

ST. JOHNSWORT
Hypericum perforatum

Life History/Identification:

St. Johnswort is a perennial herb that can grow to be two to five feet tall. It is also known as amber, goatweed, klamathweed, rosin rose, and tipton weed. The roots of the plant are an abbreviated taproot system, meaning that some roots bore deeply into the earth while some of the roots remain shallow. Taproots can penetrate as far as five feet into the soil. The roots that are shallow produce vegetative buds from which new crowns develop. St. Johnswort has numerous erect stems that appear to have a rust color. The stems are also woody and relatively smooth to the touch. The leaves of this plant are oblong and/or elliptic and attach directly to the stem. St. Johnswort has transparent glands in its leaves that produce an oil that is toxic to animals. From May to September, this weed has an extensive flowering period. The flowers are anywhere from one to two centimeters in diameter and they develop in clusters. Flowers are yellow, have five petals, and have transparent black dots around the edges of each petal. The flowers also contain numerous amounts of stamens. The seed capsules of this plant are rounded at the end and are small (about 3/16 to 7/16 of an inch long). They have a rusty color and each capsule contains numerous seeds. Seeds are dark brown and are about 3/64 of an inch long. Each seed contains a germination inhibitor, but the germination increases over time during rainy periods because the inhibitor is washed off. St. Johnswort reproduces through seeds and roots, and can be spread by the wind, wildlife, and through human activity. The plant is an aggressive non-native that is considered noxious in many states. It is typically found in old meadows, pastures, along roadsides, on rangeland, and in waste areas, usually on dry, gravelly, or sandy soils. St. Johnswort thrives in direct sunshine and has proven to have the ability to push out native plants in areas where it grows.



Flagstaff Localities:

This species was found in one location on the Kaibab National Forest during a 1997 survey. The location was near a place of human habitation and near a spring. Some of the species of herbs including mint (*Mentha piperita*) were present. The plants probably persisted any human abandonment of the site. Other locations around human habitation and former occupancy may exist

Economic Impact:

St. Johnswort enjoys a long and colorful history. Dioscorides, Pliny, and Hippocrates all used it during ancient Greek times. It was believed to possess magical properties to dispel evil spirits. There was a common medieval belief that sleeping with a piece under your pillow on St. John's Eve would protect one during the following year. Today, St. Johnswort extracts have been administered for the treatment of mania, hysteria, depression, dysentery, jaundice, and a host of other afflictions. Unfortunately, outside of its native range it has the potential to do as much harm as good. St. Johnswort can be a serious problem in rangeland and pastures where dense stands, through their

displacement of valued forage and indigenous plant species, can greatly depreciate livestock and wildlife carrying capacities, and endanger the biological diversity of these grazing lands. When livestock (cattle, sheep, goats, horses, and swine) eat a sufficient quantity of this plant, they become poisoned by a compound called hypericin. Hypericin is absorbed from the intestinal tract and goes into the circulatory system, causing cellular damage and potentially severe sunburn. The affected skin first becomes swollen and tender, then reddened. The skin can be burned to the point where large areas of skin peel off. This is extremely painful for the animal and predisposes it to infection. Affected animals are reluctant to have the areas examined, and may act abnormally or not want to eat due to the discomfort.

Control:

Preventing the introduction and further spread of this plant to uninfested areas is much easier, more environmentally desirable, and more cost-effective than is the subsequent management of large-scale infestations. An integrated combination of control methods will be needed to successfully manage St. Johnswort.

Cultural Control:

Practices that encourage residual competitive species or that establish competitive, well-adapted, palatable grasses or legumes at a St. Johnswort-infested site should be a part of any management effort. Research has shown that a program of cultivation, fertilization, and reseeding with a perennial grass controlled St. Johnswort populations in pastures and rangeland over a two to five year period. The choice of plant species to be seeded should reflect site conditions, management, and future use.

Mechanical Control:

Hand pulling and grubbing of young, isolated plants can often be effective. Be sure to remove and destroy pulled plants to prevent possible vegetative re-growth and/or seed dissemination. For larger infestations, mowing can diminish the spread of the plant if it is performed prior to seed formation. Two or more cuttings may be necessary during the growing season. Burning has actually increased the density and vigor of St. Johnswort stands and is not recommended as a control method.

Chemical Control *(Noted here are chemical control techniques that have been used in other areas. Always check with weed specialists or chemical suppliers before treatment to ensure correct dosage and application. Mention of these products does not imply endorsement by the Northern Arizona Weed Council or The Nature Conservancy.):*

- 1) Escort™ (chemical name: metsulfuron) applied at 1 ounce of product per acre can provide for effective control if it is sprayed after the plants have emerged and are actively growing. Apply with a nonionic surfactant at 0.25% v/v.
- 2) 2,4-D can be used before St. Johnswort blooms, preferably on new seedlings. However, 2,4-D is not very effective in completely killing the plant in a single application, so repeat applications are necessary.
- 3) Tordon 22K™ (chemical name: picloram) is a restricted use herbicide, but can be applied on the early growth stages of the weed. One to two quarts per acre for spot treatments and one to two pints per acre tank-mixed with 1 quart of 2,4-D as a broadcast treatment is recommended.

Biological Control *(No exotic species should be introduced into an ecosystem without extensive research into the long-term effects. Mention of the species below does not imply appropriateness for use in Northern Arizona.):*

A beetle has been effectively used to feed on the leaves and flowers of St. Johnswort. Heavy feeding makes it very difficult for the plant to survive the winter months. The beetle is now established in five states and works well in conjunction with other control techniques.

Note: No single control method, or any one-year treatment program, will ever achieve effective control of an area contaminated by St. Johnswort. The fast growth, deep root system, and prolific seed production of this plant require long-term cooperative integrated management programs and planning to prevent, contain, and reduce St. Johnswort infestations.

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Biological Control (No exotic species should be introduced into an ecosystem without extensive research into the long-term effects. Mention of the species below does not imply appropriateness for use in Northern Arizona.):

There are several biological control agents approved for use in the control of St. Johnswort. These include three beetle species – *Agrilus hyperici*, *Chysolina hyperici* and *Chysolina quadrigemina*. A moth *Aplocera plagiata* is also available. More information on these agents is available through the USDA, Animal and Health Inspection Service. These agents would probably not be effective control methods in Northern Arizona, due to the small size of known populations of the plants. For effective control, biological agents generally need large enough populations to sustain their own populations through several generations.

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