

California Pest Rating Proposal

Euphorbia hirta L.: *Pillpod spurge*

Family: Euphorbiaceae

Current Rating: Q

Proposed Rating: C

Comment Period: **4/16/2020 through 5/31/2020**

Initiating Event:

Euphorbia hirta is currently Q-rated and recently intercepted 3 times in 2020. A pest rating proposal is required to support an official pest rating.

History & Status:

Background: *Euphorbia hirta*, is also known as garden spurge, athmaplant, dudhi, pillpod sandmat, tawa-tawa and many more common names. It is a creeping to ascending, densely hairy, little-branched annual herb, 15-50 cm tall. Stems are semi-erect; leaves are 1-4 cm long, 0.3-1.8 cm wide, simple, ovate to rhombic with an asymmetric base, hairy and often reddish or purple-blotched on the upper surface. Stipules are present and small and linear. The petiole is short, 1-3 mm in length, and usually prominently hairy. The seeds are small, approximately 0.6-0.9 mm in length, narrowly ovoid and four-angled, reddish-brown to pink or orange, and usually transversely wrinkled or with low transverse ridges (Berry et al., 2016; Noda et al., 1984).

Euphorbia hirta is an important herb used in traditional medicine in tropical areas throughout its distribution area, where it has been used in treatment of gastrointestinal, respiratory, and dermatological disorders (Tabuti, 2008). As with all other spurges, they can be toxic if used incorrectly.

Worldwide Distribution: *Euphorbia hirta* is believed to have originated in tropical to subtropical parts of the New World and is now widely distributed as a weedy plant in tropical and subtropical regions (Berry et al., 2016; Merrill, 1981). Some authorities believe that its native range extends north to the southern United States from Arizona to Florida and South Carolina (USDA GRIN database). It is very frequent in the Indian subcontinent and Southeast Asia.

Official Control: *Euphorbia hirta* is listed as a Harmful Organism in French Polynesia (USDA- APHIS- PCIT). It is not under official control in the United States (USDA PLANTS database).

California Distribution: *Euphorbia hirta* has been reported five times in Riverside, Santa Cruz and San Bernardino counties in southern California. (CalFlora, 2020, Consortium of California Herbaria, 2020). Each of these occurrences were in garden or nursery settings. It does not have a naturalized distribution indicated in the CalFlora database.

California Interceptions: There were three interceptions of this plant reported in 2020 and five between 2000 and 2019 (PHPPS- PDR Database). Most of these interceptions have been associated with nursery stock entering California from Florida. *Euphorbia hirta* is a very common weed in nurseries in Florida.

The risk *Euphorbia hirta* (pillpod spurge) would pose to California is evaluated below.

Consequences of Introduction:

- 1) **Climate/Host Interaction:** *Euphorbia hirta* is a weed of cultivated fields, perennial crops, grasslands, roadsides, gardens, lawns, fallow lands, ditch banks and waste places (Berry et al., 2016). In California, it may be able to establish in warmer areas in southern counties. In most situation in California, it would be excluded by lack of water and humidity. Therefore, it receives a **Low (1)** in this category.

Evaluate if the pest would have suitable hosts and climate to establish in California.

Score: 1

- **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) **Known Pest Host Range:** *Euphorbia hirta* does not require any one host but grows wherever ecological conditions are favorable. It receives a **High (3)** in this category.

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 Reproductive and Dispersal Potential:** *Euphorbia hirta* produces very small seeds (0.6-0.9 mm long (Berry et al., 2016; Noda et al., 1984). Seeds are most likely to be dispersed locally near the parent plant. There may be limited dispersal caused by winds, water and movement of contaminated farm machinery and nursery stock. It 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:** *Euphorbia hirta* has been reported as a weed of numerous agricultural crops including rice, wheat, maize, sorghum, ground nuts, hemp, tea and many other crops in South Asia (Moody, 1989). Southern California weather is best suited for this plant; it could be a problematic weed if it established in farm lands of California. It is an alternative host of the root-knot nematodes *Meloidogyne incognita* (Valdez, 1968). If established, it could negatively change normal cultural practices. Therefore, it receives a **High (3)** in this category.

Economic Impact: B, D, & 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.

Economic Impact Score: 3

- 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:** *Euphorbia hirta* could be expected to invade gardens and vacant areas in California. If it becomes established here in California, it could trigger additional private treatment programs. It receives a **Medium (2)** in this category.

Environmental Impact: 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.

Environmental Impact Score: 2

- 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 *Euphorbia hirta* (Pillpod spurge): Medium (11)

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:** Although *Euphorbia hirta* has been reported in Riverside, Santa Cruz, and San Bernardino counties, it has not yet become established. It receives a rating of not established (-0) in this category.

–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.

Final Score:

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

Uncertainty:

This plant is only reported in three counties in California, despite being commonly intercepted in nursery stock from Florida. It is highly invasive in tropical and subtropical crop lands but is limited to moist to wet humid areas. Therefore, it is likely to be a minor weed of garden and nurseries, especially well irrigated areas of California.

Conclusion and Rating Justification:

Euphorbia hirta is a weed of the tropics and subtropics that appears to be best adapted to areas with a warm climate and significant summer rainfall, for example, the southeastern United States. It is currently not established in California but could become established as minor weed in nurseries and gardens. A “C” rating is justified.

References:

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***Comment Period: 4/16/2020 through 5/31/2020**

***NOTE:**

You must be registered and logged in to post a comment. If you have registered and have not received the registration confirmation, please contact us at [plant.health\[@\]cdfa.ca.gov](mailto:plant.health[@]cdfa.ca.gov).

Comment Format:

- ❖ Comments should refer to the appropriate California Pest Rating Proposal Form subsection(s) being commented on, as shown below.

Example Comment:

Consequences of Introduction: 1. Climate/Host Interaction: [Your comment that relates to “Climate/Host Interaction” here.]

- ❖ Posted comments will not be able to be viewed immediately.

- ❖ Comments may not be posted if they:

Contain inappropriate language which is not germane to the pest rating proposal;

Contains defamatory, false, inaccurate, abusive, obscene, pornographic, sexually oriented, threatening, racially offensive, discriminatory or illegal material;

Violates agency regulations prohibiting sexual harassment or other forms of discrimination;

Violates agency regulations prohibiting workplace violence, including threats.

- ❖ Comments may be edited prior to posting to ensure they are entirely germane.

- ❖ Posted comments shall be those which have been approved in content and posted to the website to be viewed, not just submitted.

Proposed Pest Rating: C