



Figure 1: *Myosoton aquaticum* (giant chickweed). Photo Dr. Amadej Trnkoczy.

California Pest Rating Proposal for

***Myosoton aquaticum* (L.) Moench: giant chickweed**

Family: Caryophyllaceae

Current Pest Rating: B

Proposed Pest Rating: C

Synonyms: *Stellaria aquatica* (L.) Scop.

Comment Period: 11/22/2019 through 1/6/2020

Initiating Event:

This plant has been included on the CDFA noxious weed list [3 CCR § 4500] as a B-rated plant pest. However, giant chickweed has not been reviewed under the current pest rating system. A pest rating

proposal is required to evaluate the current rating and status of giant chickweed in the state of California.

History & Status:

Background: Giant chickweed (*Myosoton aquaticum*) is an herbaceous perennial plant and a member of the pink family (Caryophyllaceae). The plant is 1 to 4 feet tall with erect to decumbent stems with glandular hairs on the distal portions. The stems are occasionally branched. The plant has opposite, cordate-ovate leaves that are smooth along the margins and slightly fuzzy on the surface. The leaves are usually sessile, but lower leaves often have short petioles. Single flowers may develop from the leaf axils of the upper stems, while the remaining flowers occur in small cymose clusters at the end of the stems. Each flower is about 0.5 inches across when it is fully open and consists of five white petals that are cleft, five green sepals, five slender white styles, and ten stamens. There is some variability in petal cleft depth across populations of plants. The petals are slightly longer to much longer than the sepals. The pedicel of each flower is conspicuously glandular hairy and up to 3 cm long. The blooming period occurs from late spring to late summer and lasts approximately 2 to 3 months. Each flower is replaced by a seed capsule that is ovoid and single-celled and contains a number of small seeds approximately 0.5-1 mm in length. The root system is fibrous and produces rhizomes, which enable the plant to form clonal colonies (Hilty, 2017).

Preferred habitats for giant chickweed include wet to moist areas in meadows, roadside ditches, pastures, gardens, and streamsides. It frequently occurs in wetlands. It can withstand dry conditions for short periods of time. Giant chickweed often takes advantage of disturbed areas, but can invade native areas (Hilty, 2017).

Worldwide Distribution: Giant chickweed is native to Asia and Europe. It has naturalized in Canada and the northern United States with established populations as far west as eastern Washington state and as far south as Indiana, Ohio, and Virginia (Rabeler, 2005; Hitchcock and Cronquist, 2018) .

Official Control: Giant chickweed is currently on the California noxious weed list. Giant chickweed is listed as “strongly invasive and widespread” by the Native Plant Society of New Jersey (NPSNJ, 2019). It is also listed as an “occasionally invasive species” in West Virginia (WVDNR, 2009) and is on the invasive watch list for Delaware (McAvoy, 2018). It has only been listed as a noxious weed seed by California.

California Distribution: Giant chickweed is not currently known to be present in California.

California Interceptions: There was one interception of giant chickweed in a potted cycad plant at a San Diego nursery (CDFA, 2007).

The risk giant chickweed would pose to California is evaluated below.

Consequences of Introduction:

- 1) **Climate/Host Interaction:** Giant chickweed is found in wet to moist areas and is frequently found in wetlands. Risk is **Medium (2)**. Though much of California is too dry to provide habitat, it may be able to establish colonies in California wetlands.

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) **Known Pest 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:** Risk is **Medium (2)**. Giant chickweed reproduces by seeds and vegetatively via rhizomes, which enables this plant to form vegetative colonies.

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:** Risk is **Low (1)**. Giant chickweed is a relatively common weed in rice fields in China. Giant chickweed has also been listed as a minor weed of wheat and corn fields. If this weed became established in California crop fields it may lower yields. The only interception of this weed entering California was in a potted nursery plant (CDFFA, 2007). Giant chickweed has not been noted as a common nursery weed. However, there is the possibility if conditions are favorable, the chickweed could interfere with nursery stock.

Evaluate the economic impact of the pest to California using the criteria below.

Economic Impact: A

- 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: 1

- **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:** Risk is **Low (1)**. Giant chickweed has been in the Great Lakes area since the late 1800s. It has spread throughout this area, but according to a recent environmental review, it does not appear to exclude native plants or impact the environment in other ways (Cao and Sturtevant, 2019). It is not a poisonous plant and its seeds and leaves are eaten by local wildlife. New Jersey has listed giant chickweed as “widespread and highly invasive”, but categorizes it as a weed with limited impact on native communities (Van Clef, 2009). The plant is often reported to be uncommon in areas of the United States to which it has been introduced, as in the Pacific Northwest (Rabeler, 2005; Hitchcock and Cronquist, 2018).

Environmental Impact: None

- 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:

- **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 giant chickweed: Medium (9)

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:** Giant chickweed has not been detected as adventive in California. It receives a **Not established (0)** in this category. **Score: 0**

-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.

- 7) **The final score is** the consequences of introduction score minus the post entry distribution and survey information score:

Final Score: *Score of Consequences of Introduction – Score of Post Entry Distribution and Survey Information = Medium (9)*

Uncertainty:

The California climate would appear to be too dry to support giant chickweed. There is some uncertainty whether the wetlands in California would be suitable habitat.

Conclusion and Rating Justification:

Giant chickweed was introduced in the eastern United States in the late 1800s and is widely established there. It has not shown itself to be a serious economic or environmental threat where it has established. California offers less favorable conditions for establishment, so the potential impacts are expected to be less than any that may be occurring in the eastern United States. Therefore, a rating of “C” appears justified.

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Author:

Karen Olmstead, Environmental Scientist; CDFA/PHPPS Permits and Regulation; 2800 Gateway Oaks, Suite 200, Sacramento, CA 95833; Tel. (916) 403-6879; plant.health[@]cdfa.ca.gov.

Responsible Party:

Robert Price, Ph.D., Primary State Botanist; California Department of Food & Agriculture; 3294 Meadowview Road, Sacramento, CA 95832; Tel. (916) 738-6700; plant.health[@]cdfa.ca.gov.

***Comment Period: 11/22/2019 through 1/6/2020**

***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.

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.
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Proposed Pest Rating: C
