

# PUNCTUREVINE: Options for Control

**Puncturevine** (*Tribulus terrestris*), a **class-B non-designate** noxious weed in Franklin County, Wash. is of the Zygophyllaceae (Caltrop) family. It is on our Transition/Education list.

Puncturevine originates from the Mediterranean region, and came in with the livestock that was imported here. It is found most often in **dry** or **gravelly sites**, like roadsides, waste places, and railway yards, but is **also** found in **agricultural** areas, such as pastures, orchards and vineyards. It is adapted to warm conditions. Puncturevine requires relatively high temperatures for germination and growth. **Puncturevine foliage is toxic to livestock, especially sheep, when consumed in quantity!**



First and subsequent leaves resemble those of mature plants.



The yellow flowers open only on sunny mornings, except in shady areas.



**Foliage is toxic to livestock, especially sheep, when consumed in quantity!**



Puncturevine produces **sharply pointed burrs** that stick painfully in bare feet and cause bicycle flats, reducing the recreational potential of many areas. The hard spiny burrs damage wool, are undesirable in hay, and may

be injurious to livestock. Nutlets disperse by adhering to tires, shoes and clothing of people, fur, feathers, and feet of animals. Flowering and seed production occur from July to October. A single plant can produce as

many as 400 fruits, each containing two to four seeds. The seeds have an initial dormancy and very few will germinate immediately after development. A germination rate of 84 percent has been reported in six month old seed. The seed can remain dormant in the soil for 4 to 5 years, making eradication difficult.

Puncturevine is capable of large population increases over a short period of time. With its large seed production and the long-term viability of seeds, Puncturevine can increase in numbers rapidly if given the right conditions.

As for **biological control** for Puncturevine, two weevils have established in many states in the U.S., but unfortunately have **failed in Washington State, Colorado and Utah.**



The fruit consists of a cluster of 5 spiny nutlets or burrs, that break apart at maturity.



Some seed will remain dormant in soil for 4 to 5 years, making eradication difficult.



Puncturevine produces numerous stems, up to six feet long, that are much branched and arise from the crown to produce a dense mat.

## Key identifying traits

- **Seedling leaves** are opposite and pinnately compound with **hairs** appearing on **each leaflet**.
- Somewhat ascending, **mat forming**, with **trailing stems**, each 1/2 to 5 feet long.
- **Flowers** are **yellow** with **5 petals**, which develops into circular spiny fruit that break into sections when ripe.

## Biology and ecology

- **Annual** that forms dense mats up to 4 feet across.
- **Foliage** is **toxic** to **livestock**, especially sheep, when consumed in quantity.
- **One plant** can produce 200 to 5,000 seeds, during **one** growing **season**.
- **Stems** branch from the base and form leaf axils and are slender and hairy.
- **Flowers** are 5 petaled, yellow, 1/2 inch wide, and borne singly in leaf axils from mid-summer until frost.
- **Fruits** are roughly circular, splitting into 5 sections, each with 2 large, divergent spines. These tack-like **burrs** contain up to 4 seeds.



Be sure to wear gloves when pulling Puncturevine.



This hiker picked up a burr in the sole of his shoe, then later back at his cabin, he stepped on a burr in his bare feet, that was hidden in the carpet. He described it as "an extremely painful experience", which is made more so by the chemical resin on the burrs.



Notice the invasion of Puncturevine due to the lack of landscaping at this Putt-Putt Golf course.

### Control Measures

- **Biological:** Not successful in Washington.
- **Cultivation:** Repeated cultivation just after germination **is an effective** form of **control**. If burrs are produced before cultivation, it is necessary to remove the plants and burrs and properly dispose of them.
- **Mowing:** Ineffective due to the prostrate growth habit of the plant.
- **Chemical:** After the plants have emerged from the soil, postemergent, products containing 2,4-D, Glyphosate, and dicamba are effective. The smaller or younger the plant, the better the postemergent herbicides work.

**\*Foliar Herbicides:** Dandelion & lawn weed killers with mixtures of all or some of these chemicals: 2,4-D, 2,4-DP, MCPA, MCPP, and Dicamba. Brush control herbicides containing trichlopyr,

compounds containing Glyphosate, and compounds containing Diquat are effective (and may be combined with other products).

**\*Soil Applied:** When choosing a soil applied chemical for Puncturevine control, consider whether a selective or non-selective product is needed. Chemicals suitable for selective applications include mainly weed preventers containing the following: Treflan (Trifluralin), Surflan (Oryzalin), and Pendimethalin (Pendulum). Bare ground applications include those containing the following: Prometon, Monobor Chlorate, Imazapyr and some products containing Casaron (Dichlobenil).

- **Always read the label instructions** before applying any herbicides for proper rate and timing. Use chemicals that are compatible with your goals.



Puncturevine is the curse of bicyclists everywhere. If you pick up a thorn in a tire, it's almost certainly from this plant.



Puncturevine has many nicknames, such as tackweed, goathead (because of it's spiny seed), Mexican sandbur, puncture weed, ground burnut, and bullhead.

A close up of the burrs that stick like tacks in the car tire below.



For more information see our website @ <http://county.wsu.edu/benton-franklin/agriculture/pests/Pages/NWCB.aspx>

Photos and information courtesy of : USDA plants database, Washington State Noxious Weed Control Board's written findings; Goatheads.com, photo's courtesy of : Kevin Hupp and Friends of Bidwell Park. A BIG THANK YOU to Lincoln County NWCB for the use of their brochure.

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