river banks, sphagnum sedge meadows, mesic forest edges and drainage ditches, as in low wet muck meadow near Mauston with Carex, Polygonum, Physostegia virginiana, or in a weedy floodplain prairie along Pine River, Richland Co., with Napaea dioica, Artemisia serrata, Silphium perfoliatum, Urtica sp., (Nee 1453, WIS). Flowering late June to mid-September, fruiting mid-July to early October.

It is closely related to the true Hypericum ascyron L. of eastern Asia (E Siberia, Japan & China).

6. HYPERICUM PERFORATUM L. Common St. John’s-Wort, Klamath wedge. Map 6, Fig. 1.

Erect branching perennials from a sublignous crown with short shallow rootstocks and deep branching taproot. Stems 2-angled, 4–6.5 (–8) dm tall, with numerous sterile basal shoots and leaf axillary decussate branchlets. Leaves linear-oblong to elliptic, pellicid-dotted, obtuse, sessile, 5-nerved, commonly 12–36 mm long, 3–9 mm wide, reduced on axillary branchlets. Cymes paniculate, flat-topped; flowers numerous, 15–30 mm across. Sepals linear-lanceolate, acuminate, 4–7 mm long. Petals orange-yellow, black-spotted near margins, 9–14 mm long. Petals and stamens persistent. Stamens (45)–50–(60). Ovary 3-loculate; styles 3, divergent, 3–4.5 mm long; stigmas capitulate. Capsules completely 3-celled (Fig. 1) obovate-elliptic to conic, veiny, 4–7 mm long, 3–5 mm wide. Seeds blackish brown, lustrous, reticulate, 0.8–1.2 mm long. N =

A noxious world-wide weed, native to N Africa, W Asia and Europe (Hegi 1925), naturalized in E and W North America, in Wisconsin a common weed in open, sandy, poor or worn soils, chiefly on roadsides, railroads, neglected fields, beaches, sand plains, blowouts and barrens, occurring with such disturbance indicators as Comptonia peregrina, Hieracium aurantiacum, Ambrosia artemisiifolia, Daucus carota, Asclepias syriaca and Euphorbia esula. Flowering from early June to early September, fruiting from late June to early October.

This adventive is especially troublesome in the Klamath River Basin (N Calif. & S Ore.). The stem’s numerous resin canals contain hypericin, which is poisonous to livestock, but probably not fatal (Marsh & Clawson 1930, Kingsbury 1964). Eradication is difficult due to deep perennial roots, vigorous leafy basal offshoots and numerous, highly viable, genetically similar seeds, megasporogenesis being 97% apomitic (pseudogamous) (Tutin et al. 1968).

The name “St. John’s Wort” is derived from the belief that the plant’s dew prevented sore eyes on St. John’s eve, June 24, when huge ceremonial bonfires of this plant blazed throughout Europe. Bouquets then gathered were hung in windows as talismans against thunder, witches and other misfortune, while in Switzerland, young women put them under their pillows believing they would marry the men of their dreams. The dark-red pellucid leaf dots supposedly appeared on August 29, the day John the Baptist was beheaded (Hegi 1925, Clohisy 1930).

7. HYPERICUM PUNCTATUM Lam.  

Sparingly branched perennial with terete stems 4-10 (-12) dm tall. Leaves oblong-elliptic to lanceolate, the larger 3-7 cm long, 1-2 (-3) cm wide, dark punctate, blunt or retuse, 5- to 7-nerved; base clasping to attenuate. Corymbbs compact; flowers 6-10 mm wide, short-pedicellate. Sepals ovate-oblong, broadly acute, blackspotted and -lined, 3.8-6.3 mm long. Stamens (27)-35-(-40), weakly 3-delphous; anthers black-dotted. Ovary 3-locular; styles 3, free, 1.5-2.5 mm long; stigmas capitate. Capsules 3-celled, subglobose to ovoid, 3.8-4.6 mm long, 3.6-4.2 mm wide, with elongate oil vesicles. Seeds yellowish-brown, 0.6-0.7 mm long. N = 8, 2N = ring of 16 at anaphase (Hoar 1931, Robson & Adams 1968).

Eastern North America, from Maine to Minn., south to Fla. & Texas, in Wisconsin along forest edges, open wooded slopes, floodplain thickets, wet prairies, abandoned fields and roadsides: in low, mesic woods (near Tomah, Monroe Co.), with Trillium cernuum,
Uvularia sessiliifolia, Mitchella repens, Aster macrophyllus and in bottomland woods on floodplain terraces (Trempealeau Co.), with Quercus bicolor, Fraxinus spp., Betula nigra, Carex spp. Though widely distributed, it is never abundant, this possibly related to the "Oenothera-like" ring chromosome segregation pattern, producing various isolated and inbred populations. Flowering from early July to early September, fruiting August to mid-September.

8. Hypericum muticum L. Map 8, Fig. 5.

The variety longifolium is apparently nothing but a long-leaved plant, not taxonomically recognized here. There are no Hypericum specimens in the very fragmentary Kumlien Herbarium deposited at WIS. The type is presumably in G.

Erect slender annuals or perennials (1-) 2-6 dm tall, branched diffusely above, the leafy-bracted bases decumbent. Leaves deltoid-ovate to oblong-lanceolate, obtuse, cordate-clasping, 3- to 5-nerved, minutely punctate, the larger 1-2 (-3) cm long, (3-) 8-13 mm wide. Inflorescences lax and diffuse, poorly defined, leafy-bracted, the pedicels very slender, unequal, the angle between a pair of lateral peduncles ca. 70-105°. Uppermost bracts setaceous, 1.5-3.8 mm long (Fig. 5). Flowers 2.6-4.5 mm wide. Sepals linear-oblong, acute, 2-4 mm long, equaling capsule. Petals 2-3 mm long. Stamens 5-10. Ovary 1-locular, the styles 0.5-0.9 mm long; stigmas capitate. Capsules ovoid to ellipsoid, greenish at maturity, 2-4 (-5) mm long, 1.6-2.4 mm wide. Seeds yellow, striate, minutely rugose, 0.45-0.55 mm long. N = 8 (Hoar & Haertl 1932).

Eastern N. America, from Minn. to Newfoundland, south to Fla. and Texas, in Wisconsin mostly in the lower Wisconsin River valley and Driftless Area, on sandstone cliff ledges, sandy creek margins and river flats, moist sandy or black muck lowland meadows, swales and desiccated temporary pools, rarely in moist woods or abandoned fields. Flowering July to September; fruiting early August to late September.

A highly variable species with populations in Brazil, Hawaii and Europe.

9. Hypericum boreale (Britton) Bicknell Map 9, Figs. 1, 5, 6.
Northern St. John's-Wort.

Slender, rhizomatous and decumbent, branched perennial herbs with terete to obscurely 4-angled stems 1-3 (-4 in tall grass) dm tall, the bases often with leafy short-shoots. Leaves ovate to ellip-
Figure 5. Line-drawings of several Wisconsin small-flowered *Hypericum* (Sect. *Brathys*), (From N. C. Fassett, 1960, p. 246, with permission).
tic, if aquatic suborbicular, obtuse to rounded, obscurely punctate, sessile, 3- to 5-nerved, the larger 8–15 (–25) mm long, 4–8 mm wide. Inflorescence lax and diffuse, leafy-bracted, the angle between a pair of lateral peduncles ca. 85–110°. Uppermost bracts foliaceous, resembling small leaves, 2.5–4 mm long (Fig. 5). Flowers 3.4–5 mm wide. Sepals oblong-elliptic, 2.7–3.8 mm long, equaling petals but shorter than capsule. Stamens 5–10. Ovary 1-locular; styles 3; stigmas capitate. Capsules ovoid to ellipsoid, 3–5 mm long, 1.5–3 mm wide. Seeds light brown, 0.6–0.75 mm long. N = 8 (Hoar and Haertl 1982).

Northeastern N. America, from Minn. to Newfoundland, south to N.Y., W Penna., N Ind. and E Iowa (disjunct to Tenn.?—Sharp et. al. 1960), apparently limited to glaciated areas, in Wisconsin common in moist acid habitats as rocky or sandy shores, mud flats, acid tamarack bogs, alluvial marches, floating sedge mats, damp swales and sandy fields, as Sphagnum—Cyperaceae wet meadows (Black River Falls, Jackson Co.) with scattered Larix, Drosera intermedia, Eriophorum virginicum, Muhlenbergia uniflora, Spiraea tomentosa and Juncus spp. Flowering mid-July to September, fruiting late July to early October.
Hybridizes in Wisconsin with *H. canadense* (pp. 26, 29–30; Fig. 6), these hybrids, called *x. H. dissimulatum* Bicknell (1913) and reported here for the first time for Wisconsin, represent the western-most station of this supposedly “unusually constant and recurring hybrid” (Fernald 1950).

9a. **HYPERICUM BOREALE** forma **CALLITRICHOIDES** Fassett

A sterile, submerged aquatic form with simple, flexible stems and small, 3-nerved leaves lacking pellucid-punctate dots, occasional in northern and central Wisconsin lakes (Adams, Bayfield, Jackson, Juneau, Langlade, Monroe and Oconto Counties) and grading shoreward into normal plants.

10. **HYPERICUM MAJUS** (Gray) Britton

**Common St. John’s–Wort.**

Erect stout perennial with solitary or tufted stems, 1–4 (–6) dm tall, often with small leafy basal offshoots. *Leaves commonly ascending, lanceolate or elliptic to oblanceolate or broadly acute to narrowly oblong, acute to obtuse, subcordate-clasping, 5- to 7-nerved, the larger 1.5–4.4 cm long, 5–12 mm wide. Inflorescences well-defined, often compact, the angle between a pair of lateral peduncles only 25–50°; bracts setaceous-subulate, 1-nerved, 1.8–3.8 mm long (Fig. 5). Sepals lance-acuminate, 4.2–6.5 mm long. Petals equaling sepals; stamens 15–20, weakly 5-delphous. Ovary 1-locular; styles 3, 1–1.5 mm long; stigmas capitate. Capsules narrowly ovoid to ellipsoid, obtuse, reddish-purple at maturity, 5–7.8 mm long, 2–4 mm wide. Seeds pale brown, lustrous, reticulate, 0.6–0.7 mm long. N = 8* (Hoar & Haertl 1932).

Western and northeastern N. America, from British Columbia, E Wash. and Colorado to Quebec and Penna. (2 disjunct stations in Tenn.—Gillespie 1959; Sharp *et al.* 1960), frequent throughout Wisconsin, chiefly in open, moist, gravelly, sandy or sometimes muddy habitats, as shores and beaches, low wet prairies, shrub-carrs, black spruce and tamarack bogs, *Carex* swales, moist talus and cracks of sandstone cliffs, spring and marly marsh margins, and weedy in pastures, sandy fields, roadsides and cranberry bogs. Flowering late June through September; fruiting earliest July to mid-October.

Extremely variable in Wisconsin, especially as to size, hybridizing not infrequently with *H. boreale* and *H. canadense* (cf. page 32).
11. HYPERICUM CANADENSE L.  
Canadian St. John’s-Wort.  
Map 11, Figs. 5, 6.

Slender erect annual or perennial herbs, 1–3 (–4.6) dm tall; stems unbranched except above, sharply 4-angular. Leaves linear-oblancoate to linear, obtuse, sessile-attenuate, 1- or weakly 3-nerved, 6–25 (–40) mm long, 1–3 mm wide. Inflorescences well-defined but open, the angle between a pair of lateral peduncles ca. 30–65°; bracts subulate, 2–2.7 mm long (Fig. 5). Flowers 4–7 mm wide. Sepals linear-lanceolate, acuminate, 2.5–4.4 mm long. Petals 2–5 mm long; stamens 5–10. Ovary 1-locular; styles 3, 0.7–1.0 mm long; stigmas capitate. Capsules ovoid to conic, acute, reddish-purple at maturity, 3–5.2 mm long, 1.3–2.6 mm wide. Seeds light yellow, reticulate, 0.5–0.6 mm long. N = 8 (Hoar & Haertl 1932).

Eastern N. America, from Ga. to Ala. to Newfoundland, west to Iowa, the Black Hills and SE Manitoba, in Wisconsin mostly in the northern Driftless Area, in sandy-peaty roadsides, along railroads, wet sandy meadows, swales and marshes, moist sandstone ledges, in Sphagnum of Ericaceae–Cyperaceae bog (near City Point, Jackson Co.) with Ledum groenlandicum, Chamaedaphne calyculata, Larix laricina, Picea mariana, Rhychchospora alba, Carex oligosperma, Solidago uliginosa, Eriophorum virginicum, Betula pumila and Aronia melanocarpa. Flowering early June to late August, fruiting mid-July to early October.

Of the 30 collections from Wisconsin, only 6 date from before 1930 and these from only 2 stations (McLaughlin 1931). The recent building of roads and flowages may have made the region’s glacial lake beds more receptive to botanizing and to the establishment of pioneers such as H. canadense and its hybrids with H. boreale and H. majus (cf. below for citations).

HYBRIDIZATION IN HYPERICUM SECT. BRATHYS IN WISCONSIN:

Four Wisconsin members of section Brathys (mutilum, boreale, canadense, majus) are morphologically and ecologically similar, often two or three growing together in the same station in Wisconsin’s Driftless Area, especially in the beds of glacial lakes (Maps 8–11), where all but the uncommon H. mutilum tend to hybridize. Hybrids are especially common in sandy, moist, flat, acid habitats. This region, at least post-glacially, has been a very suitable “open habitat” for the establishment of many Coastal Plain species (McLaughlin 1932, Peattie 1922), such as Xyris spp., Bartonia virginica, Gratiola lutea, Drosera spp., Rhychchospora spp., Helium flexuosum (= H. nudiflorum) (Mickelson & Ilitis 1966), and the microevolution of others (Johnson & Ilitis 1963, pp. 267–8).
Potential for long range dispersal in this small-seeded group is probably very great: all four species occur in Europe, probably introduced by birds or in fodder (Heine 1962, Tutin et al. 1968). Hypericum mutilum L. also occurs in Brazil (Keller 1908) and Hawaii (Doty & Mueller-Dombois 1966).

Hybrids between these taxa are very common, both putative F₁'s and backcrosses, which is one reason for the great taxonomic difficulties in this group. In addition, dwarf forms of each species are common and especially difficult to distinguish. Hybrids, being intermediate morphologically, are only briefly described below.

12. HYPERICUM BOREALE (Britton) Bicknell × H. CANADENSE L.

Similar to H. canadense, but more lax and branched, with smaller, lanceolate-elliptic leaves and shorter, reddish-green capsules (Bicknell 1913). H. canadense is evidently a southern species, which post-glacially overlapped the northern H. boreale. The latter species, confined as it is to glaciated territory, has a most anomalous distribution and its Pleistocene survival or origins is not clear. It may represent a “stabilized hybrid” between H. mutilum, a wide-ranging eastern species, and H. majus, a western element, which is now limited to glaciated territory of northeastern North America. Jackson Co.: Indian Creek, sand flats ca. 1 mi W of City Point, 22 Sept. 1968, Utech 68–200 (WIS), a mass collection, represented by the hybrid analysis scatter diagram of Fig. 6.

12b. HYPERICUM BOREALE ABRITTON Bicknell × H. MAJUS (Gray) Britton

Hybrids of these dissimilar species are erect but shorter than H. majus and with diffuse-branched inflorescences and short, elliptic-ovoid capsules like H. boreale. H. majus is clearly a cordilleran (Pacific Northwest ?) element which, like so many other taxa, invaded NE N. America post-glacially to hybridized with an eastern vicarious element (Mason & Iltis 1965), in this case H. boreale (see above). Barron Co.: mud flat, edge of small lake, ca. 2 mi N of Turtle Lake, 21 Aug. 1956, Iltis et al. 7280 B (WIS). Juneau Co.: Sprague Flowage (T. 19 N., R. 2 E., Sec. 1), dry sandy-peaty, sedge-grass marsh, 23 Sept. 1967, Iltis et al. 25,851 pro parte, (WIS—mass collection).

12c. HYPERICUM MAJUS (Gray) Britton × H. CANADENSE L.

Two very similar species form hybrids of shorter stature than H. majus and with leaves of intermediate shape, vein number and width; sepals and capsules also intermediary. The parental species

13. HYPERICUM GENTIANOIDES (L.) B.S.P. Orange-grass, Pine Weed

Erect, strict, very slender annual 1–2.5 dm tall; stems, 4-angled, punctate, with numerous ascending filiform branches. Leaves subulate, appressed, acute, sessile, 1.5–3.8 mm long, 0.5 mm wide. Inflorescence racemose; flowers minute, nearly sessile. Sepals linear-lanceolate, 1.6–2.2 mm long. Petals pale yellow, 2.8–3.6 mm long. Stamens.

5–10. Ovary 1-locular; styles 3, separate, 0.6–0.9 mm long; stigmas capitate. Capsules slenderly conic to lance-subulate, 4–4.8 mm long, 0.8–1.5 mm wide. Seeds yellowish brown, obscurely areolate, 0.3–0.4 mm long. N = 12 (Hoar & Haertl 1932).

Eastern United States (Maine to SW Ontario & Minn., south to Fla. and Texas), in open, dry, rock or acid outcrops, sand barrens and sand prairies in southern Wisconsin. At maturity, the entire plant turns copper or brick-color, hence called “orange grass.” Flowering mid-June to mid-September; fruiting late June to late September.

2. TRIADTNUM Raf. MARSH ST. JOHN’S–WORT.

Erect glabrous perennial, stoloniferous herbs with simple, opposite, entire, often pellucid-punctuate leaves. Flowers 5-merous, regular, perfect, hypogynous, small, in axillary and terminal cymules. Petals oblong, mauve or pinkish to greenish. Stamens 9, the filaments connate into 3 fascicles (3-delphous) and alternating with 3 conspicuous hypogynous glands. Ovary superior, completely 3-loculate; styles 3, separate, divergent; stigmas capitate. Capsules septicidal, 3-carpellate. Seeds small, short-cylindric, reticulate.

Triadenum has 4 species in eastern North America and 1 in Asia (Japan, Korea, Manchuria, Ussuri & Amur, Triadenum japonicum
(Bl.) Makino; Ohwi (1965)), which are often considered as section Elodea (Juss.) Choisy [non section Elodes (Adans.) Koch] of Hypericum. Segregated by Rafinesque (Fl. Tell. 3: 78. 1836) on its pink petals and 3 hypogynous glands, it differs in addition (Holm 1906) by petals imbricate not convolute in bud, 9 stamens strongly 3-delphous into 3 fascicles alternating with 3 hypogynous glands, prominent veins repeatedly branched laterally to the blade margins, and tuberous subterranean stolons with paired scale-like leaves usually with one, rather than many adventitious roots above each bud. Chromosome counts of $N = 19$ (Hoar & Haertl 1932) do not suggest a relationship to Hypericum, but rather to Cratoxylon, a pan-tropical tree genus.

**KEY TO SPECIES**

A. Sepals elliptic to spatulate, summit obtuse to rounded, 2.8-4.8 mm long; fruiting styles 0.6-1.5 mm long; common Wisconsin marsh and bog plant. 

1. **T. FRASERI**

AA. Sepals oblong to lanceolate, summit acuminate to acute, 4.3-8 mm long; fruiting styles 2.1-3.6 mm long; rare, central Wisconsin.

2. **T. VIRGINICUM**

1. **TRIADENUM FRASERI** (Spach) G1.  

*Hypericum Fraseri* Spach  

*Hypericum virginicum* L. var. Fraseri (Spach) Fernald  

Marsh St. John's-Wort.  

May 13, Fig. 7.  

Erect, glabrous, stoloniferous perennial herbs 2-6 dm tall, mostly reddish-purple in age; internodes terete, without decurrent lines. Leaves ovate-cordate to elliptic, 2.3-6.5 cm long, 1-3 cm wide, emarginate to obtuse, sessile and cordate-clasping. Cymules numerous, terminal and axillary, few-flowered. Sepals 3-4.8 (-5.2) mm long, elliptic-oblong to spatulate, obtuse to rounded. Petals mauve or pink, oblong, 5.4-8 mm long. Stamens 9, 3-delphous, persistent; hypogynous glands 3, oval, orange. Ovary 3-celled; styles 3, free, 0.6-1.5 mm long at maturity; stigmas 3, capitate. Capsules conic-ovoid, 7-10 mm long, 3-5 mm wide, abruptly narrowed to styles. Seeds cylindric, dark brown, reticulate, 0.9-1.1 mm long.

Native of northeast North America (NE Nebraska & SW Manitoba to Newfoundland & Labrador, south to Conn., Penna., N. Y., the mountains of W. Va., N. Ind. and Iowa), abundant in Wisconsin's wet acid habitats, as tamarack-black spruce- leather-leaf-sphagnum bogs, sedge meadows, shrub carrs, sloughs and peaty marshes: in Comstock Marsh, Marquette Co., an extensive quaking bog with abundant *Drosera rotundifolia*, *Sarracenia purpurea* and patches of *Phragmites communis* (Nee 1345, WIS); along Turtle Lake, Marquette Co., with *Carex* spp., *Potentilla fruticosa* and *P.*
FIGURE 7. Scatter diagram comparing sepal and style length of Wisconsin *Triadenum fraseri* and Wisconsin and non-Wisconsin *T. virginicum*.
palustris, Chamaedaphne calyculata, sedge meadow and adjoining thickets; in Vilas Co., along Lac Vieux Desert, in shallow acid waters of slow stream draining sphagnum bog with Larix laricina, Picea mariana, Ledum groenlandicum, Sarracenia purpurea, Calopogon pulchellus, Nuphar rubrodiscum, Utricularia, Hippurus, etc., (iltis 18,149, WIS). Flowering from early July to latest August, fruiting mid-July till late September.

2. TRIADENNUM VIRGINICUM (L.) Raf.

Hypericum virginicum L.

Similar to above, but sepal oblong-lanceolate, acuminate to acute, 4.3–8 mm long. Petals obovate, 6.3–9.8 mm long. Ovary 3-celled; styles 3, divergent, 2.1–3.6 mm long; stigmas capitate. Capsules ovoid-cylindric, 7.6–13.4 mm long, 3–5 mm wide, gradually tapering to styles. Seeds cylindric, dark brown, reticulate, 0.9–1.1 mm long. N = 19 (Hoar & Haertl 1932).

An Atlantic coastal plain element, Triadenum virginicum extends inland to S. N. Y., S. Ontario, and disjunct to N. Ind. and central Wisconsin: Lincoln Co.: Merrill, dry sandy field along Prairie River with Comptonia peregrina, Hieracium aurantiacum and Robinia pseudoacacia, 19 Aug. 1956, lwen 419 (WIS). Bagga Marsh, among cranberry beds along Copper River, 25 Aug. 1957, Schlising & Peroutky 660 (WIS). Wood Co.: burned over sphagnum bog, 5 mi NW of Babcock, 20 Aug. 1937, Catenhusen s.n. (WIS). Biron township, Huffman farm, 16 July 1953, Dana s.n. (WIS). It is noteworthy that all collections are recent, since 1937.

In Wisconsin, T. Fraseri is quite common and easily separable from both Wisconsin and non-Wisconsin T. virginicum (Fig. 7). Taxonomically and morphologically, Gleason (1947) distinguished them on sepal and style length. Fernald (1936), using var. Fraseri to indicate this difference, notes that, where sympatric, they usually show clear segregation into a southern or lowland and a northern or upland series.

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