**Salsola tragus**

**System:** Terrestrial

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Phylum</th>
<th>Class</th>
<th>Order</th>
<th>Family</th>
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</thead>
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<tr>
<td>Plantae</td>
<td>Magnoliophyta</td>
<td>Magnoliopsida</td>
<td>Caryophyllales</td>
<td>Chenopodiaceae</td>
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</tbody>
</table>

**Common name**

Russian tumbleweed (English), Russian-thistle (English), Russian-cactus (English), soude roulante (French), spineless saltwort (English), ci sha peng (Chinese), tumbleweed (English), hari-hijikii (Japanese), Ukraine Salzkraut (German), soude épineuse (French)

**Synonym**

*Salsola australis*, R. Br.
*Salsola iberica*, auct.
*Salsola kali*, auct. w. N. Amer.
*Salsola kali*, subsp. *iberica* (Sennen & Pau) Rilke
*Salsola kali*, var. *tenuifolia* Tausch
*Salsola kali*, subsp. *tragus* (L.) Nyman
*Salsola pestifer*, A. Nelson
*Salsola ruthenica*, Iljin
*Salsola tragus*, subsp. *iberica* Sennen & Pau
*Salsola kali*, subsp. *ruthenica* (Iljin) Soó

**Similar species**

**Summary**

Salsola tragus is an annual weed that begins life as a typical multiple branched bush but then takes on a spherical form. Once the spherical form is achieved the plant breaks at the soil line and becomes a tumbleweed which is blown by the wind, spreading thousands of seeds. It is abundant in semi-desert regions and is a typical plant of salty soils, where rainfall is not abundant. It infests range and semi-arid pasture lands as well as cropland, railroad, and highway rights of way, as well as vacant agricultural, residential and industrial areas. Salsola tragus is a road hazard, as tumbling plants can surprise drivers and cause traffic accidents. It is also responsible for allergic sensitisation in Europe and North America. It should be noted that nitrates and soluble oxalates accumulate in the plants photosynthetic parts at levels poisonous to sheep.

[view this species on IUCN Red List](http://www.iucngisd.org/gisd/species.php?sc=605)
Species Description
The Ontario Ministry of Agriculture and Food (2003) state that, "S. tragus is an annual, reproducing only by seed. A very bushy, much-branched, spiny plant 5-120cm high, its diameter often exceeds its height. Stems are green, and usually striped with red lines, and rough with short, firm hair. Cotyledons are very narrow and grass-like, gradually lengthening and reaching 3-5cm long. The first true leaves are opposite (2 per node) and as long as or longer than the cotyledons which are needle-like, round, or slightly flattened in cross-section. Older leaves gradually become shorter and are mostly alternate (1 per node). Young plants are often crowded with erect leaves and resemble a grass. Older plants have firm, short, bract-like leaves, usually only 6mm long, with a broad base tapering to a slender point and ending in a hard, sharp spine. Flowers are small, and lacking petals but with 5 pinkish to greenish-white, membranous-winged sepals. S. tragus is stalkless in the axil of each cluster of 3 spine-tipped bract-like leaves. At maturity, the brittle stem breaks at the top of the root and the whole plant is rolled and tumbled by the wind, dropping seeds with each bounce and turn. Seeds cone- or top-shaped, the broader end flattened or hollowed and with a small point in the center, about 2mm across and the same long; the coiled embryo being visible through the nearly transparent seed coat."

Notes
Ryan and Ayres (2000) state that, "S. tragus spread rapidly throughout the western United States owing to plant dispersion by wind perhaps aided by railroad shipment of cattle."

Lifecycle Stages
Carnes et al. (2003) state that once the spherical form of the bushes starts aging, "the plant breaks at the soil line and becomes a tumbleweed. In this shape, the plant is blown by the wind, spreading between 20 000 and 50 000 seeds."

Uses
Duke (1983) states that, "Young plants serve as useful fodder, as long as they are not too high in nitrates or oxalic acids. As a low-water-use plant, germinating quickly on minimally disturbed soils, and relatively free of diseases and parasites, this has been suggested as a fuel source for arid lands (Foster et al., 1980). This is one of several plants burned to make soap, even in Biblical times, at least so we read in WSSA. Soap made in this fashion is still traded at Joppa and other Mediterranean ports [WSSA Newsletter 9(4): 12. 1981]. On account of its high alkali content, the plant has also been used in making glass (Watt and Breyer-Brandwijk, 1962). Salsolin has been used to regulate the blood pressure, said to resemble papaverine in its effect on vasoconstriction, hydrastine in its effect on the smooth muscles of the uterus (List and Horhammer, 1969-1979)." Williams (undated) states that, "A severe drought in the 1930's in Canada led farmers to use young S. tragus as hay and silage for livestock."
**Habitat Description**

Carnes et al. (2003) state that, "S. tragus is abundant in several semi-desertic regions of the United States and central Australia. S. tragus is a typical plant of salty soils, where rainfall is not abundant." They also state that, "In the USA, S. tragus are found along the coast from the northeast to the west. In Europe, it is also very common in coastal areas from the Baltic Sea to the Mediterranean coast. In Spain, S. tragus is very common in Aragón, Andalucía, Murcia and Levante." This species can also be found on range and semi-arid pasture as well as crop-land, railroad, and highway rights of way, and vacant agricultural, residential, and industrial areas (Hasan et al., 2001). Williams (undated) states that, "S. tragus thrives in salty and alkaline soils but will generally be out competed by natives in undisturbed habitats."

**Reproduction**

The Ontario Ministry of Agriculture and Food (2003) state that, "At maturity, the brittle stem of S. tragus breaks at the top of the root and the whole plant is rolled and tumbled by the wind, dropping seeds with each bounce and turn. Seeds are cone or top-shaped, and the broader end is flattened or hollowed and with a small point in the center, and about 2mm across and the same long. The coiled embryo is visible through the nearly transparent seed coat."

**General Impacts**

Sobhian et al. (2003) states that, "S. tragus was introduced in the USA in the late 1800s and since then has become one of the most troublesome weeds in the drier regions of western North America (Whitson, 1992). It infests range and semi-arid pasture lands as well as cropland, railroad, and highway rights of way, and vacant agricultural, residential and industrial areas. Moreover, the plant is a primary summer host of the beet leafhopper, *Circulifer tenellus* (Baker) (Cicadellidae), which is a vector of curvy top virus to several important crops including sugar beets, tomatoes, beans, melons, and cucurbits (Goeden, 1968; Bennett, 1971). S. tragus is a road hazard as tumbling plants surprise drivers and cause traffic accidents. Windblown plants fill irrigation canals and catchments, pile against fences and dwellings and accumulate other windblown debris (Goeden and Pemberton, 1995). It is a weed of wheat in the northwestern United States, where infestations have caused yield losses of greater than 50% in spring wheat (Pan et al., 2001)."

Carnes et al. (2003) state that, "The family Chaenopodiacea contains several genera, such as Chenopodium and Salsola, which are responsible for allergic sensitization in Europe and North America. In Spain, S. tragus pollen load may represent up to 5% of the total pollen, being responsible for many allergic sensitizations. In 1993, Lamson et al. described the first cases of sensitization to this pollen in Arizona. In 1978, Powell et al. described two cases of contact dermatitis after exposure to tumbleweed. Shafiee et al. described nine Iranian patients with hypersensitivity to pollen of *Salsola ssp.*, who showed positive skin-prick tests to *S. tragus* and detectable levels of specific IgE. In some regions of Spain, with a high concentration of *S. tragus* pollen, more than 30% of the allergic patients who inhabit these areas are allergic to this pollen and exhibit a positive skin-prick tests and symptoms upon exposure."

The Manitoba Department of Weeds, Insects, and Disease (2001) states that, "Nitrates and soluble oxalates accumulate in the plants photosynthetic parts at levels poisonous to sheep." *S. tragus* also acts to increase the amount of available phosphorous in the soil (Cannon et al., 1995).
Management Info
For details on bio-control of this species please see biological control

Principal source: Sobhian et al. 2003. Observations on the host specificity and biology of Lixus salsolae (Col., Curculionidae), a potential biological control agent of Russian thistle, Salsola tragus (Chenopodiaceae) in North America.

Compiler: National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

Review: Expert review underway

Publication date: 2005-10-17

ALIEN RANGE
[1] AUSTRALIA
[48] UNITED STATES

BIBLIOGRAPHY
16 references found for Salsola tragus

Management information

Summary: Information on the biological control of Russian thistle using the fungal pathogen Colletotrichum gloeosporioides.


Summary: This page contains information on common names, description, habitat, propagation, native range, impacts, and control measures.


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**Summary:** Information on the biological control of Russian thistle using the gall midge *Desertovellum stackelbergi*.

**Williams, D. B. Undated. Tumbleweed. DesertUSA.com and Digital West Media Inc.**

**Summary:** This page contains information on common names, description, habitat, propagation, native range, impacts, and control measures.


**General information**


**Summary:** Information on the habitat preferences of the fringe-toed lizard in south-eastern Arizona.


**Summary:** Information on the effects of oxalates produced by Russian thistle on available soil phosphorus levels.


**Summary:** English: The species list sheet for the Mexican information system on invasive species currently provides information related to Scientific names, family, group and common names, as well as habitat, status of invasion in Mexico, pathways of introduction and links to other specialised websites. Some of the higher risk species already have a direct link to the alert page. It is important to notice that these lists are constantly being updated, please refer to the main page (http://www.conabio.gob.mx/invasoras/index.php/Portada), under the section Novedades for information on updates.


**Spanish:**

La lista de especies del Sistema de información sobre especies invasoras de México cuenta actualmente con información acerca de nombre científico, familia, grupo y nombre común, así como la situación de invasión en México, rutas de introducción y enlaces a otros sitios especializados. Algunas de las especies de mayor riesgo ya tienen una lista directa a la página de alerta. Es importante recordar que estas listas se encuentran en constante proceso de actualización, por favor consulte la portada (http://www.conabio.gob.mx/invasoras/index.php/Portada), en la sección Novedades, para conocer los cambios.


**Summary:** Information on the plant communities of Arizona, including details of Russian thistle.

**USDA-GRIN (Germplasm Resources Information Network). 2004. *Salsola tragus*. National Genetic Resources Program [Online Database] National Germplasm Resources Laboratory, Beltsville, Maryland.**

**Summary:** Information on common names, synonyms, and the distributional range of species.


**Summary:** Available from: http://plants.usda.gov/java/nameSearch?mode=Scientific+Name&keywordquery=Salsola+tragus&go.x=14&go.y=10 [Accessed 17 August 2005]