



Figure 1: *Youngia japonica* (Photo: Zoya Akulova, 2018)

California Plant Pest Rating Profile for

Youngia japonica (L.) DC. (Japanese hawkweed)

Synonym: *Crepis japonica* (L.) Benth.

Family: Asteraceae

Pest Rating: B | Proposed Seed Rating: R

***Comment Period CLOSED: 5/22/2019 through 7/6/2019**

Initiating Event:

A find of this plant was submitted to the Plant Laboratory for identification in February, 2018.

History & Status:

Background: *Youngia japonica* is an annual or biennial, terrestrial plant. It has solitary and erect stems with a basal rosette of leaves that are slightly hairy to the touch (Spurr, 2006; Ohwi, 1984). The flower stalks are branched at the top with up to thirty clustered flower heads. The

flowers are yellow, approximately 1 cm across, and resemble a small dandelion (Keener et al., 2018). The fruit of *Youngia japonica* is an achene with a tuft of pappus bristles, much like a dandelion fruit. (Keener et al., 2018). The seedhead is ¼ to ½ inch in diameter. *Youngia japonica* grows well in response to human disturbance and is found in areas such as roadsides, cultivated fields, and lawns (Spurr, 2006; Long and Lakela, 1976). It can grow in a variety of light environments and prefers moist soils, although it can tolerate drier soils (CSIRO, 2019). The plant forms a short, thick taproot but can be removed by hand weeding (Keener et al., 2018).

Synonyms: *Prenanthes japonica* L.; *Crepis japonica* (L.) Benth.

Worldwide Distribution: *Youngia japonica* is native to eastern Asia. It has been introduced to Mexico, Central America, South America, Europe, Africa, the Pacific Islands, and Australia (Spurr, 2006). *Youngia japonica* is now considered a pantropical weed and is found worldwide in the tropics and subtropics (Spurr, 2006). In the United States, *Youngia japonica* is present in the eastern states from Florida to New York and in the southern states as far west as Texas. It is also present in Hawaii, Puerto Rico, and the Virgin Islands (NRCS, 2019).

Official Control: Although *Youngia japonica* is reported to be a significant threat in North Carolina (North Carolina Native Plant Society, 2019), and a common nursery weed in Louisiana (Weed Science Society of America, 2019), it is not officially controlled in any state.

California Distributions: It was first documented as a nursery weed in southern California in the 1990s and has spread from nurseries and greenhouses to residential gardens and parks in limited parts of southern California. It is not yet included in the Jepson eFlora (2019).

California Interceptions: The Consortium of California Herbaria has records of *Youngia japonica* specimens from Ventura, Riverside, and San Diego counties.

The risk *Youngia japonica* would pose to California is evaluated below.

Consequences of Introduction:

- 1) **Climate/Host Interaction:** Risk is **Medium (2)**, *Youngia japonica* is found in a wide range of habitats, but it prefers moist soils (CSIRO, 2019). The dry climate of California would be a potential limiting factor to the spread of this plant.

Evaluate if the pest would have suitable hosts and climate to establish in California. **Score: 2**

- Low (1) Not likely to establish in California; or likely to establish in very limited areas.
- **Medium (2) may be able to establish in a larger but limited part of California.**

- High (3) likely to establish a widespread distribution in California.

2) **Host Range:** Risk is **High (3)** as weeds do not require any one host, but grow wherever ecological conditions are favorable.

Evaluate the host range of the pest. **Score: 3**

- Low (1) has a very limited host range.
- Medium (2) has a moderate host range.
- **High (3) has a wide host range.**

3) **Pest Dispersal Potential:** *Youngia japonica* is self-compatible and reproduces by seeds. The seedheads are dandelion-like and are wind-dispersed (CSIRO, 2019; Keener et al., 2018). Each plant produces approximately 500 seeds per year. *Youngia japonica* receives a **Medium (2)** in this category.

Evaluate the natural and artificial dispersal potential of the pest.

Score: 2

- Low (1) does not have high reproductive or dispersal potential.
- **Medium (2) has either high reproductive or dispersal potential.**
- High (3) has both high reproduction and dispersal potential.

4) **Economic Impact:** *Youngia japonica* is a known host for the Japanese flower thrips (*Thrips setosus*), an A-rated pest in California. *Thrips setosus* has been documented as a vector of Tomato spotted wilt virus (TSWV) and may play an important role as an overwintering host and a reservoir of TSWV (Kobatake et al., 1984; Morrice, 2017). If *Thrips setosus* were to become more widely distributed in California, it is likely to lower crop yields and increase production costs for plants susceptible to TSWV, especially tomatoes (CDFA, 2017). It is also likely to disrupt California exports (CDFA, 2017). *Youngia japonica* has also been reported as a host for sweet potato whitefly (*Bemisia tabaci*) and a potential reservoir for Tomato chlorosis virus (ToCV; Kil et al., 2015). ToCV causes stunting, cupping, and yellowing of leaves and can lead to severe crop losses. *Youngia japonica* receives a **High (3)** for Economic Impact.

Evaluate the economic impact of the pest to California using the criteria below. **Score: A, B, C, E**

- A. **The pest could lower crop yield.**
- B. **The pest could lower crop value (includes increasing crop production costs).**
- C. **The pest could trigger the loss of markets (includes quarantines).**
- D. The pest could negatively change normal cultural practices.
- E. **The pest can vector, or is vectored, by another pestiferous organism.**

- F. The organism is injurious or poisonous to agriculturally important animals.
- G. The organism can interfere with the delivery or supply of water for agricultural uses.
 - Low (1) causes 0 or 1 of these impacts.
 - Medium (2) causes 2 of these impacts.
 - **High (3) causes 3 or more of these impacts**

5) Environmental Impact: Infestations of *Youngia japonica* are likely to trigger treatment programs in the nursery and agricultural industries. Therefore, *Youngia japonica* receives a **Medium (2)** in this category.

Evaluate the environmental impact of the pest on California using the criteria below.

Score: D

- A. The pest could have a significant environmental impact such as lowering biodiversity, disrupting natural communities, or changing ecosystem processes.
- B. The pest could directly affect threatened or endangered species.
- C. The pest could impact threatened or endangered species by disrupting critical habitats.
- D. The pest could trigger additional official or private treatment programs.**
- E. The pest significantly impacts cultural practices, home/urban gardening or ornamental plantings.

Score the pest for Environmental Impact. Score:

- Low (1) causes none of the above to occur.
- **Medium (2) causes one of the above to occur**
- High (3) causes two or more of the above to occur.

Consequences of Introduction to California for *Youngia japonica*: Medium (12)

Add up the total score and include it here.

- Low = 5-8 points
- Medium = 9-12 points**
- High = 13-15 points

6) Post Entry Distribution and Survey Information: *Youngia japonica* has been found as a garden and landscape weed in southern California and it may have become established in Southern California. It receives a **Low (-1)** in this category.

Evaluate the known distribution in California. Only official records identified by a taxonomic expert and supported by voucher specimens deposited in natural history collections should be considered. Pest incursions that have been eradicated, are under eradication, or have been delimited with no further detections should not be included.

-Not established (0) Pest never detected in California, or known only from incursions.

-**Low (-1) Pest has a localized distribution in California, or is established in one suitable climate/host area (region).**

-Medium (-2) Pest is widespread in California but not fully established in the endangered area, or pest established in two contiguous suitable climate/host areas.

-High (-3) Pest has fully established in the endangered area, or pest is reported in more than two contiguous or non-contiguous suitable climate/host areas.

The final score is the consequences of introduction score minus the post entry distribution and survey information score: **Medium (11)**

Uncertainty: *Youngia japonica* may be more widespread than has been reported. It is difficult to distinguish from other yellow-flowered members of the chicory tribe (Cichorieae). The general dryness of California may limit the distribution of this plant in the state, but it has shown itself to be adapted to gardens and nurseries, where supplemental water is available.

Conclusion and Rating Justification: Proposed Rating: Based on the score listed above, the pest is a risk for further invasions of California and poses a risk to an important agricultural commodity if it were to establish in row crop settings. It is known to have escaped in two counties and is not a waif; therefore, a **B** rating is justified.

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Pest Rating: B | Proposed Seed Rating: R