# Common St. Johnswort
*Hypericum perforatum* L.

# History and Ecology in North America

Carol B. Randall[1], Jennifer E. Andreas[2], Joseph Milan[3], Chandra E. Moffat[4]
[1] Forest Service–Forest Health Protection, [2] Washington State University Extension, [3] Bureau of Land Management, [4] Agriculture and Agri-Food Canada

## SYNONYMS
St John's wort, klamath weed, goatweed, San Juan herb

## CLASSIFICATION

| RANKING | SCIENTIFIC NAME | COMMON NAME |
|---|---|---|
| **Kingdom** | Plantae | Plants |
| **Subkingdom** | Tracheobionta | Vascular plants |
| **Superdivision** | Spermatophyta | Seed plants |
| **Division** | Magnoliophyta | Flowering plants |
| **Class** | Magnoliopsida | Dicotyledons |
| **Subclass** | Dilleniidae | |
| **Order** | Malpighiales | |
| **Family** | Hypericaceae | St. Johnswort family |
| **Genus** | *Hypericum* | St. Johnswort |
| **Species** | *Hypericum perforatum* L. | Common St. Johnswort |

## HISTORY AND DISTRIBUTION
Common St. Johnswort is native to Europe, Northern Africa, and Asia. It has a long history of use in herbal remedies for mild to moderate depression, chronic fatigue syndrome, healing wounds, suppressing coughs, and as an antiviral agent. As such, it was intentionally introduced to the USA on multiple occasions by European settlers interested in the plant's medicinal properties. It escaped cultivation in the USA as early as 1793 and has since become a nuisance weed throughout much of the continent. Common St. Johnswort has been recorded in 49 states in the USA and nine provinces in Canada (**Fig. 1**), though it is most problematic in the West.

**Figure 1.** Common St. Johnswort reported distribution in North America (Credit: Crompton et al. 1988; EDDMapS, www.eddmaps.org; USDA PLANTS Database, plants.usda.gov; both accessed 21 November 2024)

## IMPACT
Common St. Johnswort is a vigorous competitor in pastures, rangelands, and natural areas, displacing native and/or more desirable forage species throughout the West. At its peak densities in the mid-1900s, it was considered the leading cause of economic loss to California agriculture, attributed both to stock fatalities and the loss of pasture and rangeland. Glands on the weed's foliage produce hypericin, an oil and phototoxin. Upon ingestion, animals become sensitive to sunlight, often leading to dermatitis, inflammation of the mucus membranes, itching, swelling, blisters, and open sores. Animals with lighter pigmentation, a thinner fur or wool covering, and softer skin (young) are affected most, as are nursing animals whose mothers are exposed to hypericin. If consumed in large quantities, starvation, dehydration, and death may occur. Humans may also experience the same reactions when using herbal remedies containing hypericin.

**Figure 2.** Common St. Johnswort plants (Eric Coombs, Oregon Department of Agriculture, Bugwood.org CC BY 3.0 US)

## IDENTIFICATION
### At a Glance
Common St. Johnswort is an herbaceous perennial forb (**Fig. 2**) typically growing 1–3 ft (0.3–1 m) tall with numerous, rust-colored stems that are somewhat woody at their base. The plant has both a taproot and lateral roots. Leaves are opposite, without stems or lobes, and are up to 1 in (2½ cm) long. Leaves have numerous transparent glands as well as tiny black glands along their margins. Flowers

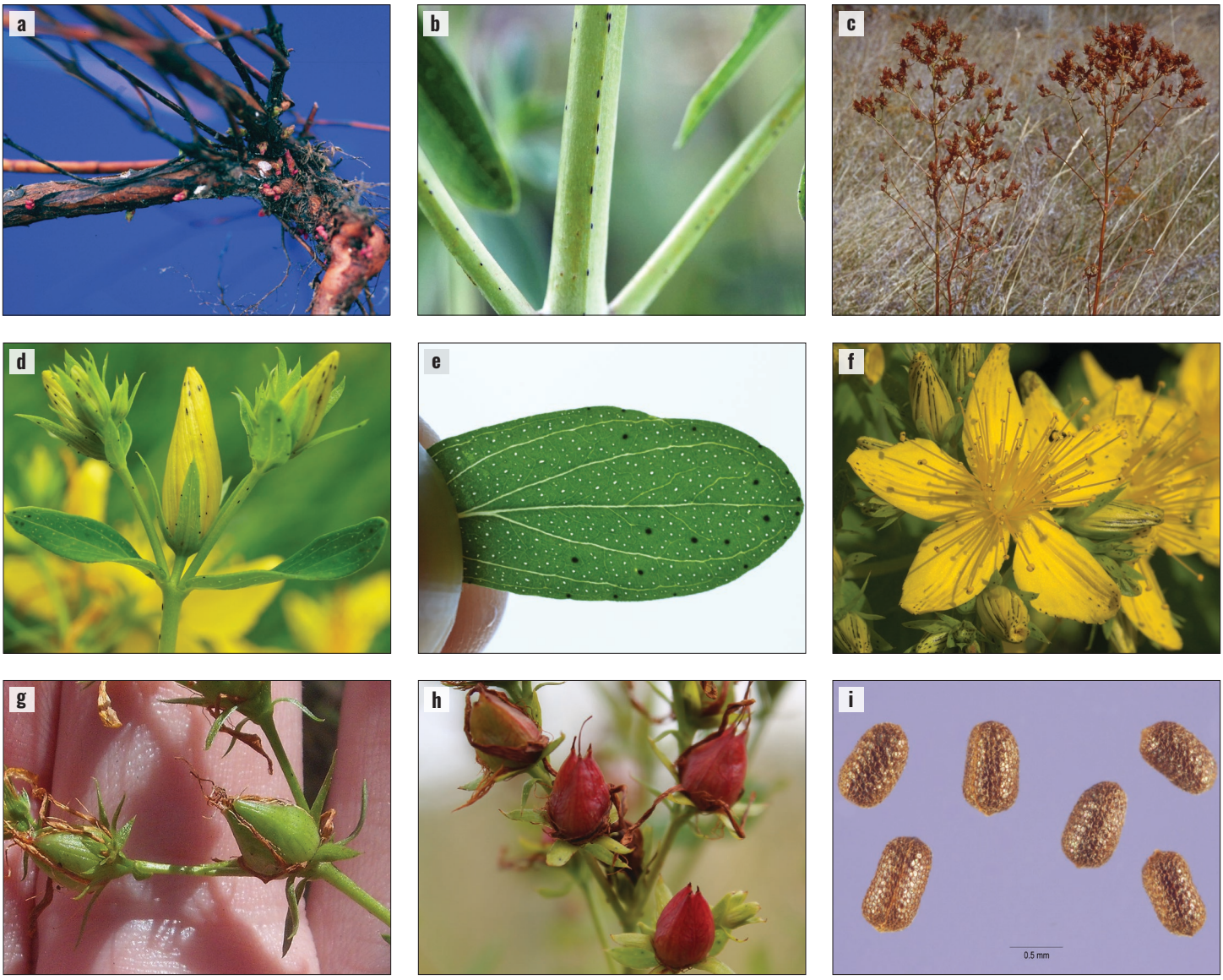



**Figure 3.** Common St. Johnswort (a) grows from a taproot with lateral roots. Stems (b) are hairless with tiny black glands along their ridges. They are green at first but turn red and then rust-colored (c) at maturity. Leaves (d,e) are opposite, lack petioles, and have tiny transparent glands scattered throughout the leaves and tiny black oil-producing glands near the margins. Flowers (f) have five yellow petals, numerous stamens, and black oil-producing glands around petal margins. Fruits (g) are sticky capsules that turn red at maturity (h) and contain numerous small, brown, cylindrical seeds (i). (a: Steve Dewey, Utah State University, Bugwood.org CC BY 3.0 US; b: Wolfgang Jauch, iNaturalist.org CC BY-NC-SA 4.0; c: Norman Rees, USDA ARS, Bugwood.org CC BY 3.0 US; d: Irene Saltini, iNaturalist.org CCO; e: Patrick Hacker, iNaturalist.org CC BY-4.0; f: Stefan Heissmann, iNaturalist.org CC BY-NC-SA 4.0; g: Stephen Thorpe, iNaturalist.org CC BY-NC-SA 4.0; h: Cuprum, iNaturalist.org CC BY-NC-SA 4.0; i: (Steve Hurst, USDA ARS, Bugwood.org CC BY 3.0 US)

are numerous, bright yellow, ¾ in (1.9 cm) in diameter, have many stamens, and have petals with additional black glands along margins. Seed pods are sticky, 3-celled, less than ½ in (1¼ cm) long, and filled with several small brown seeds.

## Roots

Common St. Johnswort plants consist of one to many aerial crowns attached to a system of vertical and lateral roots (**Fig. 3a**). Vertical taproots often extend between 2–5 ft (0.6–1½ m), depending on the soil characteristics and moisture content. Lateral root growth may be extensive and occurs ½–3 in (1¼–7½ cm) below the soil surface. In springtime or following plant injury, lateral roots produce buds from which new crowns develop. This growth can also occur in fall if there is sufficient precipitation. Lateral connecting roots often decay, leaving new crowns as independent plants.

## Stems and Leaves

Typical plants grow 1–3 ft (⅓–1 m) tall and can produce several stems that are somewhat woody at their bases. Each stem can have many upward-facing branches. Stems are hairless and have black glands along their two ridges (**Fig. 3b**). A reddish hue appears with maturity, and the entire plant eventually turns a deep rust color as stems die back prior to winter (**Fig. 3c**). Leaves are up to 1 in (2½ cm) long, hairless, oblong, bright green, and have smooth or weakly

wavy margins. They are oppositely arranged on the stem and attach directly to the stem without a petiole (**Fig. 3d**). The plant gets its species name (*H. perforatum*) from tiny transparent glands scattered across the leaves that are visible when leaves are held up to light (**Fig. 3e**). In addition, small and black oil-producing glands are scattered across the leaves, especially along leaf margins (**Fig. 3e**).

### Flowers

Flowers occur in small clusters (cymes) at the tips of branches and stems. Typical of cyme inflorescences, the endmost flower opens and matures before the flowers below or to the side. Each showy flower is ¾ in (1.9 cm) in diameter and has five yellow petals with many yellow stamens (**Fig. 3f**) that may be fused at their base into three bunches. The black dots often visible along the petal margins are glands containing hypericin (**Fig. 3d,f**).

## FRUITS AND SEEDS

The fruit is a sticky, 3-celled capsule (**Fig. 3g**). It is less than ½ in (1¼ cm) long, rounded at the end, and originally green but turns red (**Fig. 3h**) and then rust-brown at maturity. Each capsule contains numerous dark brown cylindrical seeds (**Fig. 3i**) that are less than 1 mm long and pitted. Estimates of seed production vary tremendously, but one plant is capable of producing an average of 15,000 to 34,000 seeds.

## ECOLOGY

Common St. Johnswort spreads by seed and lateral roots. Sticky seed capsules can be dispersed short distances by wind and longer distances by water and adhering to humans and other animals. First-year plants may occasionally produce flowers and seeds, but it usually takes two to several years to reach maturity. Flowering occurs from late spring through late summer. Common St. Johnswort is a facultative apomict, meaning it can produce seeds both sexually and asexually without fertilization. Seeds germinate throughout spring and summer or following autumn rains, and they may remain viable in the soil for over 50 years. Vegetative reproduction is responsible for much of the growth in a common St. Johnswort population. Grazing, fire, and poor site conditions (including shallow or very rocky soils) stimulate lateral root growth. Shortly after new stems establish, connecting roots often decay. It is therefore difficult to distinguish crowns developed by vegetative means from those arising from seed.

## HABITAT

Common St. Johnswort prefers open sunlight and disturbance (**Fig. 4a,b**), but can spread into undisturbed sites as well. It is a serious weed of forest clear cuts, roadsides, rangeland, and abandoned fields (**Fig. 4c,d**). It is most often found growing from sea level to 6,000 ft (1,830 m) in elevation in North America and is present on all slopes and aspects, though it prefers southern exposure. Extreme temperatures in winter limit its range, as does annual precipitation less than 10 in (25 cm). Though it is found in a variety of soils, common St. Johnswort grows most aggressively in well-drained, coarse-textured soil with neutral to acidic pH.

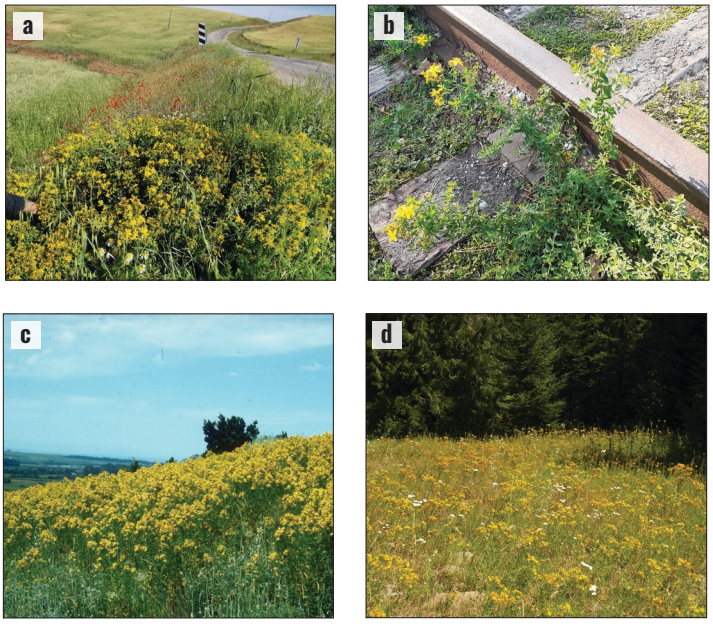



**Figure 4.** Common St. Johnswort invades a variety of habitats, including (a) roadsides; (b) rail lines; (c) open rangeland; and (d) forest clearings. (a: Mustafa Gökmen, iNaturalist.org CC BY-NC 4.0; b: Essexlemons, iNaturalist.org CC BY-NC 4.0; c: Norman Rees USDA ARS, Bugwood.org CC BY 3.0 US; d: Marianna Szűcs, Michigan State University)

## SIMILAR SPECIES

There are several species in North America with leaves and/or flowers similar to those of common St. Johnswort, including other weeds such as tansy ragwort and common tansy. Both of those species are described in detail in a different factsheet. In general, the combination of opposite leaf arrangement, yellow flowers with five petals and numerous stamens, and the presence of tiny glands throughout leaves and petals help differentiate common St. Johnswort and its entire plant family from potential look alikes.

There are approximately 60 other species of *Hypericum* present in the USA and Canada (including Hawai'i). Twenty-eight are shrubs or trees, so are unlikely to be confused with the herbaceous common St. Johnswort. Of the 32 herbaceous species, four native species (*Hypericum cumulicola, H. erythreae, H. gentianoides*, and *H. setosum*) differ markedly by having much narrower, upright stems and leaves. The leaves and flowers of the introduced ornamental *H. calycinum* are much larger than common St. Johnswort. The 28 herbaceous *Hypericum* species most closely resembling common St. Johnswort in North America are listed in **Table 1**, along with key characteristics that can be used for differentiation.

**Table 1.** Key traits for differentiating other herbaceous *Hypericum* species established in North America from common St. Johnswort, *Hypericum perforatum*.

| SPECIES | DIFFERENCES | PLANT/STEM | SPECIES | DIFFERENCES | PLANT/STEM |
|---|---|---|---|---|---|
| **Creeping St. Johnswort**<br>*Hypericum adpressum*<br>Native perennial | Uncommon to rare throughout most of range; found mainly on coastal plain shores and riversides; leaves more linear; stamens not fused into bundles; fruit beaked, one-chambered capsule instead of three-chambered |  | **Goldwire**<br>*Hypericum concinnum*<br>Native perennial | Can grow as a subshrub; leaves more narrow and gray-green; petals have more obvious venation, more scalloped margins, and are bent backwards away from flower center |  |
| **Bog St. Johnswort**<br>*Hypericum anagalloides*<br>Native annual or perennial | Found only in moist environments; grows prostrate or low to the ground in carpet-like mats; leaves more round; stamens fewer |  | **Coppery St. Johnswort**<br>*Hypericum denticulatum*<br>Native perennial | Stems have four ridges (as opposed to two), more densely spotted with glands; leaves smaller, more oval-shaped; fruit one-chambered capsule instead of three-chambered |  |
| **Great St. Johnswort**<br>*Hypericum ascyron*<br>Native perennial | Up to 5 ft (1½ m) tall; stems have four ridges (as opposed to two); leaves larger, with more pointed tips; flowers ≥ 2 in (5 cm) across; fruit pyramid-shaped with five chambers (as opposed to three); seeds resemble tiny ears of corn |  | **Straggling St. Johnswort**<br>*Hypericum dolabriforme*<br>Native perennial | Found on limestone outcrops and in cedar glades; sometimes grows more spreading and as subshrub; leaves more linear with more pointed tips; stamens not fused into bundles; seeds longer |  |
| **Northern St. Johnswort**<br>*Hypericum boreale*<br>Native perennial | Found only in wetlands or very moist areas, sometimes growing partly submerged; delicate plant of short stature and with leaves and flowers much smaller; stamens fewer |  | **Nits and lice**<br>*Hypericum drummondii*<br>Native annual | Taproot; grows much smaller overall; leaves more narrow, needle-like, with more pointed tips; flowers much smaller with sepals obvious between petals; fewer stamens |  |
| **Coastal plain St. Johnswort**<br>*Hypericum brachyphyllum*<br>Native perennial | Found only in moist areas; typically grows as a subshrub; leaves thin, needle-like, margins rolled backwards |  | **Pale St. Johnswort**<br>*Hypericum ellipticum*<br>Native perennial | Grows in moist soil along shores of lakes, streams, and marshes; leaves more elliptic in shape; main stems unbranched until flowered tips; petals more narrow; flowers smaller with sepals obvious between petals; fruit with short beak |  |
| **Canada St. Johnswort**<br>*Hypericum canadense*<br>Native annual | Found only in moist soil; roots fibrous; leaves long and narrow; flowers much smaller with sepals obvious between petals; stamens not fused into bundles |  | **Small St. Johnswort**<br>*Hypericum gramineum*<br>Native annual | Established only in Hawai'i in USA; taproot; grows much smaller overall; no oil glands on leaves and petals; has four longitudinal ridges on stem (as opposed to two); petals yellow-orange; stamens not fused into bundles |  |
| **Rounded St. Johnswort**<br>*Hypericum cistifolium*<br>Native perennial | Grows only in moist areas; often grows as single stem but may grow as few-stemmed subshrub; leaves more linear, narrow, edges fold inward; flowers smaller |  | **Mountain St. Johnswort**<br>*Hypericum graveolens*<br>Native perennial | Grows at high elevations on balds and seepage slopes; plant often shorter; leaves larger, more pointed tips; flowers larger but often fewer per plant |  |

**Table 1 Continued.** Key traits for differentiating other herbaceous *Hypericum* species established in North America from common St. Johnswort, *Hypericum perforatum*.

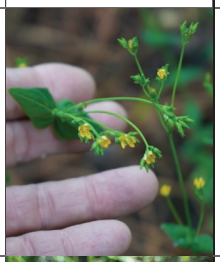
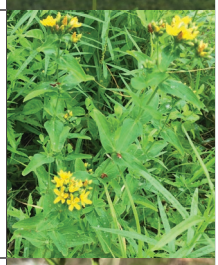
| SPECIES | DIFFERENCES | PLANT/STEM | SPECIES | DIFFERENCES | PLANT/STEM |
|---|---|---|---|---|---|
| **Claspingleaf St. Johnswort**<br>*Hypericum gymnanthum*<br>Native annual or perennial | Grows only in moist conditions; much smaller overall; grows from taproot with secondary fibrous roots; has four longitudinal ridges on stem (as opposed to two); leaf bases often heart-shaped; flowers much smaller; stamens fewer |  | **Fewflower St. Johnswort**<br>*Hypericum pauciflorum*<br>Native perennial | Grows much smaller, narrower overall; stems sparsely branched; leaves smaller, more linear, may at times be more dense basally; flowers yellow-orange; stamens fewer |  |
| **Sharplobe St. Johnswort**<br>*Hypericum harperi*<br>Native perennial | Grows only in moist conditions; much smaller overall; leaves much smaller, linear, leathery; flowers smaller; stamens fused at base into irregular groups |  | **False spotted St. Johnswort**<br>*Hypericum pseudomaculatum*<br>Native perennial | Dark glandular dots more densely spread on stems, leaves, throughout flowers (not just on petal margins); leaves larger, more lance-shaped; often produces more flowers |  |
| **Trailing St. Johnswort**<br>*Hypericum humifusum*<br>Introduced perennial | Grows prostrate with thin trailing stems; all features much smaller overall; sepals obvious between petals; stamens fused at base into bundles |  | **Spotted St. Johnswort**<br>*Hypericum punctatum*<br>Native perennial | Dark glandular dots scattered throughout leaves and petals rather than just margins, often appearing in streaks; flowers smaller; typically fewer stamens |  |
| **Imperforate St. Johnswort**<br>*Hypericum maculatum*<br>Introduced perennial | Stems hollow and have four ridges (as opposed to two); leaves often slightly broader, have few or no translucent glands; flowers and sepals more darkly spotted |  | **Brushy mountain St. Johnswort**<br>*Hypericum radfordiorum*<br>Native perennial | Grows on granitic outcrops; has four longitudinal ridges on stem (as opposed to two); leaves leathery with more pointed tips; petals yellow-orange; stamens fused at the base |  |
| **Larger St. Johnswort**<br>*Hypericum majus*<br>Native annual or short-lived perennial | Grows only in moist conditions; grows much smaller overall; has four longitudinal ridges on stem (as opposed to two); leaves more linear; flowers much smaller; sepals obvious between petals; stamens fewer, not fused into bundles |  | **Scouler's St. Johnswort**<br>*Hypericum scouleri*<br>Native perennial | Grows in more moist conditions; leaves thicker and broader at their base; black glandular dots on leaves more elongated; stamens fused at base into three distinct groups |  |
| **Blue Ridge St. Johnswort**<br>*Hypericum mitchellianum*<br>Native perennial | Typically grows much smaller overall; sometimes has four longitudinal ridges on stem (as opposed to two); leaves often more broad with blunt tips, more dark glandular dots throughout leaf, not just near margins; flowers smaller |  | **Roundfruit St. Johnswort**<br>*Hypericum sphaerocarpum*<br>Native perennial | Leaves longer, more lance-shaped with pointed tips; leaf pairs rotate by 90º ascending up stem; no dark glands on undersides of leaves; no dark glands on flowers |  |
| **Dwarf St. Johnswort**<br>*Hypericum mutilum*<br>Native annual or perennial | Grows in moist areas; half the size; may grow along ground, rooting from nodes; leaves not as linear, more broadly rounded; flowers much smaller; sepals obvious between petals; stamens fewer; fruit one-chambered capsule instead of three-chambered |  | **Sharpleaf St. Johnswort**<br>*Hypericum virgatum*<br>Native perennial | Grows smaller overall; leaves more linear with more pointed tips; small punctate glands on lower leaf surfaces; sepals and petals without dark glands; petals yellow-orange |  |

**Photo Credits Table 1:** *H. adpressum* (Paul Marcum, iNaturalist.org CC BY-NC 4.0); *H. anagalloides* (Chloe and Trevor, iNaturalist.org CC BY-NC 4.0); *H. ascyron* (Павел Голяков, iNaturalist.org CC BY-NC 4.0); *H. boreale* (Josh Vandermeulen, iNaturalist.org CC BY-NC-ND 4.0); *H. brachyphyllum* (Patty Mitchum, iNaturalist.org CC BY-4.0); *H. canadense* (Brent Turcotte, iNaturalist.org CC BY-NC 4.0); *H. cistifolium* (Howard Friedman, iNaturalist.org CC BY-NC 4.0); *H. concinnum* (Don Loarie, iNaturalist.org CC BY-NC 4.0); *H. denticulatum* (Mhough, iNaturalist.org CC BY-NC 4.0); *H. dolabriforme* (Zirick, iNaturalist.org CC BY-NC 4.0); *H. drummondii* (Calvin Andries, iNaturalist.org CC BY-NC 4.0); *H. ellipticum* (Brent Turcotte, iNaturalist.org CC BY-NC 4.0); *H. gramineum* (Geelong-nature-nerd, iNaturalist.org CC BY-NC 4.0); *H. graveolens* (Steve Gray, iNaturalist.org CC BY-NC 4.0); *H. gymnanthum* (Kathy Cox, iNaturalist.org CC BY-NC 4.0); *H. harperi* (Eric M Powell, iNaturalist.org CC BY-NC 4.0); *H. humifusum* (Zdeňka Nováková, iNaturalist.org CC BY-NC 4.0); *H. maculatum* (Anna_efimova, iNaturalist.org CC BY-NC 4.0); *H. majus* (Mike V.A. Burrell, iNaturalist.org CC BY-NC 4.0); *H. mitchellianum* (Mark Connolly, iNaturalist.org CC BY-NC 4.0); *H. mutilum* (Andy Newman, iNaturalist.org CC BY-4.0); *H. pauciflorum* (Patrick Alexander, SWBiodiversity.org CC BY-SA 4.0); *H. pseudomaculatum* (Jim_keesling, iNaturalist.org CC BY-NC 4.0); *H. punctatum* (Rich Holschuh, iNaturalist.org CC BY-NC 4.0); *H. radfordiorum* (Grahamayer, iNaturalist.org CC BY-NC 4.0); *H. scouleri* (Cheryl Beyer, iNaturalist.org CC BY-NC 4.0); *H. sphaerocarpum* (Cosmic Cat, iNaturalist.org CC BY-NC 4.0); *H. virgatum* (Dwayne Estes, iNaturalist.org CC BY-NC 4.0)

## REFERENCES


Bourke, C.A. 1997. Effects of *Hypericum* spp. (St John's wort) on animal health and production. Plant Protection Quarterly 12: 91–93.

Campbell, M.H. and E.S. Delfosse. 1984. The biology of Australian weeds. 13. *Hypericum perforatum* L. The Journal of the Australian Institute of Agricultural Science 50(2): 63–73.

Cech, R. 1997. Herb of the Sun Saint John's Wort. Horizon Herbs Publication, Williams, Oregon. 21 pp.

Crompton, C.W., I.V. Hall, K.I.N. Jensen, and P.D. Hildegrand. 1988. The Biology of Canadian Weeds. 83. *Hypericum perforatum* L. Canadian Journal of Plant Science 68: 149–162.

Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico [Online]. 22+ vols. New York and Oxford. http://beta.floranorthamerica.org [Accessed 3 August 2021].

Harris, P., and D.P. Peschken. 1971. *Hypericum perforatum* L., St. John's wort (Hypericaceae). Technical Communication, Commonwealth Institute of Biological Control 4: 89–94.

Harris, P., D. Peschken and J. Milroy. 1969. The status of biological control of the weed *Hypericum perforatum* in British Columbia. The Canadian Entomologist 101: 1–15.

Hobbs, C. 1997. St. John's Wort *Hypericum perforatum* Quality Control, Analytical and Therapeutic Monograph. Herbalgram No. 40. July 1997. 16 pp.

Kingsbury, J. 1964. Poisonous Plants of the United States and Canada. Prentice-Hall, Inc. Englewood Cliffs, New Jersey. pp. 52–57, 171–175.

Mitich, L. 1994. Common St. Johnswort. Weed Technology 8: 658–661.

Piper, G.L. 2004. St. Johnswort, *Hypericum perforatum*. *In:* Coombs, E.M., J.K. Clark, G.L. Piper, and A.F. Cofrancesco, Jr., Eds. 2004. Biological Control of Invasive Plants in the United States. Oregon State University Press, Corvallis, Oregon. pp. 322–334.

Turner, N. and A. Szczawinski. 1991. Common Poisonous Plants and Mushrooms of North America. Timber Press, Portland, Oregon. pp 24, 136–137.

Winston R.L., M. Schwarzländer, C.B. Randall, and R. Reardon. 2010. Biology and Biological Control of Common St. Johnswort. USDA Forest Service, Forest Health Technology Enterprise Team, Morgantown, West Virginia. FHTET-2010-05.

Zouhar, K. 2004. *Hypericum perforatum*. *In:* Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: https://www.fs.usda.gov/database/feis/plants/forb/hypper/all.html.


## ACKNOWLEDGMENTS


The authors thank two anonymous reviewers, as well as Christine Cock (Agriculture and Agri-Food Canada), for providing helpful comments on earlier versions of this publication. This fact sheet was produced by the North American Invasive Species Management Association (NAISMA) with financial support from USDA Forest Service. The layout was designed by Rachel Winston, MIA Consulting.


NAISMA is a network of professionals challenged by invasive species: land managers, water resource managers, state, regional, and federal agency directors and staff, researchers, and nonprofit organizations. NAISMA's members are a diverse group of individuals and organizations who are involved in implementing invasive species management programs at all scales. Our mission is to support, promote, and empower invasive species prevention and management in North America. Our vision is to have North America's lands and waters protected from invasive species. NAISMA's programs aim to provide the support, training, and standards needed by the professional invasive species management community.

## SUGGESTED CITATION


Randall, C.B., J.E. Andreas, J. Milan, and C.E. Moffat. 2024. Common St. Johnswort (*Hypericum perforatum*): History and Ecology in North America. *In*: R.L. Winston, Ed. Biological Control of Weeds in North America. North American Invasive Species Management Association, Milwaukee, WI. NAISMA-BCW-2024-18-COMMON ST JOHNSWORT-P.