

California Pest Rating Proposal

***Silba adipata* McAlpine: black fig fly**

Diptera: Lonchaeidae

Pest Rating: B

Comment Period: 05/17/2024 – 07/01/2024

Initiating Event:

In June 2021, residents in Pasadena (Los Angeles County) and Goleta (Santa Barbara County) submitted figs with larvae and pupae to county agricultural personnel. These were identified as *Silba adipata*. Official samples were collected and identified, confirming the presence of this pest, which was not previously known to be established in the New Word. *Silba adipata* was assigned an A-rating in 2022. Further follow-up inspections by state and county personnel resulted in finds from Alameda, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Clara, and Ventura counties. *Silba adipata* is now known to be established in ten counties in California and it is not under eradication or quarantine. Therefore, a revised pest rating proposal is needed.

History & Status:

Background: Adult *Silba adipata* are shiny black flies 3.5-4.5 mm in length. Adults feed on exudates of figs and fig tree sap and possibly in flowers of other plants. Edible fig (*Ficus carica*) is the only known larval host, and both figs and caprifigs are attacked. Female flies oviposit groups of eggs under the scales of the ostiole of the fruit, and unripe fruits are reported to be preferred for oviposition. Oviposition is reported to primarily occur on figs that are in a shaded position. Adult activity is reported to be greatest early in the morning and late in the afternoon, when temperatures are lower. Larvae feed inside the fruit, and this often results in premature fruit drop. Larvae can

complete development in dropped fruit, and they emerge from emergence holes approximately 1 mm in diameter to pupate in the soil (Abbes et al., 2021; Katsoyannos, 1983; M. Hauser, pers. comm.). There are reportedly 4-6 generations per year (Katsoyannos and Guerin, 1984). Adults are active in Turkey from May to November (Tutmuş, 2013). In California, adults have been found from June through October (California Department of Food and Agriculture).

Infestations by *S. adipata* caused fruit drop in Slovenia, but impact varied by location and fig variety (Rote et al., 2017). In Tunisia, all varieties of figs were reported to be susceptible; *S. adipata* caused “massive” fruit drop and infestation rates exceeded 80% of fruit in some cases (Abbes et al., 2021). *Silba adipata* has been found infesting at least the following varieties of fig in California: Black Madera, Corky’s Honey Delight, Brown Turkey, Black Mission, Flanders, Golden Rainbow, Greek, Janice Seedless Kadota, Kadota, La Bourgeoise, Strawberry Verte, Tiger Stripe, Ventura, Violette de Bordeaux, White Adriatic, and Yellow Long Neck (California Department of Food and Agriculture). This list is likely incomplete, as the variety was not reported in many cases, for example, when a street tree was found to be infested. Varieties of fig reported to be infested in the literature include Bayoudhi, Besbessi, Bither, Bithri, Bouhouli, Bouhouli Djebba, Bouharrag, Burjassote Negra, Bursa Black, Chaari, Corky’s Honey Delight, Črna petrovka, Dauphine, Dejbba, Flazana, Golden Rainbow, Greek, Hammi 2003, Hammouri, Kadota, Kamberji, Khenziri, Magouli, Makhbech, Miljska figa, Patlidžanka, Ragoubi, Rezavica, Rommani, Saffouri, Sarilop, Sawoudi, Soltani, Strawberry Verte, Sušalica, Tayouri Akhdhar, Thguegli, Thguegli Thibar, Tiger Stripe, Ventura, Violette de Bordeaux, Wahchi, Wahchi Djebba, Wahchi Thibar, Wedlani, White Adriatic, White Genoa, Yellow Long Neck, Zidi, Zidi Thibar (Abbes et al., 2021; California Department of Food and Agriculture; Giliomee et al., 2007; Queiroz, 2019; Radonjić et al., 2019; Rot et al., 2017; Tutmuş, E. 2013).

McPhail traps with Torula yeast, which is a combination used for general fruit fly detection trapping in California, was found to attract *S. adipata* in California. At other locations, hexanol and ammonium sulfate (use together gives three-fold increase over either alone) are reported to be attractive when used in McPhail traps (Katsoyannos and Guerin, 1984). Tutmuş (2013) reported attraction of these lures to be increased greatly by the addition of fig “milk” (presumably sap). Regarding control, Abbes

et al. (2021) suggested bait sprays, mass trapping, netting the fruits, and burying dropped fruit to limit development of larvae as potential control techniques. The pesticide Delegate™250 WG is labeled for control of *S. adipata* on figs in South Africa (Corteva).

Worldwide Distribution: *Silba adipata* is reported to be native to the Mediterranean region and the Middle East. Its distribution includes: **Africa:** Egypt, South Africa (introduced), Tunisia; **Asia:** Israel, Syria, Turkey; **Europe:** Italy, Malta, Slovenia (introduced); **North America:** Mexico, United States (California) (Abbes et al., 2021; Bautista-Martínez et al., 2021; D’Antonio and Fimiani, 1988; Giliomee, 2011; MacGowan, 2023; MacGowan and Freidberg, 2008; Mifsud et al., 2012; Rot et al., 2017; Tutmuş, 2013; United States Department of Agriculture).

Official Control: *Silba adipata* is not known to be under official control.

California Distribution: *Silba adipata* has been found infesting figs in ten counties in California: Alameda, Los Angeles, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, Santa Clara, and Ventura (California Department of Food and Agriculture). The state’s knowledge of the presence and extent of this infestation is due in large part to reports from concerned fig hobbyists.

California Interceptions: *Silba adipata* has been intercepted in Alameda County in figs from Ventura County.

The risk *Silba adipata* poses to California is evaluated below.

Consequences of Introduction:

- 1) **Climate/Host Interaction:** *Silba adipata* occurs widely in Mediterranean regions and the climate of much of California is likely suitable. This pest is already established in ten counties in southern

and central California and the San Francisco Bay area. The only known host, fig, is grown widely in the state as a crop, as a street tree, and by hobbyists. Fig trees are also very common and naturalized in the environments of California. Therefore, it receives a **High (3)** in this category.

- 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:** *Silba adipata* is only known to feed on one host, fig. Therefore, it receives a **Low (1)** in this category.

- **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:** *Silba adipata* could be moved with infested fruit and it can fly. It reportedly can have 4-6 generations per year. Therefore, it receives a **High (3)** in this category.

- 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:** *Silba adipata* is not yet known to be present in the main fig-producing counties in California (Fresno, Madera, and Merced). It causes major fruit drop which would have a heavy impact on California fig yield. One of the varieties reported to be infested in California, Mission, is one of the major commercial varieties in the state. Production costs could increase due to control measures, and fruit bagging could be implemented. Therefore, it receives a **High (3)** in this category.

Economic Impact: A, B, D

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: High

– 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 *Silba adipata* could affect figs in both commercial production as well as residential settings, and treatments could be triggered in both. Therefore, *S. adipata* receives a **High (3)** in this category.

Environmental Impact: D, E

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: High (3)

- 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 *Silba adipata*: High (13)

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: *Silba adipata* is established in coastal southern and central California and the San Francisco Bay area. It is not yet present in the major fig-growing areas of the state. It receives a **Medium (-2)** 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:

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

Uncertainty:

This fly may be more widely established in California. Although it is known to be attracted to Torula yeast in McPhail traps, which is one type of fruit fly detection traps used in the state, they may have been overlooked because they are not target fruit flies. There may be natural enemies or conditions (natural or artificial) in California that could limit the impact of this pest here.

Conclusion and Rating Justification:

Silba adipata is a monophagous pest of figs, which is an important crop in California. This fly is known to cause large-scale fruit drop and it could have a major economic impact in the state. It is not yet known to be present in the major fig-producing areas of California. It is, however, widely established in coastal California, and eradication does not appear to be feasible. In addition to the wide geographic extent of the known infested area, the abundance of figs as street trees and naturalized trees in the environment have likely been important in the spread of this pest and would also hinder eradication. For these reasons, a B-rating is justified.

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***Comment Period: 05/17/2024 – 07/01/2024**

***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 permits[@]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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Pest Rating: B