garden sorrel

Rumex acetosa L.

Synonyms: *Acetosa alpestris* (Jacq.) Á. Löve, *Rumex alpestris* Jacq., *Rumex acetosa ssp. acetosa* L., *Rumex acetosa ssp. alpestris* (Jacq.) Á. Löve, *Acetosa pratensis ssp. alpestris* (Jacq.) Á. Löve
Other common name (s): Common sorrel, sourdock
Family: Polygonaceae

Invasiveness Rank: **Not Ranked** - The invasiveness rank is calculated based on a species' ecological impacts, biological attributes, distribution, and response to control measures. The ranks are scaled from 0 to 100, with 0 representing a plant that poses no threat to native ecosystems and 100 representing a plant that poses a major threat to native ecosystems.

Description

Figure 1 Garden sorrel (Rumex acetosa) panicle. Photo by James Lindsey

Garden sorrel is a dioecious perennial forb that generally grows from 30-90 cm tall. It is mostly glabrous and has a short and thin, horizontal or marginally slanting rootstock that rarely reaches deep into the substrate. The stem is usually erect, with 1 to several stem shoots from the base that branch in the inflorescence. The leaves are 2-3 times as long as they are wide with two acute, down-pointed basal lobes that are generally parallel to the petiole. The hastate or linear basal leaves are long stalked while the stem leaves are mostly stalkless. The inflorescence is an open and leafless panicle, typically with a reddish tinge in maturity. The small, pinkish flowers are born in whorls of 4-8 on stalks jointed at the middle. Achenes are black to dark brown, 1.8 to 2.5 mm by 1.2 to 1.5 mm, shiny, and smooth (Mosaykin 2020, Hultén 1968, Dickinson and Royer 2014).

Similar Species: Common sheep sorrel (*Rumex acetosella*) and heartwing dock (*Rumex hastatulus*) are non-native species that could be confused for garden sorrel. Garden sorrel can be distinguished from common sheep sorrel by its broad leaves with broad, downward pointing lobes rather than narrow leaves with narrow, outward or upward pointing basal lobes. Only one other native *Rumex* spp. in Alaska, grassleaf sorrel (*R. graminifolius*), has similar basal leaves, but its stem leaves lack basal lobes (Mosaykin 2020, Hultén 1968).

Figure 2 Garden sorrel (Rumex acetosa) young seed. Photo by James Lindsey.

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Ecological Impact

Impact on community composition, structure, and interactions: Garden sorrel has been shown capable of invading natural systems in northern climates under moderate to low stress (Eriksson et al. 2006). Although not widely dispersed or successful thus far in Alaska, the potential for greater impact exists if populations expand (AKEPIC, CPNWH 2016).

Impact on ecosystem processes: Literature reports involving the ecological impacts of garden sorrel are sparse, and may even refer to other *Rumex* species (Flora of North America Editorial Committee, eds. 1993+). Related *Rumex* species may impact ecosystem processes by preventing the reestablishment of native species and consequently affecting natural successional processes (Klein 2011).

Biology and Invasive Potential

Reproductive potential: Garden sorrel is capable of both sexual and vegetative reproduction (Korpelainen 1992). Well-established, mature garden sorrel appears to prefer vegetative reproduction. It is more likely to reproduce with competitive success by vegetative shoots rather than seedlings and is capable of quick establishment of exposed space in native systems. This ability suggests a threat of garden sorrel invasion in agricultural settings and areas of recent disturbance by niche exploitation without competition. Garden sorrel seedlings have a slow, ineffective response, and become suppressed by other early establishment plants (Putwain and Harper 1970) (Fenner 1978).

Figure 3 Garden sorrel (Rumex acetosa) leaf. Photo by James Lindsey

Role of disturbance in establishment: Garden sorrel is most commonly found growing in disturbed habitats like gardens, agricultural areas, fields, and roadsides, but also common in competitive grassland environments (Fenner 1978). Like many other invasive plant species, disturbed soils provide excellent substrate for establishment.

Potential for long-distance dispersal: No literature exists specifically addressing seed dispersal in garden sorrel, but other, closely related non-native dock species (*Rumex* spp.) have seeds that can be dispersed by wind, water, and ants (Houssard and Escarre 1991). Garden sorrel has flood-intolerant seeds (Voesenek and Blom 1992).

Potential to be spread by human activity: Attachment to various components of mowing machinery and consequently other large machinery were shown to be effective in

dispersing garden sorrel seed (Strykstra et al. 1997).

Germination requirement: Garden sorrel germination is highly dependent on soil moisture and pH levels. Ideal temperature range for germination of garden sorrel is 68° to 82° F, and it was one of two species among 8 total dock species (*Rumex* spp.) capable of germination below 50° F (Van Assche et al. 2002). Highest germination rates have been observed under shallow burial of 1 cm. Garden sorrel prefers early fall germination shortly after the release of seed in late summer/fall. The seeds of garden sorrel have low hypoxia tolerance and have been shown to undergo high rates of mortality under frequently flooded conditions. This intolerance to high soil moisture may prevent garden soil from making any significant contribution to the seedbank in saturated, frequently flooded soils (Voesenek and Blom 1992).

Growth requirements: Garden sorrel seed is characterized by its ability to germinate in fall and maintain a competitive advantage in early spring. The total number of emerging seedlings may decrease under wet, or flooded, fall conditions, and negatively impact garden sorrel's ability to establish and compete in an area (Voesenek and Blom 1992).

Legal Listings

- Has not been declared noxious in AK, Canada or other states.

Distribution and Abundance

Native and current distribution: Garden sorrel is native to Africa, temperate Asia, tropical Asia, Australasia and Europe (USDA, ARS 2017). Outside its native range, it is most often found in disturbed habitats like gardens, agricultural areas, fields, and roadsides. Garden sorrel may also be found in native, low disturbance grassland environments (Fenner 1978). It grows as a weed and is commonly planted in gardens in the northwestern US and upper Midwest from Minnesota east to the coast, and throughout the Northeast (USDA, NRCS 2017). It is found in Canada from British Colombia east to Nova Scotia, and absent from the Yukon, Northwest Territories, and Nunavut (Brouillet et al. 2010+). Garden sorrel has been reported to occur around Haines, the Seward Peninsula northwest of Nome, the Central Brooks Range, and Yukon-Charley River National Preserve (AKEPIC 2026, CPNWH 2026).

For the most up-to-date distribution information for Alaska, please visit the AKEPIC Database.

Management

No available literature found explores management options for garden sorrel.

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