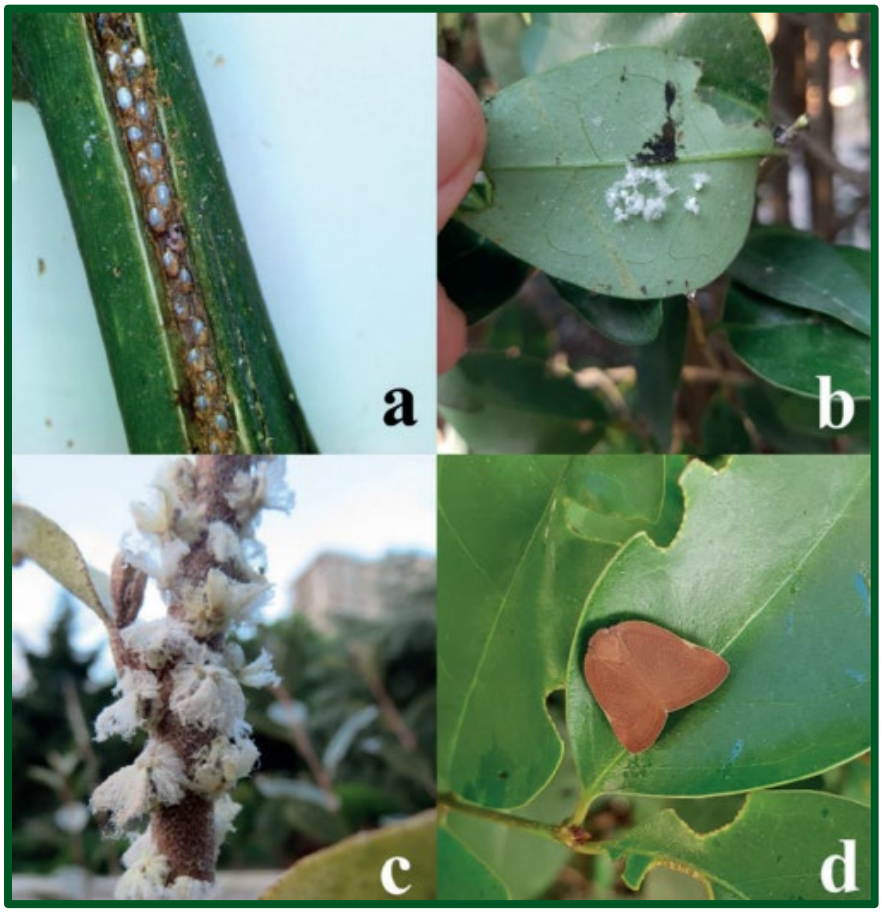
USDA Animal and Plant Health Inspection Service
U.S. DEPARTMENT OF AGRICULTURE

Pochazia shantungensis Datasheet



Biological stages of *Pochazia shantungensis* **a)** eggs deposited in annual shoots, **b)** newly hatched nymphs, **c)** nymphs at the fourth stage, and **d)** adult (Çetin et al., 2026).

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Scientific Name
Pochazia shantungensis (Chou & Lu)

Synonym
Ricania shantungensis Chou & Lu

Common Names
Brown-winged planthopper, brown winged cicada

Taxonomic Position
Class: Insecta, **Order:** Hemiptera, **Family:** Ricaniidae

Notes on Taxonomy and Nomenclature:
Recent taxonomic work has clarified longstanding confusion surrounding *Pochazia shantungensis* and closely related taxa. Historically, populations identified as *P. shantungensis* in the literature have included multiple morphologically similar species and misidentifications (particularly with *Pochazia chinensis* (Lee et al., 2024)). *Pochazia chinensis*, recently described based on both morphological and molecular evidence, is highly similar to *P. shantungensis* and nearly indistinguishable without detailed examination of genitalia structures or genetic data. Both species are distributed in East Asia and share overlapping host ranges, biology, and pest status. Given this taxonomic complexity and the likelihood that historical records of *P. shantungensis* may include *P. chinensis*, this document uses *P. shantungensis* in a broad, operational sense to encompass both species where diagnostic confirmation is not feasible. These guidelines should therefore be interpreted as applicable to both species unless otherwise specified.

Pest Description
Adults
Adults are brown in color and about 0.3 in (8 mm) long with a 1.2 in (30 mm) wingspan. The forewings have a distinct white spot on the outside edge of the wing (Deady et al., 2025) (**Figure 1**).

Figure 1. *Pochazia shantungensis* adults **a)** resting with wings closed on plant stem, and **b)** with wings open and flattened; characteristic white spot visible on the edge of each wing (Kobayashi et al., 2024).

Eggs

Eggs are laid deep into the tissue in young stems in zigzag rows of between 7 to 65 eggs (average 20 to 30) and covered in white waxy filament material (Deady et al., 2025). On rare occasions, females may lay eggs in the midrib of leaves (Hizal et al., 2023). When covered in the white waxy deposits, eggs may be conspicuous and noticed during visual surveys; however, if there is no waxy debris covering the eggs, they can easily be overlooked (Deady et al., 2025) (**Figure 2**).

Figure 2. *Pochazia shantungensis* eggs **a)** rows of eggs embedded in stem (wax removed), **b)** egg masses covered in wax on leaves of *Magnolia grandiflora*, and **c)** eggs masses covered in wax on the stem of *Ligustrum lucidum* (Hizal et al., 2023).

Nymphs

The nymphs have five stages (instars) and are typically white in color with a waxy coating and prominent wax tail (**Figure 3**).

Figure 3. Left to right: freshly hatched, fluffy nymphs aggregating on the underside of a leaf, hatchling *P. shantungensis* showing the waxy fluff; nymphs shed the waxy fluff on host plants; (JADAM, 2018).

Symptoms and Signs

Infestations of *P. shantungensis* are typically associated with sap-feeding injury to host plants such as reduced vigor, yellowing, and leaf curling. Both nymphs and adults feed with piercing-sucking mouthparts on plant sap (phloem), often congregating on stems and the undersides of leaves. When feeding, *P. shantungensis* excrete copious amounts of sugary waste, called honeydew. This sticky fluid can accumulate on plant surfaces and promote the growth of sooty mold, reducing photosynthetic capacity and aesthetic value. Heavy infestations may also attract secondary insects such as ants, wasps, and flies that are drawn to honeydew deposits. Nymphs and adults aggregate on hosts; nymphs have white, waxy secretions or filamentous coverings, while adults are conspicuous due to their relatively large size and mobility. While not unique to *P. shantungensis*, the presence of waxy white fluff, sticky residue, blackened leaf surfaces, and aggregations of insects on hosts are key diagnostic indicators during field surveys.

Eggs laid inside young stems can cause cracking in the stems; the embedded eggs may also prevent the flow of plant sap, resulting in twig dieback (Baek et al., 2024; Jo et al., 2016; Kim et al., 2017; Shen et al., 2007) (**Figure 4**), which may be visible during survey.

Figure 4. Damage from *Pochazia* sp. eggs spawning (twig dieback).

Easily Mistaken Species

At present, there are no members of the family Ricaniidae established in the United States, and surveyors are unlikely to misidentify *P. shantungensis* with any common

species domestically. While surveyors in the United States may encounter other planthoppers, including species in families such as Derbidae, Flatidae, or Issidae, these are generally smaller, less robust, and lack the distinctive size, posture, and wing patterning associated with *P. shantungensis*. The nymphs superficially resemble other planthopper nymphs (Deady et al., 2025) or woolly aphids (UCIPM, 2026). Surveyors could confuse early instar nymphs, which may exhibit waxy secretions, with certain Flatid nymphs; however, differences in body shape, wax filament structure, and host associations typically allow for differentiation upon closer inspection (**Figure 5**). Overall, with basic familiarity of planthopper morphology, the risk of misidentification during surveys is likely low.

Figure 5. Nymphs of the US native northern flatid planthopper (*Flatormenis proxima*) look like *P. shantungensis* nymphs. Photo credits: (left) David Cappaert, Bugwood.org and (right) Melinda Fawver by-nc/4.0.

Biology and Ecology

Life Cycle

Pochazia shantungensis has one generation per year in South Korea, with a possible second partial generation (Baek et al., 2019; Deady et al., 2025). In warmer regions like China, Japan, and Türkiye, it has two generations per year (Hizal et al., 2023; Kobayashi et al., 2024; Shen et al., 2007). The full lifecycle consists of an egg, five nymphal instars, and an adult (EFSA Panel on Plant Health et al., 2023) (**Figure 6**). Under ideal conditions, 88 °F (31 °C), *P. shantungensis* needs 202 degree days to complete development (Baek et al., 2019). This species rapidly reproduces, creating large and dense populations (Kim et al., 2015).

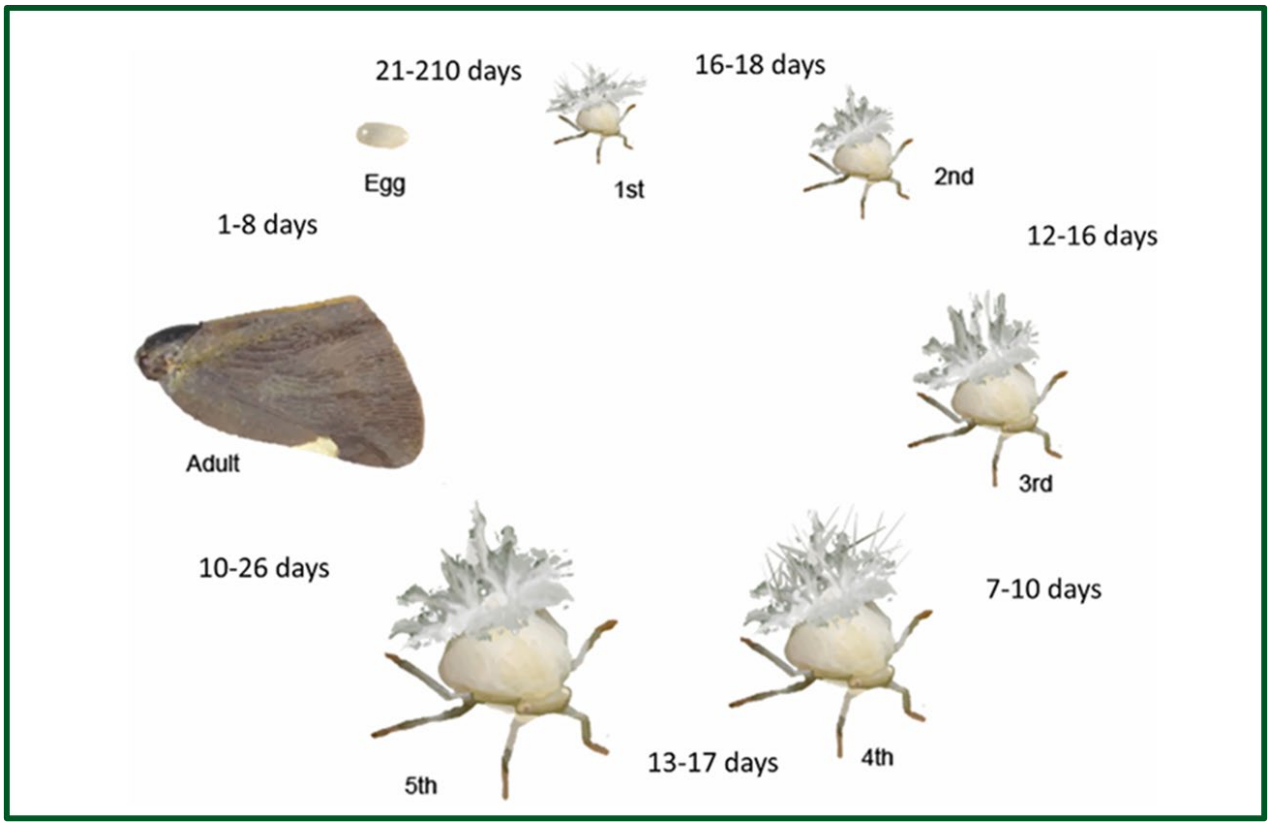

Figure 6. *Pochazia shantungensis* life cycle. Nymphs drawn schematically and not to scale (Dong et al., 2026)

Known Hosts

Pochazia shantungensis is a polyphagous pest with a broad host range, comprising more than 200 reported species, including fruit, ornamental, and forest trees (Çetin et al., 2026; Hizal et al., 2023; Kim et al., 2015; Schlitt et al., 2024). Eggs are typically laid in woody hosts, while nymphs may feed in arboreal or herbaceous plants (Baek et al., 2019). In a recent study, there was a notable preference for outdoor ornamental plants over fruit-producing species, likely due to fruit production practices and insecticide use (Çetin et al., 2026). While *P. shantungensis* has been reported from a large number of plant species, some associations with plants are unclear. This may be due to nymphs and adults moving among plants that are not true developmental or feeding hosts (Deady et al., 2025). Across the current literature, *Laurus nobilis* (bay laurel), *Ligustrum lucidum* (Chinese privet), *and Ligustrum vulgare* (common privet) are hosts that are often highly infested (Çetin et al., 2026; Hizal et al., 2023; Kobayashi et al., 2024). A comprehensive list of hosts lists can be found in: Çetin et al. (2026), Hizal et al. (2023), Kim et al. (2015) Kobayashi et al. (2024), and Schlitt et al. (2024).

Known Distribution

Pochazia shantungensis is native to China (Chou and Lu, 1977; Jiang et al., 2023; Lee et al., 2024). The species spread to and established in South Korea sometime after 2010 (Baek et al., 2024; Jo et al., 2016; Rahman et al., 2012) and Japan around 2015 (Kobayashi et al., 2024). Starting around 2018, *P. shantungensis* spread to Europe

including Austria (Kunz et al., 2025), Belgium (EPPO, 2025b), Bulgaria (Gjonov and Simov, 2025), France (where it is considered transient and under eradication) (Bourgoin et al., 2020; Deady et al., 2025), Hungary (Schlitt et al., 2024), Italy (Stroinski et al., 2022), the Netherlands (den Bieman et al., 2024; EPPO, 2023b), Russia (Shoshina et al., 2024; Zhuravleva et al., 2023), and Türkiye (Hizal et al., 2019). This planthopper was also found in a private garden in Germany in 2021, but it was eradicated from the area by 2023 (EPPO, 2023a).

Status of Infestation in the United States (March 2026)

PPQ confirmed a pest sample collected from in Gwinnett County, Georgia (GGIA, 2026; iNaturalist, 2025). Eggs, nymphs, and adults have been collected now and the range of hosts on which they have been detected continues to grow.

Pest Importance

Pochazia shantungensis adults and nymphs tend to aggregate on leaves, young shoots, and twigs and use their needle-like mouthparts to feed on host sap, which can cause leaves to wilt and turn yellow (Dong et al., 2026). Nymphs produce honeydew which may indirectly damage hosts because it promotes the growth of sooty mold, reducing photosynthesis and fruit marketability (Bourgoin et al., 2020; Choi et al., 2012; Shen et al., 2007). Primary damage is caused when adult females insert eggs inside young stems or twigs; egg laying can cause cracking in the stems and the eggs can prevent the flow of plant sap, resulting in the eventual death of the stem or twig (Baek et al., 2024; Jo et al., 2016; Kim et al., 2017; Shen et al., 2007). In persimmons, five egg masses induced dieback in twigs and when branches are heavily oviposited, the twigs or branches may die (Baek et al., 2024). In a recent study, North American tree species (*Carya illinoinensis*, *Juglans nigra*, and *Liriodendron tulipifera*) planted in South Korea showed oviposition damage (from *P. chinensis*) that resulted in localized dieback of a limited number of twigs/branches; overall twig mortality was not quantified and there was no whole-tree mortality (Dong et al., 2026). Eggs overwinter within stems of host trees and could affect the development of new shoots and fruits, and therefore, potentially limit fruit harvests the following year (Baek et al., 2024; Choi et al., 2011). While yield loss could occur from death of stems or due to a loss of vigor following adult and nymph feeding on the plant sap, we found no quantitative information on yield loss available in the literature.

Pathway

Human-Assisted Spread

Pochazia shantungensis is most likely to enter new areas via the movement of host plants for planting or freshly cut plant parts (branches and foliage) (Deady et al., 2025; EPPO, 2025a). Inspectors at ports of entry have intercepted the species several times in England and Wales on ornamental plants (e.g., *Elaeagnus* sp., *Ilex* sp., *Ligustrum* sp., *Magnolia* sp.) imported from Italy (Deady et al., 2025). While imported commodities could transport all life stages as hitchhikers, the conspicuousness and high mobility of nymphs and adults suggests that the highest likelihood of human-assisted spread comes from eggs. Females lay eggs into stems and branches of trees and shrubs where they then overwinter (EFSA Panel on Plant Health et al., 2023). The wide range

of hosts could allow eggs to move within cut flowers, plants for planting, or other fresh foliage pathways (EFSA Panel on Plant Health et al., 2023).

Pochazia shantungensis has also been found around rest areas along highways in newly invaded locations, suggesting hitchhiking on or in vehicles could play a role in spreading this pest (Deady et al., 2025; EFSA Panel on Plant Health et al., 2023).

Natural Dispersal

Adults can fly, though likely only short distances. The nymphs and adults are quite mobile, and disturbances to host material may lead to local dispersal (Deady et al., 2025).

Potential Distribution Within the United States

Members of this planthopper family, Ricaniidae, occur throughout warm temperate and tropical regions of the world (Zhang et al., 2022). *Pochazia shantungensis* is expected to primarily affect areas with humid, subtropical temperatures (Schrader, 2021). Currently, *P. shantungensis* is distributed through China, Japan, South Korea and western Europe. We compared georeferenced occurrence data of *P. shantungensis* from the Global Biodiversity Information Facility (GBIF, 2026) to Global Plant Hardiness Zones. Most of the climates where the pest exists fall within the Plant Hardiness Zones 6 to 10. It is likely that *P. shantungensis* could establish in most of the United States (**Figure 6**). As this is a highly polyphagous species, hosts will be available throughout the United States.

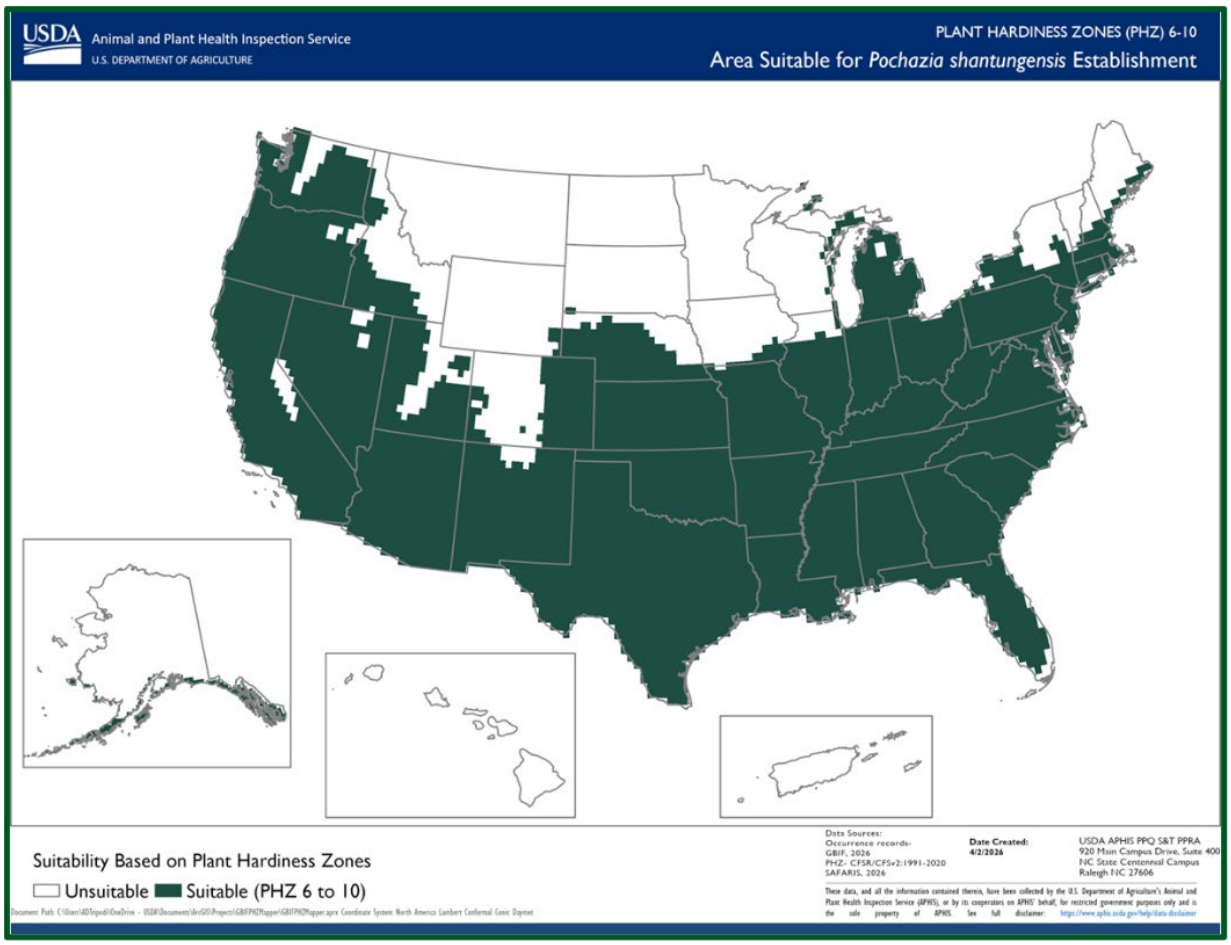

Figure 6. We compared over 3500 georeferenced occurrence records of *P. shantungensis* sourced from the Global Biodiversity Information Facility (GBIF) and overlaid the records with the United States' Plant Hardiness Zones to visualize areas of potential climatic suitability.

Visual Surveys

The most suitable method for detecting and delimiting all life stages of *P. shantungensis* is through visual examination. Conduct the survey by searching for plants with symptoms (honeydew, waxy residue, yellowing leaves, twig dieback) of the insect pest (see Signs and Symptoms). Surveyors should prioritize host-rich environments, particularly areas with high plant diversity, urban to agricultural interfaces, transportation corridors, and sites associated with plant movement (e.g., nurseries, garden centers, and ports of entry) (**Figure 7**).

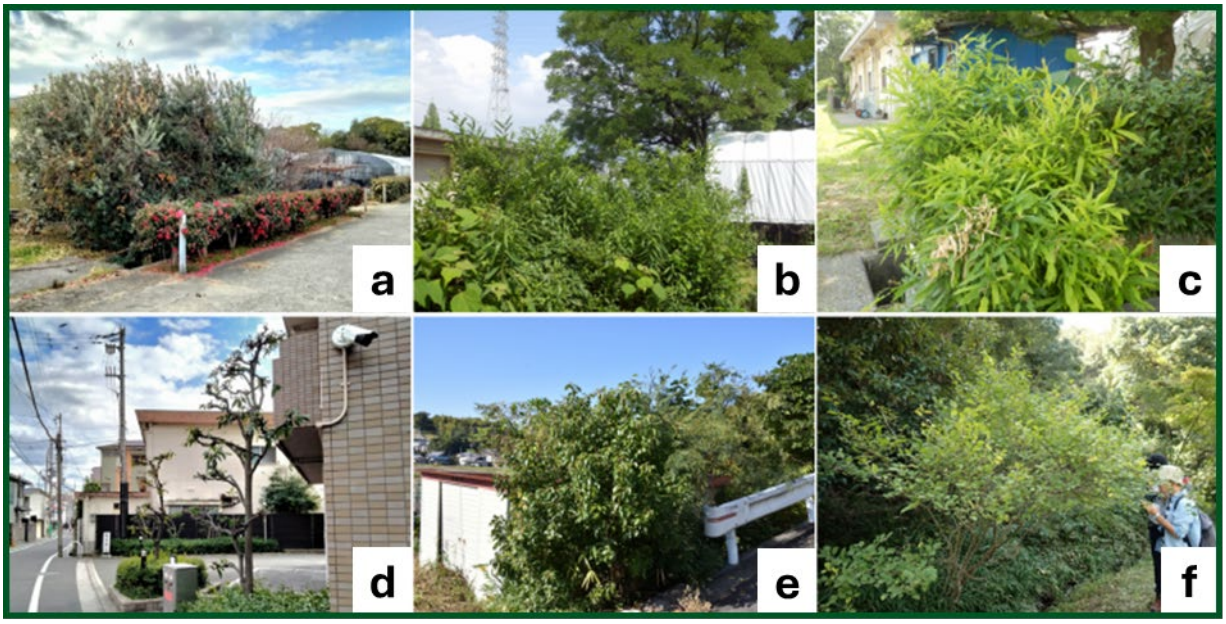

Figure 7. Habitats of *P. shantungensis* in Osaka, Japan (Kobayashi et al., 2024).

Surveys should take place when the insects are most active or visible. In temperate regions, a typical annual lifecycle is as follows:

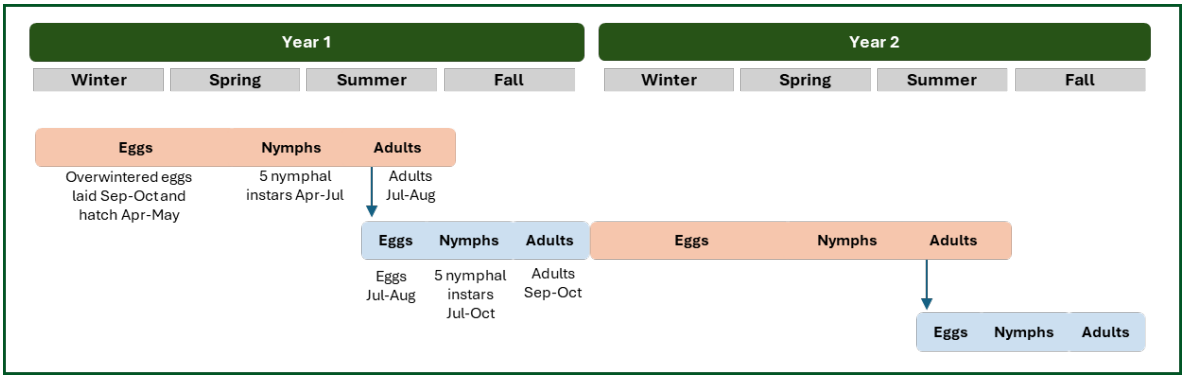

Figure 8. A schematic showing the approximate seasonal timing of *Pochazia shantungensis*.

Winter

Overwintering eggs are laid from September to October (Hizal et al., 2023). Eggs are laid deep into the tissue in young stems and covered in white waxy fibers (Baek et al., 2019; Çetin, 2025; Deady et al., 2025; Hizal et al., 2019). They will overwinter in tree stems and hatch in the following spring.

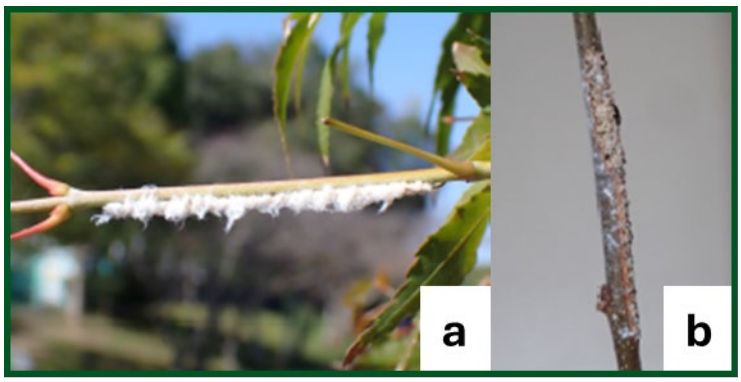

Figure 9. *Pochazia shantungensis* eggs **a)** fresh eggs masses covered in white wax and **b)** old eggs masses with barely any wax remaining (Kobayashi et al., 2024).

Spring

Overwintered eggs typically hatch between April and May. Temperature influences hatching, with optimal development occurring between 64 °F and 90 °F (18 °C and 32 °C), and maximal survival at 74 °F (23.3 °C) (Baek et al., 2019). When the fuzzy white nymphs emerge, they immediately find a site to begin feeding.

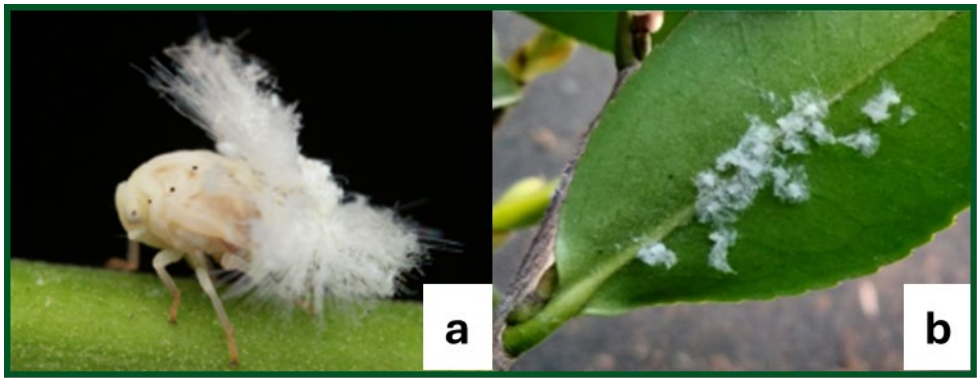

Figure 10. Early instar *P. shantungensis* nymphs **a)** close-up image of a nymph and **b)** small group of newly emerged first instar nymphs on the underside of a host leaf (Kobayashi et al., 2024).

Spring-Summer

The nymphs from overwintered eggs progress through their five nymphal instars from April through July. The nymphal stages are mobile and can hop between host plants. While eggs are typically found only on woody hosts, nymphs prefer herbaceous plants (Choi et al., 2016; EFSA Panel on Plant Health et al., 2023). Nymphs often aggregate and feed in clusters, resulting in substantial honeydew accumulation and conspicuous white, woolly wax deposits on plant surfaces (Baek et al., 2024; Deady et al., 2025).

Figure 11. Late instar *P. shantungensis* nymphs **a)** third or fourth instar nymphs along young plant stem and **b)** fifth instar nymphs along plant stem (Kobayashi et al., 2024).

Summer

Around July, when adults emerge from their final nymphal instar, they are translucent white and will slowly darken (**Figure 12**). Adult females will begin laying the next generation of eggs within host plant stems from July through August. Adult females lay eggs on newly developed branches of nearly all hardwood trees (Baek et al., 2019; Kim et al., 2015).

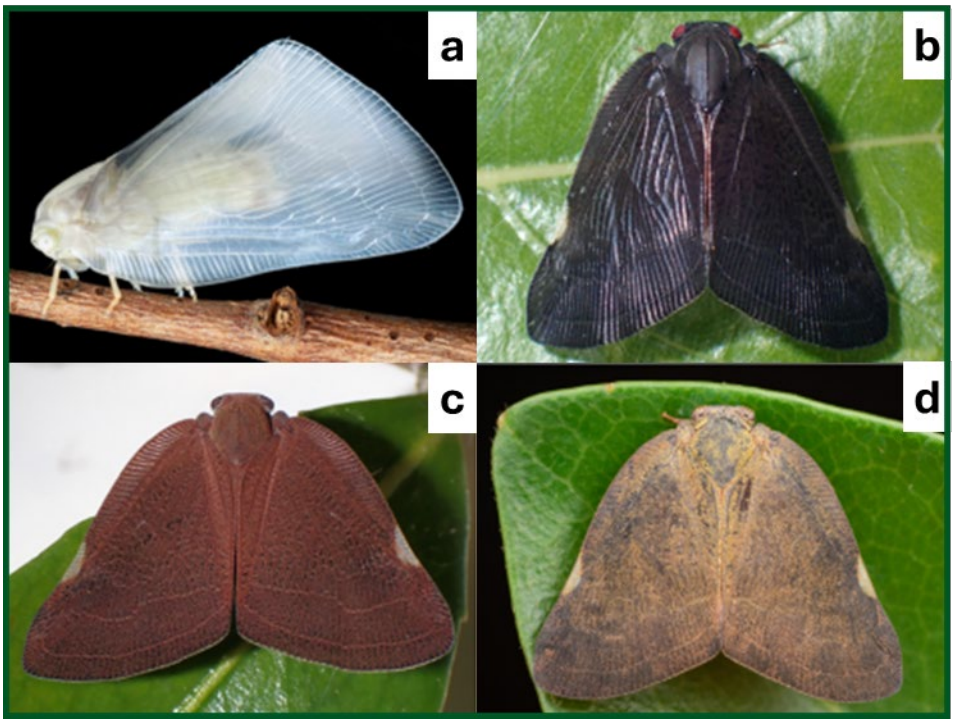

Figure 12. *Pochazia shantungensis* adults **a)** freshly emerged adult, **b)** newly emerged adult will start to turn from white to black with red eyes, **c)** typical adult after several days when wings have developed brown waxy layer, and **d)** mature adult (Kobayashi et al., 2024).

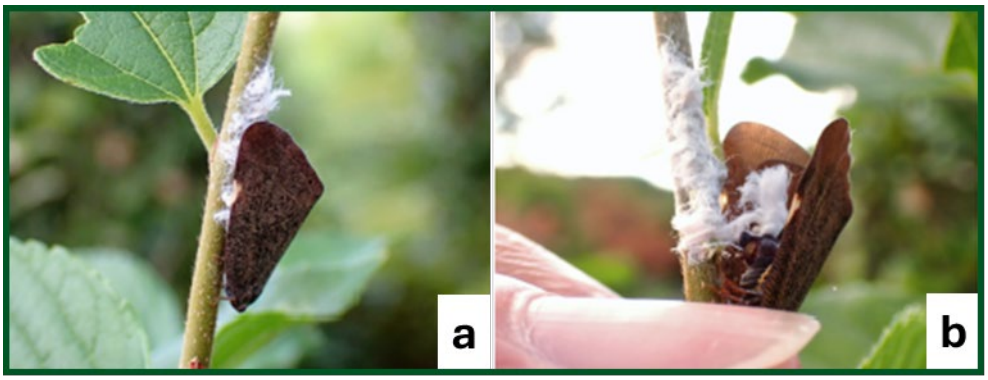

Figure 13. Adults laying eggs within stems of host plants and covering in white waxy filaments (Kobayashi et al., 2024).

Summer-Fall

Eggs that are laid in summer take approximately 20 days to mature. The new generation of nymphs will emerge from eggs and continue through their five nymphal stages from July through October. From late summer through early fall all life stages may be present.

Fall-Winter

The second-generation adults will emerge from the last nymphal instar around September. Adults begin laying eggs soon after maturing (Jo et al., 2016), typically from September to October. These eggs will overwinter and hatch in the following spring. Adults are the most mobile life stage and tend to be most active in the evenings and twilight period (Deady et al., 2025). From September to October, adults can be found on stems and leaves causing damage by feeding on the plant sap. Feeding damage may cause leaves to turn yellow and drop off (Choi et al., 2012; Hizal et al., 2023; Shen et al., 2007). By October, as the temperature decreases, adults begin to die and the population tends to decrease (Jo et al., 2016).

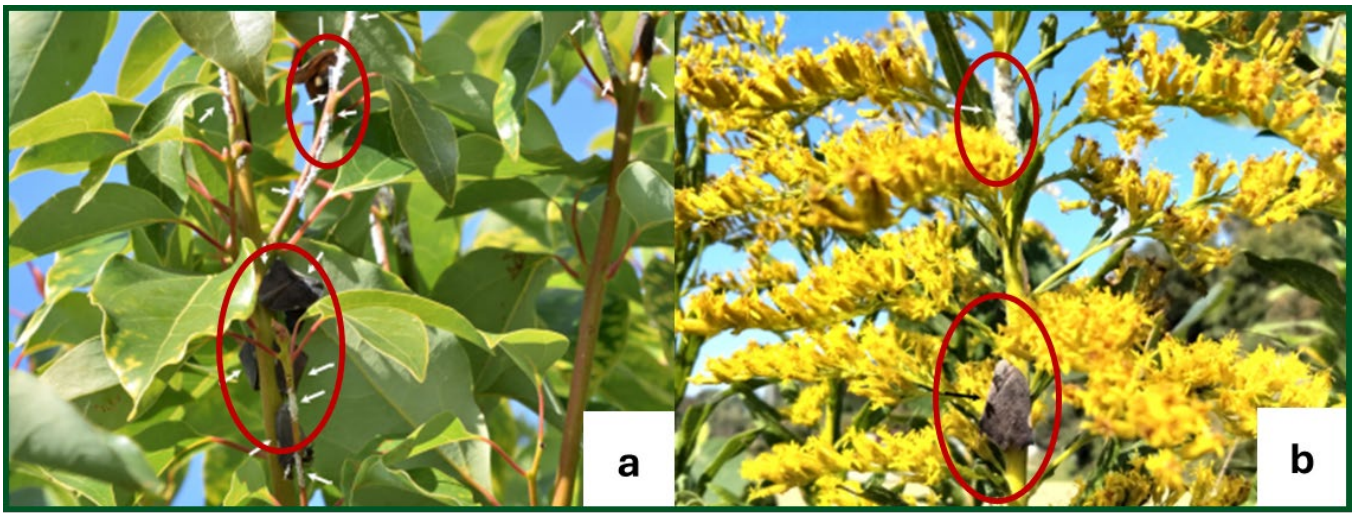

Figure 14. Adults and egg masses on two host plants (Kobayashi et al., 2024).

Based on this phenology, the lifecycle from egg hatch to reproduction is about 3 months, while the full egg-to-egg cycle spans ~1 year in univoltine populations (or shorter in bivoltine regions). The optimal survey window or highest detection probability corresponds to when both nymphs and adults are active because they are easily flushed while surveying. Overwintering eggs (October onwards) may become more visible during survey once leaves have dropped.

Life stages and signs for surveyors to target include:

- **Eggs-** Linear or clustered patches of eggs are typically laid in the stems and young branches of woody hosts in the upper one-third of the canopy (Kim et al., 2016). When adults oviposit their eggs, they cover the site in a filamentous, white, waxy secretion.
- **Nymphs-** Because adults lay eggs in clusters, newly hatched nymphs tend to aggregate on the undersides of host leaves and stems (Baek et al., 2024; Shen et al., 2007). They are covered in white, waxy filaments, sometimes giving a "fluffy" appearance.
- **Adults-** Rest on stems or branches. Their cryptic coloration resembles dead leaves; however, they will readily jump or fly when disturbed.

Samples should be collected for verification by a specialist. Surveyors can collect adult and nymph *P. shantungensis* by hand/bag or with a sweep net, or with beat sampling. Collect samples with bags, vials, or containers that can be labeled and sent for identification.

Passive Trapping

Yellow sticky card traps placed 8 to 12 in above host plants have proven effective in detecting and monitoring adults in infested areas (Deady et al., 2025), but will also capture many non-target insects. We do not recommend these techniques for delimitation or detection surveys because they are labor intensive and indiscriminate. Yellow stick card traps may be used to monitor high-risk movement areas such as nurseries.

Option for Public Engagement

Because *P. shantungensis* is a distinct insect and adults are unlikely to be mistaken in the United States where we do not have other *Pochazia* spp. or Ricaniidae species, involving the public may aid in the early detection of this species and help assess the extent of an infestation. Those who typically engage with the public include state extension personnel, state inspectors, CAPS coordinators, and/or PPQ staff. The Georgia Department of Agriculture has developed a Pest Alert to solicit photographs of suspect *Pochazia shantungensis* from the public. Monitoring community science platforms such as iNaturalist.org for photographs of this species may result in additional detections; however, PPQ identifiers would need to confirm the identification of any suspect specimens collected through these channels.

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