Rumex acetosella

SHEEP SORREL

Photo Credit: © KEVIN NEWELL/E-FLORA BC

ENGLISH NAMES Sheep sorrel, common sheep sorrel, red sorrel

SCIENTIFIC NAME *Rumex acetosella*

FAMILY Polygonaceae (Buckwheat)

Sheep sorrel is an erect perennial herb having distinct arrowhead-shaped leaves and reddish stems.

RANGE/KNOWN DISTRIBUTION

Sheep sorrel was introduced from Eurasia around 1870. It has since become naturalized throughout every Canadian province, every U.S. state and most of the world. In British Columbia it is widespread in the south, becoming less common northward.

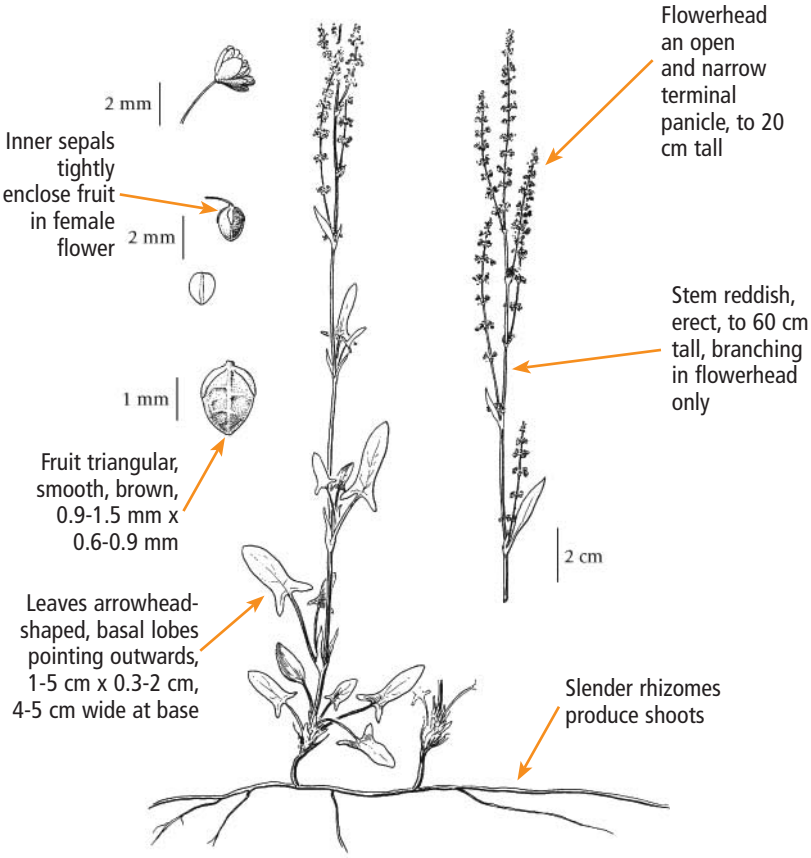
IMPACTS ON GARRY OAK AND ASSOCIATED ECOSYSTEMS

Sheep sorrel is a highly competitive species and can effectively out-compete native species for light. Once it has established, it forms dense stands and a thick mat of creeping roots and rhizomes. This dense growth prevents the establishment of other species. It is particularly aggressive on disturbed sites where it can establish quickly from buried seed and displace the native flora. This can significantly change the plant composition in Garry oak ecosystems, reducing available habitats and food sources for some rare plant and animal species. Non-native species can also be a medium for the introduction of harmful fungi, viruses and nematodes.

FIELD DESCRIPTION

Sheep sorrel can be identified by its reddish flowering stems and distinctly arrowhead-shaped leaves. Most leaves occur in the basal rosette and have stalks longer than the blades. Stem leaves are alternate, have almost no stalk and reduce in size up the stem. Young leaves are egg-shaped. All leaves are hairless and there is a membranous sheath around the stem at each node.

Flowers are clustered in groups of 3-10 and have short pedicels (to 2 mm) that are jointed immediately below the flower. Flowers have 3 scale-like sepals and 3 petals. Male flowers are yellow-green in colour and female flowers are red-maroon.



Vascular Plants of the Pacific Northwest, Leo C. Hitchcock; Arthur Cronquist, and Mario Ownbey, illustrations by Jeanne R. Janish. Published by the University of Washington Press (1969).

LIFE HISTORY

Sheep sorrel is a short-lived perennial herb, sometimes completing its lifecycle in its first year. It grows year-round and flowers from May to September. Male and female flowers are usually borne on separate plants. Seeds are wind pollinated and dispersed via wind, water, insects and vehicles. One plant can produce up to 1,600 seeds per year. Seeds have a high survival rate and germinate gradually over the years in February to October. Buried seeds become dormant, persisting for as many as 80 years.

Sheep sorrel primarily reproduces vegetatively by its roots and rhizomes, which produce shoots. Germinating seeds will quickly develop spreading rhizomes. This results in dense clonal colonies that can persist for as many as 15 to 20 years.

HABITAT

Sheep sorrel is found in a wide range of habitats, usually in open areas. Typical habitats include grasslands, meadows, riparian areas and open forests as well as disturbed sites such as fields, roadsides, clearcuts and burn sites. It tolerates a wide range of soil conditions but is most common on acidic and low nutrient soils. In British Columbia it grows from sea level to 2,700 metres.

MANAGEMENT

Sheep sorrel is best controlled when the infestation is caught early. If the infestation is already large, the priority should be given to the areas of highest conservation values, such as those with rare species. Control of sheep sorrel is difficult because of its persistent seeds and re-sprouting rhizomes.

Develop a long-term, realistic program for invasive species removal before undertaking any work. Before taking action, obtain expert advice. Please refer to the introductory section of this manual.

PHYSICAL CONTROL: Removal by carefully hand pulling can be effective when the infestation is caught before an extensive root and rhizome system has established. Caution must be used to prevent the spread of root and rhizome remnants, which can re-establish, and to prevent soil disturbance. Repeated cultivation can also effectively control sheep sorrel as the continual removal of top-growth will eventually starve the roots. Both of these methods can quickly become highly labour intensive.

BIOLOGICAL CONTROL: No known biological agents are available.

CHEMICAL CONTROL: Populations too large for manual removal can be managed by cautious application of herbicides. The effect of post-emergent herbicides is variable, but is greatest when applied to young and actively growing plants. Control is increased when combined with liming. *Herbicides should only be used with extreme caution, and under expert advice, in sensitive Garry oak ecosystems.*

OTHER TECHNIQUES: Sheep sorrel has been found to increase with grazing and/or burning. It survives by sprouting from roots and rhizomes and by germinating from seeds buried in the soil.

PREVENTATIVE MEASURES: Soil disturbance should be avoided in natural areas. Encourage plant nurseries and gardeners to stock and use native or non-invasive species, and to avoid using non-native species such as sheep sorrel. Equipment, clothing and animals should be checked and cleared for seeds when leaving an infested area.

PERSISTENCE: Seed dormancy is highly persistent with viable seeds lasting as long as 80 years. Seeds also retain viability after passing through the digestive tracts of fauna. Clonal colonies can live for 15 to 20 years.

GENERAL COMMENTS

The leaves and stems of sheep sorrel contain oxalate, which can be toxic to fauna when ingested in large quantities. This gives it a distinct sour taste.

SELECT REFERENCES

Alaska Natural Heritage Program. 2006. Non-native plant species of Alaska: Sheep sorrel (*Rumex acetosella*). Alaska Natural Heritage Program.

BC Ministry of Agriculture, Food and Fisheries and Open Learning Agency. 2002. Guide to weeds in British Columbia. Province of British Columbia. Victoria, BC.

Esser, L. L. 1995. *Rumex acetosella*. In: Fire Effects Information System. http://www.fs.fed.us/database/feis/. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory.

Pakeman, R. J., J. P. Attwood, and J. Engelen. 1998. Sources of plants colonizing experimentally disturbed patches in an acidic grassland, in eastern England. Journal of Ecology 86 (6): 1032-1041.

A comprehensive annotated bibliography of literature specific to sheep sorrel is available at www.goert.ca.

For more information contact the Garry Oak Ecosystems Recovery Team, or see the website at www.goert.ca