

PUNCTUREVINE

Tribulus terrestris L.

Family: *Zygophyllaceae* (Caltrop).

Other Scientific Names: None.

Other Common Names: Goathead, bullhead, Mexican sandbur, Texas sandbur.

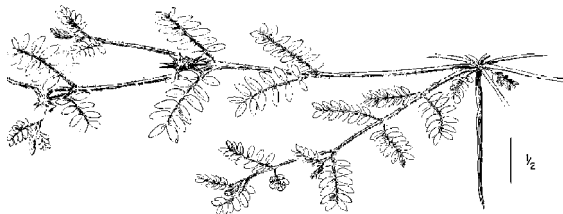
Legal Status: Regional Noxious: Okanagan-Similkameen.



Growth form: Annual forb.

Flower: Flowers are yellow, have 5 petals, and are borne solitary on short stalks in the leaf axils.

Seeds/Fruit: The sharp-pointed fruits are 2–6 mm long and break into 5 sections at maturity. Each section contains 2–4 seeds.



Leaves: Leaves are opposite, hairy, and divided into 4–8 pairs of leaflets. Leaflets are oval and 5–15 mm long.

Stems: Mature plants have numerous trailing stems that are 0.6–1.5 m long. The freely branching stems form mats up to 100 cm wide.

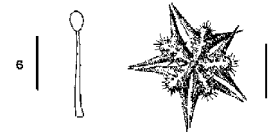
Roots: Taproot.

Seedling: Seedling leaves are oval with a prominent central groove.

Similar Species

Exotics: None known.

Natives: None known.



Impacts

Agricultural: The hard, spiny burs of puncturevine can damage wool and injure livestock and other animals. Puncturevine can be toxic to livestock, especially sheep (WSU 1999).

Ecological: Forms dense mats on open ground.

Human: The spiny burs can puncture skin and have even been known to puncture rubber bicycle tires.

Habitat and Ecology

General requirements: In BC, occurs in the dry grasslands of the Interior. It grows along roads, beaches, and in pastures, dry fields, and disturbed habitats. It can grow in compacted soil, sandy or moist soils, and rich soils (WSU 1999).

Distribution: Occurs rarely in southern areas of the province (Douglas et al. 2000). It is known only from the Okanagan at Osoyoos Lake and Oliver. It is classified as a major concern in the Okanagan agricultural reporting region and is not present in all other agricultural reporting regions. Although it is widely scattered across much of the US, there is no evidence of spread in BC since the 1970s.

Historical: Introduced from Eurasia.

Life cycle: Germinates soon after the first rain in spring and summer but will germinate after any wet period. Flowering and seed production occur from July to October (Whitson et al. 1996), depending on geographic location. Flowers are open only in the morning.

Mode of reproduction: By seed.

Seed production: No information available.

Seed bank: May remain dormant 4–5 years (Whitson et al. 1996).

Dispersal: Spiny burs attach to animals, humans, or the tires of vehicles.

Hybridization: No information available.

Management

Biocontrol: *Microlarinus lareynii* (stem-boring weevil) has been released in BC but establishment is not known. *Microlarinus lypriformus* (fruit-boring weevil) has been released in Colorado.

Mechanical: Can be controlled by digging, hand-pulling, or tilling infestations before flowering and seed production.

Fire: No information available.

Herbicides: Picloram, dicamba, and glyphosate have been effective. Consult the most recent edition of BC Ministry of Agriculture, Food and Fisheries Crop Production Guides for specific recommendations.

Before applying herbicides, read the label for full use and precautionary instructions.

Cultural/Preventive: Prevent the establishment of new infestations by minimizing disturbance, eliminating seed production and dispersal, and maintaining vigorous perennial plant communities.

Integrated Management Summary

Integrated management should focus on eliminating seed production and depleting the seed bank. Herbicides may be applicable on upland sites, but the plant is also established on the lakeshore at Osoyoos Lake, where herbicides cannot be used. Hand-pulling may be practised for a small population, but follow-up treatments will be required to ensure long-term control.

References

CWMA. 1999. Puncturevine (*Tribulus terrestris*). Colorado Weed Management Association.

<http://www.cwma.org/puncturevine.html> [10 Jan 99].

Douglas, G. W., D. Meidinger, and J. Pojar, eds. 2000. *Illustrated Flora of British Columbia*. Vol. 5: *Dicotyledons (Salicaceae through Zygophyllaceae) and Pteridophytes*. Province of British Columbia.

Washington State University. 1999. Puncturevine. *Hortsense Weed Index*. <http://pep.wsu.edu/hortsense/> [8 Mar 99].

Whitson, T. D. (ed.), L. C. Burrill, S. A. Dewey, D. W. Cudney, B. E. Nelson, R. D. Lee, R. Parker. 1996.

Puncturevine. *Weeds of the West*. Western Society of Weed Science, in cooperation with the Western United States Land Grant Universities Cooperative Extension Services, Newark, CA.

