



## Pacific Pests, Pathogens & Weeds - Fact Sheets

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### Cobbler's pegs (467)

Relates to: **Weeds**



Photo 1. Cobbler's pegs, *Bidens pilosa*, erect herb, with compound leaves and yellow flowers.



Photo 2. Cobbler's pegs, *Bidens pilosa*, flowers. Note, not all plants have the white ray florets.



Photo 3. Seeds of cobbler's pegs, *Bidens pilosa*, showing the two stiff barbed bristles at the end of the 'seeds' - the latter are fruits with seeds inside. Note these flowers are without the white ray florets (see Photo 2).



Photo 4. Fruits (the seeds are inside), cobbler's pegs, *Bidens pilosa*, attached to shoelaces!

#### Common Name

Cobbler's pegs; it is also known as beggar's ticks, or pitchforks. The name beggar's ticks is usually given to a related species, *Bidens alba*.

#### Scientific Name

*Bidens pilosa*. There are other closely related species, *Bidens alba* and *Bidens odorata*. Identification is complicated because of the similarity of other species; it should be done by specialists. These species are members of the Asteraceae.

#### Distribution

Widespread. Asia, Africa, North, South and Central America, the Caribbean, Europe (restricted), Oceania. It is recorded from Australia, American Samoa, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, New Zealand, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Pitcairn, Samoa, Solomon Islands, Tonga, Vanuatu, and Wallis and Futuna.

It is naturalised in many regions of the world; it is thought to be of tropical American origin.

#### Invasiveness & Habitat

An annual invasive weed common in crops, plantations, pastures, parks, roadsides, disturbed sites and waste lands, but also in

waterways, rainforest, open woodlands and coastal sites. A weed of vegetables and plantation crops in many regions of the world. The invasiveness of cobbler's pegs is due to the production of large amounts of viable seed, which can remain dormant for many years, ease of dispersal, ability to grow in a variety of habitats and the development of dense populations which out compete crop plants and native species.

## Description

A slender, erect, branching annual plant, growing 20-90 cm tall, occasionally to 1.5 m (Photo 1). Stems are square in cross section, hairless, green to purple. Leaves, opposite along the stems, leaf stalks, 1-6 cm, with saw-like margins. Leaves at the base are simple - there is one oval leaf blade attached to the leaf stalk; further up the stem, the leaves are compound, i.e., divided into three leaflets. Flowerheads in clusters at the end of branches, 7-8 mm across, with yellow central flowers (disc florets). Some plants have flowerheads with white or cream petals-like structures (ray florets), up to 1.5 cm long (Photo 2). However, these ray florets may be absent or quite small (Photo 3). The fruits are black, flattened, up to 1.6 cm long, with two or three hooked bristles (Photos 3&4). One plant can produce over 30,000 seeds. Cobbler's pegs has a strong tap root.

## Spread

Spread by hooked bristles on the fruits that embed themselves in people's clothing as they brush past the plants. Also, spread on vehicles, water, accidentally in agricultural produce, and contaminant of rice seed.

## Impact

Direct impacts have been reported in soybean (Argentina), sugarcane (Japan) and beans (Brazil) where densities of infestation have been related to yield loss; in soybean, for instance, higher densities than eight plants per square metre produced yield loss of over 40%.

Indirect effects on crops are reported as the weed is an alternative host for viruses (e.g., *Tomato spotted wilt virus*), nematodes (e.g., *Meloidogyne* and *Rotylenchus* species), leaf miners (e.g., *Liriomyza* species), and several fungal pathogens.

## Uses

Eaten in Africa, and also in parts of Asia (although of low nutritive value); it is also used in Chinese medicine, and has a long history of medicinal use among people of the Amazon. In some Pacific island countries, the leaves and flowers are brewed into a tea to treat a range of ailments, and also used to treat cuts. None of the treatments have been thoroughly investigated.

## Management

### BIOSECURITY

The risk of introduction is high. Countries not yet infested should consider all likely pathways for entry, and apply quarantine measures accordingly. Particular attention should be given to the risks associated with seed that can be transferred on people's clothing. It is also reported as a contaminant of rice seed.

Cobbler's peg is one of the worst weeds in New Caledonia and Guam, and abundant and widespread in Niue and American Samoa. It is important, too, in a variety of crops in Australia, New Zealand and Hawaii. *Bidens pilosa* is on the Global Invasive Species Database (2020) of information about alien and invasive species that negatively impact biodiversity, managed by the Invasive Species Specialist Group of the IUCN Species Survival Commission.

### BIOCONTROL

None reported, although Waterhouse suggests agromyzid flies have potential.

### CULTURAL CONTROL

- Physical & Mechanical
  - Cultivation. Hand weeding, hoeing and mowing will control the weed. It is best done before flowering.
  - Mechanical weeding. This is done between rows of, e.g., vegetables and root crops.
- Shading
  - Intercropping. Growing maize and bean is recommended to suppress the weed. Densities may need to be adjusted to provide best results.
- Hygiene
  - Treat vehicles and farm machinery. If moving from areas where the weed occurs to those weed-free, wash to remove soil.

This is equally important if the machinery is being imported into a country or moved within a country. Also, ensure seeds are not carried on clothes between infested and 'clean' areas.

#### CHEMICAL CONTROL

In Australia: diuron; glyphosate; bentazone; metribuzin; 2,4-D (amine); glufosinate-ammonium; pendimethalin; dicamba; fluroxypyr, are registered for use against cobbler's pegs.

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Note, EU approval to use glyphosate ends in December 2022.

*When using a pesticide, always wear protective clothing and follow the instructions on the product label, such as dosage, timing of application, and pre-harvest interval. Recommendations will vary with the crop and system of cultivation. Expert advice on the most appropriate herbicides to use should always be sought from local agricultural authorities.*

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Adapted from Cobbler's pegs (*Bidens pilosa*) (2018) Weeds of SE Qld and Northern NSW. Lucidcentral. (<https://www.lucidcentral.org/editors-pick-animal-and-plant-identification-keys/key-to-weeds-of-se-qld-and-northern-nsw>); and additional information from CABI (2019) *Bidens pilosa* (bitter vine). Invasive Species Compendium. (<https://www.cabi.org/isc/datasheet/9148>); and Waterhouse DF, Norris KR (1987) *Biological Control Pacific Prospects*. Inkata Press, Melbourne; *Bidens pilosa* (2010) Wikipedia. ([https://en.wikipedia.org/wiki/Bidens\\_pilosa](https://en.wikipedia.org/wiki/Bidens_pilosa)). Photos 1&3 Joseph M. DiTomaso, University of California - Davis, Bugwood.org Photo 2 William M. Ciesla, Forest Health Management International, Bugwood.org Photo 4 Forest & Kim Starr, Forrest Environmental, bugwood.org

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