EPPO Datasheet: *Dendroctonus valens*

Last updated: 2026-04-19

IDENTITY

Preferred name: *Dendroctonus valens*
Authority: (Leconte)
Taxonomic position: Animalia: Arthropoda: Hexapoda: Insecta: Coleoptera: Curculionidae: Scolytinae
Other scientific names: *Dendroctonus beckeri* (Thatcher)
Common names: red turpentine beetle
view more common names online...
EPPO Categorization: A1 list, Alert list (formerly)
view more categorizations online...
EPPO Code: DENCVA

more photos...

Notes on taxonomy and nomenclature

After description of *D. valens* in 1860 by J.L. LeConte, for the next half century the taxonomic position of this species was unclear (Hopkins, 1909; Wood, 1963). In 1868, LeConte listed *D. valens* as a synonym of *Dendroctonus terebrans* (Hopkins, 1909; Wood, 1963). One year later, in 1869, F. Chapuis recognized *D. valens* as a valid species, whereas in 1897, W.F.H. Blandford again treated *D. valens* as a synonym of *D. terebrans* (Wood, 1963). In his monograph, Hopkins (1909) resolved the taxonomy of the genus *Dendroctonus* providing new classification, where he finally recognized *D. valens* and *D. terebrans* as two separate species. In 1955, K.E. Schedl listed *Dendroctonus beckeri* as a synonym of *D. valens* (Wood, 1963). According to a recent molecular genetic study (Ramírez-Reyes *et al.*, 2023), *D. beckeri* was shown to be an independent species.

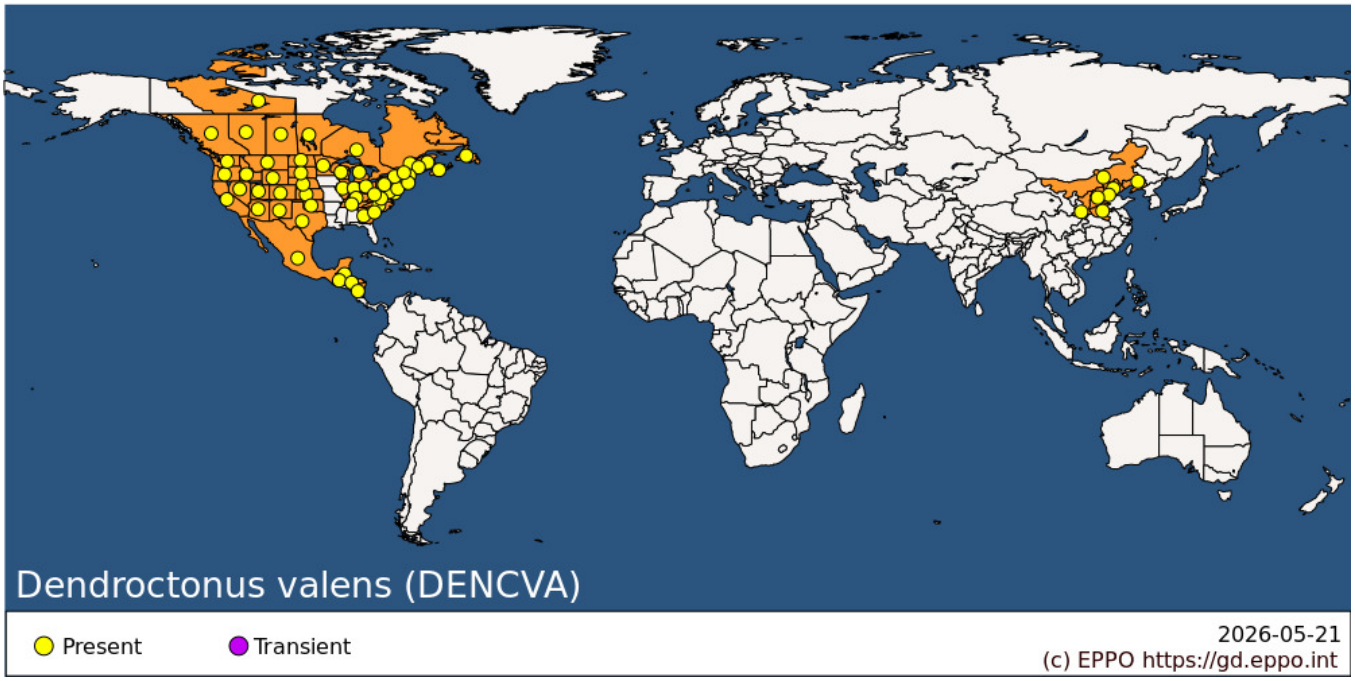
HOSTS

Dendroctonus valens develops on different pines (*Pinus* spp., Pinaceae). Overall, 43 species of pines are known to be hosts of this pest (Cibrián Tovar *et al.*, 1995; Defra, 2021; Hopkins, 1909; Salinas-Moreno *et al.*, 2004; Wood, 1963). In its native range (North America), *Abies*, *Picea*, *Larix* (Hopkins, 1909; Wood, 1963) and *Pseudotsuga* (Owen *et al.*, 2010) are occasional hosts. In the invaded range (China), *Pinus tabuliformis*, which is widely distributed across the country, is the main host and it is severely damaged by this beetle (Sun *et al.*, 2013; Yan *et al.*, 2005). In China, the East Asian pine *Pinus bungeana*, which is less widely distributed but regularly used as an ornamental, suffers similar damage to *Pinus tabuliformis* (Yan *et al.*, 2005). In the invaded range, *D. valens* was documented feeding on *Pinus armandii*, but not yet on all East Asian pine species present in this area (Yan *et al.*, 2005). Notably, in both the invaded and native ranges, large trees are attacked most often, and smaller trees (over 10? cm in diameter) can be infested when *D. valens* is abundant (Owen *et al.*, 2010; Yan *et al.*, 2005).

Host list: *Abies concolor*, *Larix laricina*, *Picea abies*, *Picea glauca*, *Picea meyeri*, *Picea rubens*, *Pinus arizonica*, *Pinus armandii*, *Pinus ayacahuite*, *Pinus bungeana*, *Pinus cembroides*, *Pinus contorta var. murrayana*, *Pinus contorta*, *Pinus coulteri*, *Pinus devoniana*, *Pinus douglasiana*, *Pinus durangensis*, *Pinus echinata*, *Pinus edulis*, *Pinus engelmannii*, *Pinus flexilis*, *Pinus greggii*, *Pinus hartwegii*, *Pinus herrerae*, *Pinus jeffreyi*, *Pinus lambertiana*, *Pinus lawsonii*, *Pinus leiophylla*, *Pinus lumholtzii*, *Pinus massoniana*, *Pinus maximinoi*, *Pinus monophylla*, *Pinus montezumae*, *Pinus monticola*, *Pinus oocarpa*, *Pinus patula*, *Pinus ponderosa*, *Pinus pringlei*, *Pinus pseudostrobus*, *Pinus quadrifolia*, *Pinus radiata*, *Pinus resinosa*, *Pinus rigida*, *Pinus sabiniana*, *Pinus strobiformis*, *Pinus strobus*, *Pinus sylvestris var. mongholica*, *Pinus sylvestris*, *Pinus tabuliformis*, *Pinus teocote*, *Pinus virginiana* , *Pseudotsuga sp.*

GEOGRAPHICAL DISTRIBUTION

The native range of *D. valens* covers most of North America and partially Central America (Atkinson, 2025; Hopkins, 1909). In the invaded range, so far, it has been found only in China (Bi *et al.*, 2024; Yan *et al.*, 2005). Thus, *D. valens* can withstand noticeable variation of abiotic conditions and successfully develops in hot and cold climates.



Asia: China (Beijing, Hebei, Henan, Liaoning, Neimenggu, Shaanxi, Shanxi)
North America: Canada (Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland, Northwest Territories, Nova Scotia, Ontario, Québec, Saskatchewan), Mexico, United States of America (Arizona, California, Colorado, Connecticut, Delaware, Georgia, Idaho, Illinois, Indiana, Kansas, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming)
Central America and Caribbean: Belize, Guatemala, Honduras, Nicaragua

BIOLOGY

The biology of *D. valens* in its native and invaded ranges is similar (Yan *et al.*, 2005). In northern regions (in both ranges), *D. valens* completes one generation per year, with a developmental period lasting from May to October, or in some cases more than 1 year can be required to complete a life cycle (Wood, 1963; Yan *et al.*, 2005). The species overwinters as young or mature adults or as mature larvae (Wood, 1963). Overlapping generations in this species can result in continuous adult emergence and flight during the whole year in southern territories (Wood, 1963).

Dendroctonus valens is a monogamous species with biparental care (Chen *et al.*, 2015; Liu *et al.*, 2017). For the mating process, adults use acoustic communication and chemical cues (Cibrián Tovar *et al.*, 1995; Liu *et al.*, 2017, 2020). Females produce the pheromone frontalin to attract males (Liu *et al.*, 2013). A male adult can successfully bore into a pine tree only if it contains a gallery previously constructed by a female, whereas a female can bore into the tree without male presence (Liu *et al.*, 2006). In North America, b-pinene is the most attractive host volatile for *D. valens*; in the invaded range (China), it is 3-(+)-carene (Yan *et al.*, 2005).

In the United States, eggs are most commonly laid from late May to early June; in the north, the oviposition can start somewhat later, whereas in the south it can start earlier (Wood, 1963).

Galleries most commonly have an inverted J-shape. However, the direction of such galleries is variable: They can extend upwards in the lower part of the trunks or downwards to the roots. Such galleries can be over 40?cm long

(Wood, 1963). Eggs are deposited in the distal part of the galleries excavated in the cambium, along its side, in groups of 10–40 (occasionally more) (Sun *et al.*, 2013; Wood, 1963). Larvae hatch in about 10?days and excavate phloem and cambium away from the egg chamber. Larvae do not create individual galleries; instead, they move together as a front progressively feeding in the phloem, making a common cavity and leaving behind reddish frass. The larval stage usually takes about 2?months, although in most northern regions it can take a year (Wood, 1963). Pupation occurs in communal cavities in cells formed from sawdust mixed with resin (Hopkins, 1909).

In China, *D. valens* infests forests growing at elevations of more than 800?m?a.s.l. It prefers trees on hilltops and at forest edges, and north-facing slopes rather than south-facing slopes (Gao *et al.*, 2005). Adults usually infest the base of tree trunks, that is at or near the ground level. However, exceptionally, the infestation of tree trunks may happen up to 1.8?m above the ground (Wood, 1963; Yan *et al.*, 2005). They also prefer trees of a diameter around 30?cm or more (at breast height) (Liu *et al.*, 2011), but in high density, they can also attack trees of a diameter starting from 10?cm (Yan *et al.*, 2005).

In China, for the first time seven ophiostomatoid fungi were detected in and around *D. valens* galleries on *Pinus tabuliformis* (Lu *et al.*, 2009). Of these seven species, *Leptographium koreanum* and *L. truncatum* caused more significant necrotic lesions on the inner bark of mature *P. tabuliformis* trees in an experiment (Lu *et al.*, 2009). Among these species, at least *L. procerum*, *L. sinoprocerum* and *L. truncatum* are known from *D. valens* galleries in North America (Mann *et al.*, 2025).

In the invaded range, in China, monoculture of East Asian pine species, drought, warm winters, lack of natural enemies and mutualistic symbiosis with microorganisms facilitated the invasion, establishment and further spread of *D. valens* (Sun *et al.*, 2013; Yan *et al.*, 2005).

DETECTION AND IDENTIFICATION

Symptoms

The main external symptoms of presence of *D. valens* are the entrance holes of the adults on the bark and resin masses mixed with frass and sawdust (i.e. pitch tubes) next to the holes (Bi *et al.*, 2024; Wood, 1963; Yan *et al.*, 2005). Needles of colonized trees change colour progressively: from green to yellow, then red. Trees with dense crowns (lodgepole pine and spruce), after losing all needles, appear grey in remote sensing images, whereas the trees with loose crowns (Chinese pine, *P. tabuliformis*) can be confused with other types of vegetation and, thus, misclassified (Zhan *et al.*, 2020). However, the crown's colour change takes time and is not visible immediately after the pest infests the tree (Bi *et al.*, 2024). Important internal symptoms (under the bark) are the longitudinal fan-shaped galleries where larvae communally feed in cambium and phloem (Bi *et al.*, 2024; Wood, 1963; Yan *et al.*, 2005).

Morphology

Morphology is well described in Hopkins (1909), Wood (1963) and Cibrián Tovar *et al.* (1995).

Eggs

From elongate to oval, up to 1?mm long, opaque white with rounded ends (Cibrián Tovar *et al.*, 1995).

Larva

The larva is white, legless, with a brown head and the last abdominal segment has a red skeletonized plate. The neonate larva is about 1?mm long; fully grown larva can reach 12?mm long (Cibrián Tovar *et al.*, 1995).

Pupa

The pupa is white, with the antennae and legs free. A pupa is about 9?mm long, that is slightly shorter than the full-size larva (Cibrián Tovar *et al.*, 1995).

Adult

Dendroctonus valens is the largest species in the genus *Dendroctonus* (Wood, 1963). Adults are 5.7–10.0?mm in length (average about 8.0?mm), with a light to dark-reddish brown hue but never black dorsally (whereas ventrally, body colour varies from light red to black) (Cibrián Tovar *et al.*, 1995; Hopkins, 1909). The epistomal process (i.e. the head part located above the mouth) is broad, with apical angles obtuse and never tuberculate; pronotum finely punctate much smaller and denser towards the base; elytra with long hairs towards the base (Cibrián Tovar *et al.*, 1995; Hopkins, 1909). The antennae have a symmetrical club and are uniformly reddish (characteristic for the species, used for identification) (Cibrián Tovar *et al.*, 1995). Males are slightly shorter, and they differ from females in having stouter mandibles, a somewhat narrower antennal club, a more opaque declivity and less pronounced punctures (Hopkins, 1909).

Detection and inspection methods

On individual trees, *D. valens* can be detected due to the presence of entrance holes, resin and sawdust which accumulate around such holes forming funnel-shaped rim (initially red but soon turning grey-whitish) at the base of tree trunks (Wood, 1963; Yan *et al.*, 2005). In tree stands, the adults of *D. valens* can be detected using pheromone traps (the most effective flight traps were placed on the lower part of the trunk—see details in Yan *et al.*, 2005), for example using ethanol: turpentine mix (1:1), which demonstrated high attractiveness in both North America and China (Liu *et al.*, 2013; Yan *et al.*, 2005). A list of other semiochemical blends is provided in Yan *et al.* (2005). In the tree canopy, remote sensing technology is helpful to detect tree stand discoloration. For this, unmanned aerial vehicles can be used to obtain thermal infrared and combined hyperspectral datasets to detect the presence of *D. valens* in tree stands (Bi *et al.*, 2024).

PATHWAYS FOR MOVEMENT

Dendroctonus valens can spread naturally by adult flight. The maximum distance an adult has been recorded to cover is 16?km in the United States and 20?km (exceptionally—35?km) in China (Yan *et al.*, 2005). Thus, natural spread can be considered for relatively short distances only.

All pre-adult life stages are associated with inner bark, especially with the phloem layer, where *D. valens* develops. Wood and wood products with bark, especially from older and larger pine trees (or related species of Pinaceae) originating from countries where *D. valens* is present can be pathways for both short- and long-distance movements of the pest (EPPO, 2022). Unprocessed logs originating from the United States were suspected to be the main pathway of introduction of *D. valens* to China (Yan *et al.*, 2005). Round wood and sawn wood with bark and import of wood chips, processed wood residues, hogwood (except sawdust and shavings) are considered the most high-risk pathway for this pest to arrive in the EU (EPPO, 2022). Given the size of *D. valens*, imported wood chips should not be bigger in size than the beetle or its larvae (Defra, 2021). *Dendroctonus valens* is mostly associated with large and mature trees, whereas young trees are only attacked when the beetle's population is high. As live large trees are less likely to be moved in trade, plants for planting (including bonsais and dwarfed pines) are considered a very unlikely pathway (Defra, 2021).

PEST SIGNIFICANCE

Economic impact

In its native range, *D. valens* occurs in pine and mixed conifer forests and mostly colonizes trees weakened by primarily pests, freshly cut stumps, the bases of weakened or declining trees (diseased or infested by other insects, injured e.g. by fire), and exposed roots (Cibrián Tovar *et al.*, 1995; Wood, 1963; Yan *et al.*, 2005). It is not considered a pest of economic importance (Wood, 1963). The pest rarely damages non-diseased trees in its native range although this can occur during severe droughts (Wood, 1963; Sun *et al.*, 2013; Raffa *et al.*, 2023). In contrast, in the invaded range (China), *D. valens* is an aggressive pest of East Asian pines; it can infest healthy trees (greater than 10?cm in diameter and over 20?years old), especially when *D. valens* population increases and the tree stands

are not dense (Yan *et al.*, 2005). Galleries made by the mature larvae block plant vascular system and lead trees to decline and die (Sun *et al.*, 2013). Since its accidental introduction in the 1980s, *D. valens* infested more than 500 000?ha of pine forests in China and killed over 10 million trees, predominantly *P. tabuliformis* (Sun *et al.*, 2013). The beetle is progressively spreading across China (Bi *et al.*, 2024) and is considered the second most harmful invasive forest insect pest in the country (Yan *et al.*, 2005). This pest can dramatically impact invaded ecosystems through losses of biodiversity and an increase of carbon emission (Sun *et al.*, 2013). Invasion of *D. valens* with its co-invasive mutualistic fungus, *Leptographium procerum* (Ascomycota: Ophiostomataceae), and further establishment of ecological associations with other ascomycete fungi (Ophiostomataceae) might lead to even more severe pine forests decline (Cheng *et al.*, 2015; Lu *et al.*, 2009; Wang *et al.*, 2025).

Control

So far, chemical control methods have been shown to be the most effective, causing up to 98% mortality of *D. valens* individuals (Yan *et al.*, 2005). These include fumigation of tree trunks with aluminium phosphide (under a plastic cover), use of the injections with dimethyl dichlorovinyl phosphate (DVVP) or omethoate into the beetle galleries, or spraying with insecticides (phorate, monocrotophos, cypermethrin, phoxim, etc.) during the beetle flight period (Yan *et al.*, 2005) or later (in early June to October) when last stage larvae pupate and young larvae continue developing (Lu & Sun, 2017). However, this method is costly and can be difficult to apply. Another approach is manual control, that is felling and removing tree stumps, exposed roots and pine trees which recently died, although this is laborious (Yan *et al.*, 2005). Trapping the beetle adults (both males and females) using host volatiles (Yan *et al.*, 2005) is ecologically friendly and highly promising. In China, the use of a mixture of equal amounts of ?-pinene, ?-pinene and 3-caren was effective from mid-April to early June (when adults emerge and fly) and in June–October (when overwintered larvae pupate and adults emerge) decreasing the following *D. valens* attack number by nearly 60% (Yan *et al.*, 2005). When the pheromone frontalin is added to the above-mentioned mixture, the number of captures increases by nearly 200% (Liu *et al.*, 2013).

Biological control of this pest has not been developed yet. Limited data is available about the diversity of natural enemies and their potential to control *D. valens* populations in the invaded range. The predatory beetle *Rhizophagus grandis* (Coleoptera: Rhizophagidae) might be a potential biological control agent, but further studies are needed (Wei *et al.*, 2010). The entomopathogenic fungus *Beauveria bassiana* (Ascomycota: Cordycipitaceae) has demonstrated high efficacy against *D. valens* larvae in laboratory tests run in China (Zhang *et al.*, 2010).

The following silvicultural approaches can help to prevent colonization and, thus, control populations. They can included the following: (1) avoiding tree monoculture, (2) preventing tree wounds, (3) removing piles of wood chips and other tree residues that can release host volatiles, and (4) sanitary felling and thinning (Lu & Sun, 2017).

Phytosanitary risk

Dendroctonus valens is considered to pose a threat to pine forests across EPPO countries (EPPO, 2022). Several species of pines which are known to be hosts of *D. valens* in its native and/or invaded range(s) are widely and abundantly distributed in the EPPO region (e.g. *Pinus sylvestris* and *P. radiata*; EUFORGEN, 2025). Bearing in mind that *D. valens* could also become an aggressive pest on novel hosts (as happened in China; Yan *et al.*, 2005), it may also attack other pine species growing naturally or cultivated in different parts of the EPPO region which are not known to be hosts of this pest (e.g. *P. nigra*, *P. mugo*, *P. cembra*, and *P. pinea*). Furthermore, *D. valens* has been occasionally recorded on *Abies*, *Picea*, *Larix* (native genera for Europe) and *Pseudotsuga* (North American, planted in Europe for wood) (EPPO, 2022; Owen *et al.*, 2010; Yan *et al.*, 2005). It remains unclear how *D. valens* may react to the European species of larch, spruce and fir, and whether or not *Pseudotsuga* grown in European climates could be a good host for the beetle.

The risk of introduction of *D. valens* with imports of round and sawn wood without bark or wood packaging material is considered very low because the beetle lives under the bark and consumes phloem and cambium (EPPO, 2022). The risk of introduction with plants for planting and cut branches is considered low. The risk of introduction of round and sawn wood with bark, wood chips, processing wood residues, hogwood (except sawdust and shavings) or bark is considered moderate (EPPO, 2022).

PHYTOSANITARY MEASURES

Efforts should be directed towards early detection of *D. valens* in high-risk regions (areas characterized by the presence of coniferous trees, especially from the genus *Pinus*). Potential ports of entry and border crossings should be surveyed with pheromone traps, using mixtures which showed high attractiveness in North America and China (Liu *et al.*, 2013; Yan *et al.*, 2005).

Phytosanitary measures at import are proposed for the genus *Pinus* (EPPO, 2022). To prevent pest introduction, imported round wood, sawn wood, bark, wood chips, processing wood residues or hogwood of *Pinus* spp. should originate from pest-free areas, or be heat-treated (until the temperature reaches at least 56°C for at least 30?min throughout the consignment) or fumigated. In addition, consignments should be stored in conditions preventing infestation prior to export and transported closed or stored and transported outside the flight period; alternatively, kiln-drying to below 20% moisture content should be performed to prevent infestation (EPPO, 2022). Additional treatment options for wood consignments are specified in the EPPO PRA report (2022).

Imported plants for planting (except seeds, tissue culture and pollen) should originate from a pest-free area (EEC, 2016; EPPO, 2022) or be produced in a pest-free place/site of production for *D. valens* (EPPO, 2022) established according to EPPO Standard PM 5/8 *Guidelines on the phytosanitary measure* '*Plants grown under physical isolation* ' (EPPO, 2016). Alternatively, they should be less than 2?cm in stem diameter (except bonsais) or, upon importation, should be placed under post-entry quarantine in accordance with the provisions of a bilateral agreement (EPPO, 2022).

Wood packaging material should strictly correspond to requirements of the ISPM 15 (FAO, 2018).

Recommendations on carrying out inspections of wood chips and similar consignments are provided in EPPO Standard PM 3/87(1) *Monitoring and consignment inspection of wood chips, hogwood and bark for quarantine pests* (EPPO, 2019).

REFERENCES

Atkinson TH (2025) Bark and ambrosia beetles (US and Canada). https://www.barkbeetles.info/amer_chklist_target_species.php?lookUp=491 [Last accessed 29 June 2025].

Bi P, Yu L, Zhou Q, Kuang J, Tang R, Ren L, Luo Y (2024) Early detection of *Dendroctonus valens* infestation with UAV-based thermal and hyperspectral images. *Remote Sensing* 16, 3840. https://doi.org/10.3390/rs16203840

CABI (2017) Distribution maps of plant pests. *Dendroctonus valens*. https://doi.org/10.1079/DMPP/20173184889 [Last accessed 29 June 2025].

Chen H-F, Salcedo C, Sun J-H (2015) Male mate choice by chemical cues leads to higher reproductive success in a bark beetle. *Animal Behaviour* **83**, 421–427. https://doi.org/10.1016/j.anbehav.2011.11.012

Cheng C, Zhou F, Lu M, Sun J-H (2015) Inducible pine rosin defense mediates interactions between an invasive insect–fungal complex and newly acquired sympatric fungal associates. *Integrative Zoology* 10, 453–464. https://doi.org/10.1111/1749-4877.12138

Cibrián Tovar D, Méndez Montiel JT, Campos Bolaños R, Yates HO, Flores Lara J (1995) Forest insects of Mexico. Universidad Autónoma Chapingo, Chapingo, Mexico, pp. 299–298.

DEFRA (2021) Rapid Pest Risk Analysis (PRA) for *Dendroctonus valens*. Korycinska A. (compilator), UK: York. https://planthealthportal.defra.gov.uk/assets/uploads/Dendroctonus-valens-PRA-v6-draft-to-publish.pdf [Last accessed 29 June 2025].

EEC (2016) The Council of the Eurasian Economic Commission (EEC). Decision N° 157 on the approval of the common phytosanitary quarantine requirements to the regulated articles and regulated objects at the customs border and in the customs territory of the Eurasian Economic Union. November 30, 2016.

EPPO (2016) EPPO Standard PM 5/8 (1) Guidelines on the phytosanitary measure 'Plants grown under complete

physical isolation'. *EPPO Bulletin* **46**(3), 421–423. https://doi.org/10.1111/epp.12340

EPPO (2019) EPPO Standard PM 3/87 (1) Monitoring and consignment inspection of wood chips, hogwood and bark for quarantine pests. *EPPO Bulletin* **49** (3), 505–523. https://doi.org/10.1111/epp.12622

EPPO (2022) Report of a pest risk analysis for *Dendroctonus valens*. EPPO, Paris. https://gd.eppo.int/taxon/DENCVA/documents [Last accessed 15 September 2025].

EUFORGEN (2025) *Pinus radiata.* https://www.euforgen.org/species/pinus-radiata [Last accessed 29 June 2025].

Gao B, Wen X, Guan H, Knížek M, Ž?árek J (2005) Distribution and attack behaviour of the red turpentine beetle, *Dendroctonus valens*, recently introduced to China. *Journal of Forest Science* **51**(4), 155–160. DOI: 10.17221/4554-JFS. https://jfs.agriculturejournals.cz/artkey/jfs-200504-0003_distribution-and-attack-behaviour-of-the-red-turpentine-beetle-dendroctonus-valens-recently-introduced-to-chi.php

Hopkins AD (1909) The genus *Dendroctonus*. U.S. Department of Agriculture, Bureau of Entomology L.O. Howard. Washington: Government Printing Office, Technical Series, No. 17, Part I. 232 pp.

FAO (2018) ISPM 15 Regulation of wood packaging material in international trade. Rome, IPPC, FAO. https://www.ippc.int/en/publications/640/

Liu Z, Wang B, Xu B, Sun J (2011) Monoterpene variation mediated attack preference evolution of the bark beetle *Dendroctonus valens*. *PLoS ONE* **6**(7), e22005. https://doi.org/10.1371/journal.pone.0022005

Liu Z, Xu B, Guo Y, Raffa K, Sun J (2017) Gallery and acoustic traits related to female body size mediate male mate choice in a bark beetle. *Animal Behaviour* 125, 41–50. doi: 10.1016/j.anbehav.2017.01.002. https://www.sciencedirect.com/science/article/abs/pii/S0003347217300039

Liu Z, Xu B, Miao Z, Sun J (2013) The pheromone Frontalin and its dual function in the invasive bark beetle *Dendroctonus valens*. *Chemical Senses* 38(6), 485–495. https://doi.org/10.1093/chemse/bjt019

Liu Z-D, Mi G-B, Raffa KF, Sun J-H (2020) Physical contact, volatiles, and acoustic signals contribute to monogamy in an invasive aggregating bark beetle. *Insect Science* **27**, 1285–1297, https://doi.org/10.1111/1744-7917.12715

Lu M, Sun J (2017) Red turpentine beetle *Dendroctonus valens* LeConte. In: Wan F, Jiang M, Zhan A (Eds). Biological Invasions and Its Management in China. Invading Nature. Springer Series in Invasion Ecology, Vol. 11. Springer, Dordrecht. https://doi.org/10.1007/978-94-024-0948-2_11

Lu Q, Decock C, Yao Zhang X, Maraite H (2009) Ophiostomatoid fungi (Ascomycota) associated with *Pinus tabuliformis* infested by *Dendroctonus valens* (Coleoptera) in northern China and an assessment of their pathogenicity on mature trees. *Antonie van Leeuwenhoek* **96**(3), 275–293. https://doi.org/10.1007/s10482-009-9343-6

Mann AJ, Barnum RM, Held BW, Bushley KE, Aukema BH, Blanchette RA (2025) Fungal and bacterial communities of the red turpentine beetle (*Dendroctonus valens* LeConte) in the Great Lakes Region, USA. *Forests* **16**, 1604. https://doi.org/10.3390/f16101604

Owen DR, Smith SL, Seybold SJ (2010) Red turpentine beetle. Forest Insect & Disease Leaflet **55**. 8 pp. https://www.fs.usda.gov/foresthealth/docs/fidls/FIDL-55-RedTurpentineBeetle.pdf

Ramírez-Reyes T, Armendáriz-Toledano T, Cuéllar Rodríguez LG (2023) Rearranging and completing the puzzle: Phylogenomic analysis of bark beetles *Dendroctonus* reveals new hypotheses about genus diversification. *Molecular Phylogenetics and Evolution* **187**, 107885. https://doi.org/10.1016/j.ympev.2023.107885

Salinas?Moreno Y, Mendoza G, Barrios MA, Cisneros R, Macías?Sámano J, Zuniga G (2004) Areography of the genus *Dendroctonus* (Coleoptera: Curculionidae: Scolytinae) in Mexico. *Journal of Biogeography* **31**(7), 1163–1177. http://www.jstor.org/stable/3554813

Sun J, Lu M, Gillette NE, Wingfield MJ (2013) Red turpentine beetle: Innocuous native becomes invasive tree killer in China. *Annual Review of Entomology* **58**, 293–311. https://doi.org/10.1146/annurev-ento-120811-153624

Wang Z, Liang L, Yan S, Wang H, Lu Q (2025) Ophiostomatalean fungi (Ascomycota, Ophiostomatales) associated with *Dendroctonus valens* in Liaoning, China. *Forests* **16**, 299. https://doi.org/10.3390/f16020299

Wei JR, Tang YL, Zhao JX, Yang ZQ (2010) Study on the relationship between growth and environmental temperature of *Rhizophagus grandis* (Coleoptera: Rhizophagidae), an important predator of *Dendroctonus valens* (Coleoptera: Scolytidae). *Forest Research* **23**, 478–481 (in Chinese, with English abstract).

Wood SL (1963) A revision of bark beetle genus *Dendroctonus* Erichson (Coleoptera: Scolytidae). *Great Basin Naturalist* **23**, 1–117.

Yan Z, Sun J, Don O, Zhang Z (2005) The red turpentine beetle, *Dendroctonus valens* LeConte (Scolytidae): an exotic invasive pest of pine in China. *Biodiversity and Conservation* **14**, 1735–1760. https://doi.org/10.1007/s10531-004-0697-9

Zhang L-W, Liu Y-J, Yao J, Wang B, Huang B, Li ZZ, Fan M-Z, Sun J-H (2010) Evaluation of *Beauveria bassiana* (Hyphomycetes) isolates as potential agents for control of *Dendroctonus valens*. *Insect Science* **18**(2), 209–216. https://doi.org/10.1111/j.1744-7917.2010.01361.x

ACKNOWLEDGEMENTS

This datasheet was prepared in 2025 by Dr. Natalia Kirichenko (Sukachev Institute of Forest of the Siberian Branch of the Russian Academy of Sciences, Federal Research Center ‘Krasnoyarsk Science Center SB RAS’ and All-Russian Plant Quarantine Center, Russia). Her valuable contribution is gratefully acknowledged.

How to cite this datasheet?

EPPO (2026) *Dendroctonus valens*. EPPO datasheets on pests recommended for regulation. Available online. https://gd.eppo.int

Datasheet history

This datasheet was first published in the EPPO Bulletin in 2026. It is maintained in an electronic format in the EPPO Global Database. The sections on ‘Identity’, ‘Hosts’ and ‘Geographical distribution’ are automatically updated from the database. For other sections, the date of last revision is indicated on the right.

EPPO (2026) Datasheets on pests recommended for regulation. *Dendroctonus valens. EPPO Bulletin* **56**(1), 91-96 https://doi.org/10.1111/epp.70057