EPPO Datasheet: *Crisicoccus pini*

Last updated: 2026-04-19

IDENTITY

Preferred name: *Crisicoccus pini*
Authority: (Kuwana)
Taxonomic position: Animalia: Arthropoda: Hexapoda: Insecta: Hemiptera: Sternorrhyncha: Pseudococcidae
Other scientific names: *Dactylopius pini* Kuwana, *Pseudococcus pini* Fernald
Common names: Japanese pine mealybug, Kuwana pine mealybug
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EPPO Categorization: A2 list
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EPPO Code: DACLPI

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Notes on taxonomy and nomenclature

Crisicoccus pini was first described under the name *Dactylopius pini* by Kuwana (1902) from specimens collected in Japan from Koishiwara, island of Kyushu, on *Pinus* sp., and Tokyo, Nishigahara Agricultural Experiment Station, island of Honshu, on *Pinus pentaphylla* (Japanese white pine). It was subsequently assigned to the genus *Pseudococcus* by Fernald (1903) and then designated as the type species of the genus *Crisicoccus* by Ferris (1950).

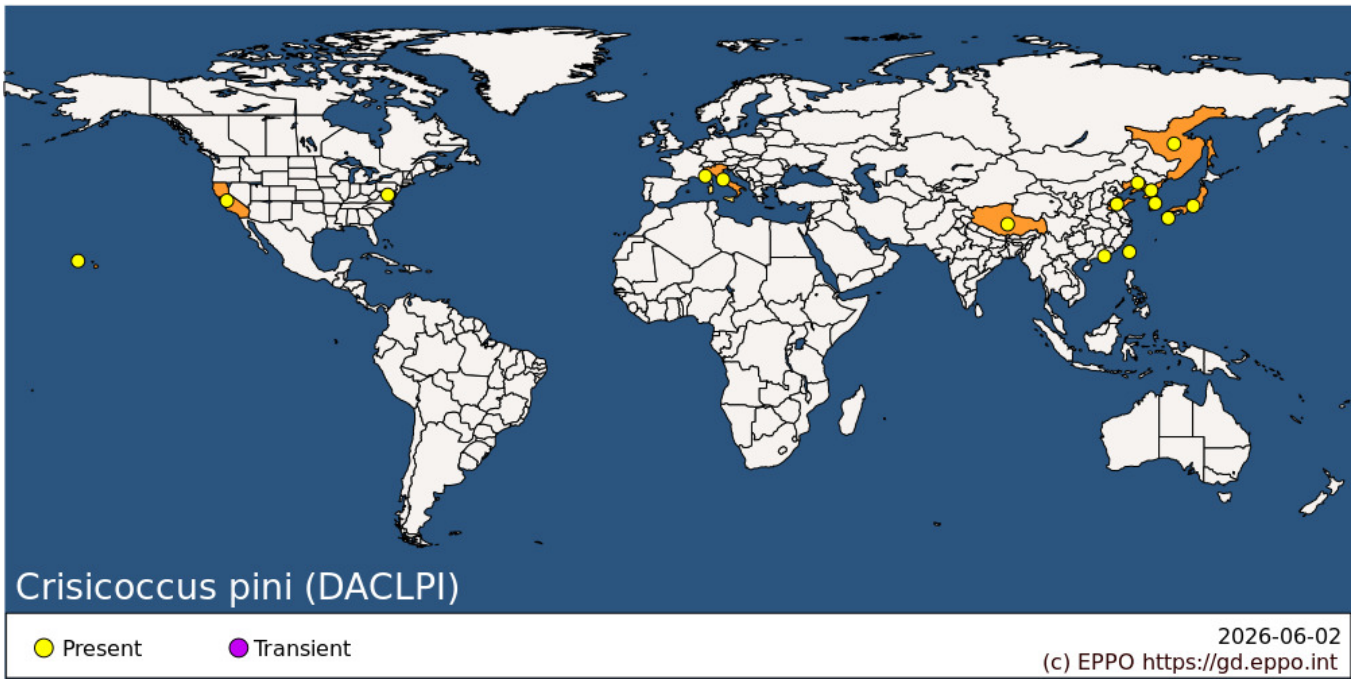
HOSTS

Crisicoccus pini feeds on Pinaceae and is most frequently recorded on species in the genus *Pinus*. In China, it has also been recorded on plants in the genera *Abies*, *Keteleeria* and *Larix* (Chen et al., 2005), but in North America and Europe, it has only been reported developing on *Pinus*. It has been intercepted at a US port-of-entry on *Pinus* sp. and *Taxus* sp. (Taxaceae) imported from Japan (Miller et al., 2014), but the significance of the *Taxus* record is unknown and there is some likelihood of cross-contamination in transit from infested *Pinus* (EPPO, 2023).

Host list: *Abies*, *Keteleeria*, *Larix*, *Pinus coulteri*, *Pinus densiflora*, *Pinus halepensis*, *Pinus koraiensis*, *Pinus massoniana*, *Pinus nigra*, *Pinus parviflora*, *Pinus pinaster*, *Pinus pinea*, *Pinus radiata*, *Pinus tabuliformis*, *Pinus thunbergii*

GEOGRAPHICAL DISTRIBUTION

Crisicoccus pini is native to Japan (Boselli & Pellizzari, 2016) and has been introduced to other parts of Asia, as well as to North America (Kosztarab, 1996; Miller et al., 2005; von Ellenrieder, 2025), and Europe. There is a single record from Monaco (Germain & Matile-Ferrero, 2006), and a mistaken record from France which appears to be based on the Monaco record (EFSA PLH Panel, 2021; Foldi & Germain, 2018; Germain & Matile-Ferrero, 2006).



EPPO Region: Italy (mainland), Monaco, Russian Federation (Far East)
Asia: China (Liaoning, Shandong, Xianggang (Hong Kong), Xizhang), Japan (Honshu, Kyushu), Korea, Democratic People's Republic of, Korea, Republic of, Taiwan
North America: United States of America (California, District of Columbia, Hawaii)

BIOLOGY

The biology of *C. pini* has been studied in Qingdao, Shandong province, China (Chen *et al.*, 2005, 2006). It reproduces sexually and has two generations each year. Each female lays about 50 eggs in an ovisac/felt-like wax covering, which is usually found at the junction between the twig and base of the needles. Females have three nymphal instars, and the males have four. The final two male nymphal instars (called prepupa and pupa) are sessile and do not feed. Adult female numbers peak between the end of May to early June, and at the end of September to early October. In the autumn, most of the nymphs migrate from the needles onto the branches, or the lower part of the trunk, to overwinter in bark crevices. In the following spring, they migrate to the new needles. The lower threshold temperature for development is about 13°C and the effective accumulated temperature is 456.7 degree-days (DD) above this threshold. The optimum temperature for development is 25°C. The percentage of eggs hatching was above 90% at temperatures between 21°C and 27°C and decreased at temperatures between 33°C and 36°C. Population levels in Qingdao decreased sharply during hot summers. Average high temperatures in Qingdao in June, July and August are 25°C, 28°C and 29°C, respectively. Kuwana (1902) reported *C. pini* to be viviparous (producing living young nymphs instead of eggs); however, subsequent studies recorded eggs (Chen *et al.*, 2005). The first instars (crawlers) of many species of scale insect remain protected under the body of the adult female for a period after hatching and emerge at the same time. Kuwana may have observed large numbers of first instars under the body of an adult female and misinterpreted this as vivipary. Recent observations from Italy also reported *C. pini* as laying eggs (Boselli & Pellizzari, 2016).

DETECTION AND IDENTIFICATION

Symptoms

Crisicoccus pini feeds on growing needles and infested tree canopies can exhibit extensive yellowing, necrosis, needle drop and dieback. Host mortality has been observed in Italy (EPPO, 2019). Black sooty mould grows on honeydew egested by the mealybugs, and this contrasts with the white wax secreted by the insects, making large infestations conspicuous.

Morphology

Adult females are broadly oval, 2–4?mm long and up to 2?mm wide, body light orange or reddish and covered in mealy white wax, with short wax filaments on the margin of the last four to six abdominal segments (Kuwana, 1902; Tanaka & Kamitani, 2022). The legs and antennae are brown. Mature females become enveloped in a white cottony wax coat (Kuwana, 1902). The first nymphal instars are oval, 0.35?mm long (Kuwana, 1902). The second and third female nymphal instars are similar in appearance to the adult female but are smaller. The eggs are pink and oval. Males do not appear to have been described other than the information mentioned above.

Crisicoccus pini can only be accurately identified by examination of slide-mounted adult females under a compound light microscope. Morphological descriptions and illustrations of adult female *C. pini* are provided by Ferris (1950), McKenzie (1967), Kosztarab (1996), Tu *et al.* (1988), Danzig and Gavrilov-Zimin (2010, 2015) and Tanaka and Kamitani (2022). Currently, the genus *Crisicoccus* comprises 37 species that are mainly found in Asia and the Australasian region (Danzig & Gavrilov-Zimin, 2010, 2015). There is no single comprehensive key for the identification of *Crisicoccus*, but the species present in the Palearctic can be identified using the keys provided by Danzig and Gavrilov-Zimin (2010, 2015), in Japan by Tanaka and Kamitani (2022), in the Republic of Korea by Kwon *et al.* (2003), and Son and Suh (2017), and in North America by Ferris (1950), McKenzie (1967) and Kosztarab (1996).

Detection and inspection methods

All developmental stages of *C. pini* can be found by visual inspection of plant material using a ×10 hand lens, especially of the growing needles. The mealybugs secrete a mealy white wax that covers the body (Boselli & Pellizzari, 2016) and mature adult females may be enveloped in white felt-like wax, which makes them conspicuous. When the population densities of *C. pini* are high, groups of adult females with ovisacs may be observed on the main trunk. During the autumn and winter months, nymphs may be observed in bark crevices.

PATHWAYS FOR MOVEMENT

Natural spread of *C. pini* by the first instars crawling or being carried by wind, other animals or machinery occurs locally and relatively slowly. Faster and long-distance movement is likely to be due to adult females and immature stages being carried with plant material in trade, especially with plants for planting (except seeds, tissue culture and pollen).

PEST SIGNIFICANCE

Economic impact

Feeding by *C. pini* causes yellowing and necrosis of pine needles (Boselli & Pellizzari, 2016). The mealybugs excrete copious quantities of sticky honeydew that smothers the plant and serves as a medium for the growth of sooty moulds, limiting photosynthesis and gas exchange of needles (EPPO, 2019). In China, *C. pini* is reported to be a pest of *Abies* sp., *Keteleeria* sp., *Larix* sp., *P. densiflora* (Japanese red pine), *P. massoniana* (Masson's pine), *P. tabuliformis* (Chinese red pine) and *P. thunbergii* (Japanese black pine or black pine) (Chen *et al.*, 2005). It has become a major pest of *P. densiflora* and *P. thunbergii* in Qingdao since about 1998, causing chlorosis, premature needle drop, branches drooping, poor or no growth, reduction in the size of the needles and many trees were dying (Chen *et al.*, 2005, 2006). Tang (1984) recorded *C. pini* being injurious to *P. tabuliformis* in Northern China. In Italy, it was first detected in September 2015 causing extensive damage to ornamental pines planted along streets and in private gardens in the region of Emilia-Romagna (Boselli & Pellizzari, 2016; EPPO, 2019). A severe decline of *P. pinaster* (maritime pine) and *P. pinea* (stone pine) was reported. In southern California (United States), *C. pini* is considered a minor pest of ornamental *P. radiata* (Monterey pine) and *P. thunbergii* along the coast in southern California (Natalia von Ellenrieder, pers. comm., 2025). *Crisicoccus pini* is reported to have the potential for causing negative environmental impacts in the Mediterranean region by reducing the health of pine forests (Watson & Mifsud, 2017).

Control

An outbreak of *C. pini* on pines in Italy was successfully managed by a combination of chemical, biological and cultural measures. The most severely infested trees were removed, infested branches on trees expected to survive were pruned, abamectin was applied through trunk injections (endotherapy) and the predatory coccinellid *Cryptolaemus montrouzieri* Mulsant was released in the spring and summer. After 3?years, there was a significant reduction in mealybug density (average of 5.72 mealybugs per shoot dropped to 0.09), a consistent presence of *C. montrouzieri* was observed, and the chemically treated pine trees showed signs of recovery (Boselli *et al.*, 2018).

Many natural enemies of *C. pini* have been recorded in China, which could be assessed for biocontrol, including predatory coccinellid beetles (*Chilocorus kuwanae* Silvestri, *Coccinella septempunctata* L., *Harmonia axyridis* Pallas and *Propylea* sp.), lacewings (larvae), hoverflies (larvae), true bugs and parasitoid wasps (*Allotropa* sp.) (Chen *et al.*, 2005).

There is limited information available on host–plant resistance or on methods of cultural control.

Phytosanitary risk

Crisicoccus pini was added in 2023 to the EPPO A2 List of pests recommended for regulation as a quarantine pest (A2 listed pests are locally present in the EPPO region), and EPPO member countries at risk are recommended to regulate it as a quarantine pest. It is a quarantine pest in the United Kingdom (since 2023).
Crisicoccus pini has the potential to establish throughout a considerable part of the EPPO region, wherever suitable hosts occur (EPPO, 2023) and presents a potential risk to *Abies*, *Larix* and *Pinus* grown in commercial plantations, in parks and gardens, and in the wider environment. *Keteleeria* is also at risk but is uncommon in the EPPO region, usually occurring as specimen trees in botanical gardens and specialist collections. There is also a possibility that the presence of *C. pini* in a country may create difficulties for the export of planting material.

PHYTOSANITARY MEASURES

There are a range of phytosanitary measures that may be taken to reduce the risk of introduction and spread of *C. pini* including sourcing imports from pest free areas or from a pest free place of production; pre-export inspections to ensure that consignments of plants for planting are pest free; chemical treatments on plants to mitigate likelihood of infestation; issuing phytosanitary certificates and plant passports; physical treatments (e.g. washing, brushing and other mechanical cleaning methods or heat and cold treatments) on consignments or during processing; and post-entry quarantine. Dwarfed host plants (bonsai) can be grown in protected areas/cultivation (e.g. screen house), and whole plants can be dipped in horticultural oils (summer oils or botanical oils) or insecticidal soap.

REFERENCES

Boselli M & Pellizzari G (2016) First record of the Kuwana pine mealybug *Crisicoccus pini* (Kuwana) in Italy: a new threat to Italian pine forests? *Zootaxa* **4083**, 293–296.

Chen S, Chen R, Chen Q, He L & Lui Z (2005) Bionomics of *Crisicoccus pini* in Qingdao area. *Zhongguo Senlin Bingchong* **24**, 8–11.

Chen S, Chen R, Yin T, Li B, Xu H & Zhang X (2006) Influence of gradient constant temperatures on the experimental population of *Crisicoccus pini*. *Zhongguo Senlin Bingchong* **25**, 13–16.

Danzig EM & Gavrilov-Zimin IA (2010) Mealybugs of the genera *Planococcus* and *Crisicoccus* (Sternorrhyncha: Pseudococcidae) of Russia and adjacent countries. *Zoosystematica Rossica* **19**, 39–49.

Danzig EM & Gavrilov-Zimin IA (2015) *Palearctic mealybugs (Homoptera: Coccinea: Pseudococcidae), Part 2: Subfamily Pseudococcinae*. Russian Academy of Sciences, Zoological Institute, St. Petersburg. 619 pp. (in Russian)

EFSA PLH Panel (EFSA Panel on Plant Health), Bragard C, Di Serio F, Gonthier P, Jaques Miret JA, Justesen AF,

Magnusson CS, Milonas P, Navas-Cortes JA, Parnell S, Potting R, Reignault PL, Thulke HH, Van der Werf W, Vicent Civera A, Yuen J, Zappalà L, Gregoire J-C, Malumphy C, Czwienczek E, Kertesz V, Maiorano A & MacLeod A (2021) Scientific Opinion on the pest categorisation of *Crisicoccus pini*. *EFSA Journal* **19**(11), 6928, 20 pp. https://doi.org/10.2903/j.efsa.2021.6928

EPPO (2019) *Crisicoccus pini* (Hemiptera: Coccidae): addition to the EPPO Alert. EPPO Reporting Service no. 01 – 2019. Num. article: 2019/011. Available at https://gd.eppo.int/reporting/article-6441 [accessed on 29 July 2025]

EPPO (2023) Report of a pest risk analysis for *Crisicoccus pini*. EPPO, Paris. Available at https://gd.eppo.int/taxon/DACLPI/documents [accessed on 30 July 2025]

Fernald ME (1903) A catalogue of the Coccidae of the world. *Bulletin of the Hatch Experiment Station of the Massachusetts Agricultural College* **88**, 1–360.

Ferris GF (1950) *Atlas of the Scale Insects of North America. (ser. 5) [v. 5]. The Pseudococcidae (Part I).* Stanford University Press Palo Alto, California. 278 pp.

Foldi I & Germain J-F (2018) Liste des cochenilles de France (Hemiptera, Coccomorpha). *Bulletin de la Société Entomologique de France* **123**, 7–18.

Germain J-F & Matile-Ferrero D (2006) *Comstockiella sabalis* (Comstock), *Crisicoccus pini* (Kuwana) et *Phenacoccus defectus* Ferris, cochenilles nouvelles pour la France (Hem Diaspididae et Pseudococcidae). *Bulletin de la Société Entomologique de France* **111**, 395–401.

Kosztarab MP (1996) *Scale insects of Northeastern North America. Identi?cation, biology, and distribution*. Virginia Museum of Natural History Martinsburg, Virginia, 650 pp.

Kuwana SI (1902) Coccidae (scale insects) of Japan. *Proceedings of the California Academy of Sciences* **3**, 43–98.

Kwon GM, Danzig EM & Park KT (2003) Taxonomic notes of the family Pseudococcidae (Sternorrhyncha) in Korea. II. Tribe Pseudococcini. *Insecta Koreana* **20**, 393–424.

McKenzie HL (1967) *Mealybugs of California with taxonomy, biology, and control of North American species (Homoptera: Coccoidea: Pseudococcidae).* University of California Press Berkeley, 526 pp.

Miller D, Rung A, Parikh G, Venable G, Redford AJ, Evans GA & Gill RJ (2014) *Crisicoccus azaleae* (Tinsley). Scale Insects. Edition 2. Available online: https://idtools.org/tools/1044/index.cfm?packageID=1113&entityID=3392 [accessed on 30 July 2025]

Miller DR, Miller GL, Hodges GS, Davidson JA (2005) Introduced scale insects (Hemiptera: Coccoidea) of the United States and their impact on US agriculture. *Proceedings of the Entomological Society of Washington* **107**(1), 123–158.

Son AS & Suh SJ (2017) Current status of Pseudococcidae (Hemiptera: Coccoidea) in South Korea. *Insecta Mundi* **581**, 1–6.

Tanaka H & Kamitani S (2022) Review of the genus *Crisicoccus* Ferris (Hemiptera: Coccomorpha: Pseudococcidae) in Japan with description of a new species, and the identity of a South Korean mealybug misidentified as *Crisicoccus matsumotoi* (Shiraiwa 1935). *Zootaxa* **5209**(5), 555–572.

Tang FT (1984) Observation on the scale insects injurious to forestry of North China. *Shanxi Agricultural University Press Research Publication* **2**, 122–133.

Tu W, Wu W & Lee P (1988) Planococcini of Taiwan (Homoptera: Pseudoccidae). *Annual of Taiwan Museum* **31**, 71–101.

von Ellenrieder N (2025) New records of scale insects (Hemiptera: Sternorrhyncha: Coccomorpha) from California with an updated checklist for the state. *The Pan-Pacific Entomologist* **101**(1), 15–50.

Watson GW & Mifsud D (2017) Invasive mealybugs (Hemiptera: Pseudococcidae) and the threats they present to Mediterranean countries. *Bulletin of the Entomological Society of Malta* **9**, 34–35

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Datasheet history

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