

Ips calligraphus

Scientific Name

Ips calligraphus (Germar, 1824)

Synonyms

Bostrichus exesus Say, 1826

Bostrichus chloroticus Dejean, 1837

Bostrichus conformis Dejean, 1837

Tomicus praemorsus Eichhoff, 1868

Tomicus interstitialis Eichhoff, 1869

Ips ponderosae Swaine, 1925

Common names: Coarse writing engraver, six-spined Ips, six-spined engraver beetle (English)

Diagnostic notes

-Has six spines on the elytral declivity and is similar to *I. apache*. Distinguished from other *Ips* spp. by the presence of three spines after the third declivity spine.

-Potentially sympatric in Arizona and northern Mexico with related and morphologically similar species *I. apache*.

-*I. calligraphus* is often larger (pronotal width 1.3 to 2.5 mm) than *I. apache* (pronotal width 1.3 to 2.1 mm) and striations on the pars stridens are broader (mean values: *I. apache* = 0.9 μm ; *I. calligraphus* = 1.0 μm) (Lanier et al. 1991).

Morphological Summary

females

Body. 3.8-5.9(-6.7) mm long, 2.6-2.9 times longer than wide; pronotum 1.2-1.3 times longer than wide.

Head. Epistomal margin with uniseriate row of tubercles absent or present with elongate mesal tubercle. Frons outline convex in lateral view; vestiture fine (not hiding part of integument); surface sculpture near epistoma densely tuberculate-punctate; central carina present or absent; central tubercle present and single, separated from base of epistomal setae by 2-3 tubercle diameters, without pair of circular tubercles on either side of midline; transverse carina absent; frons central fovea present or absent; circular tubercles above top of eyes present - up to one third of all tubercles. Vertex and pronotum with stridulatory apparatus (pars stridens). Antennal club sutures acutely angulate.

Prothorax. Protibiae with four or five socketed teeth on apical half (does not include apical spine).

Elytra. Interstriae punctate (observed on interstriae 2 and 3 on middle third of elytral disc), punctures 0.3(-0.4) times diameter of adjacent striae punctures (punctures and striae measured at steepest part of puncture wall), interstitial setae longer than width of scutellar shield, interstriae 2-3 times as wide as adjacent striae. Elytral declivity with six spines per side,



Ips calligraphus, male frons



Ips calligraphus, female frons



Ips calligraphus, male declivity

spine 3, 4 or 5 largest; spine 1 (largest on 2nd interstria) closer to suture than spine 2; spines 1 and 2 separated at base by distance greater than height of spine 1; spine 2 closer to spine 3 than spine 1; spine 3 tapered or straight sided with tapered apex, apex acute or right-angled, with apical half symmetrical or asymmetrical in lateral view; spines 2 and 3 not on shared tumescence, not in line with spines 1 and 4 (posterodorsal view); spine 4 closer to spine 3 than spine 5; declivital integument shiny.

males

Body. 3.8-5.9(-6.7) mm long, 2.6-2.9 times longer than wide; pronotum 1.2-1.3 times longer than wide.

Head. Epistomal margin with uniseriate row of tubercles uninterrupted medially or margin with uniseriate row of tubercles with elongate mesal tubercle. Frons outline convex in lateral view; vestiture fine (not hiding part of integument); surface sculpture near epistoma densely tuberculate-punctate or with isolated tubercles; central carina absent; central tubercle present and single, separated from base of epistomal setae by 2-3 tubercle diameters, without pair of circular tubercles on either side of midline; transverse carina absent; frons central fovea absent; circular tubercles above top of eyes present - up to one third of all tubercles. Vertex and pronotum without stridulatory apparatus (pars stridens). Antennal club sutures acutely angulate.

Prothorax. Protibiae with three socketed teeth on apical half (does not include apical spine).

Elytra. Interstriae punctate (observed on interstriae 2 and 3 on middle third of elytral disc), punctures 0.3(-0.4) times diameter of adjacent striae punctures (punctures and striae measured at steepest part of puncture wall), interstitial setae longer than width of scutellar shield, interstriae 2-3 times as wide as adjacent striae. Elytral declivity with six spines per side, spine 3 largest; spine 1 (largest on 2nd interstria) closer to suture than spine 2; spines 1 and 2 separated at base by distance greater than height of spine 1; spine 2 closer to spine 3 than spine 1; spine 3 pedunculate (capitate) or hooked, apex right-angled or obtuse to rounded, with apical half asymmetrical in lateral view; spines 2 and 3 not on shared tumescence, not in line with spines 1 and 4 (posterodorsal view); spine 4 closer to spine 3 than spine 5; declivital integument shiny.

Geographic Distribution

Bahama Islands; Canada (Ontario, Quebec); Dominican Republic; Mexico (Hidalgo, Jalisco, Nuevo Leon); Philippines (introduced); Jamaica; USA (Alabama, Arizona, Arkansas, California, Colorado, Delaware, Florida, Georgia, Indiana, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, West Virginia, Wisconsin, Wyoming).

Hosts

Pinus spp.

Notes

Clade formed by (((*I. apache* + *I. calligraphus*) + *I. lecontei*) + *I. cribricollis*), see Cognato and Sun (2007).



Ips calligraphus, spine 3 of male declivity



Ips calligraphus, female declivity



Ips calligraphus, male lateral habitus

References

- Cognato, A.I. 2015. Biology, systematics, and evolution of *Ips*. In Bark beetles: biology and ecology of native and invasive species. Edited by F.E. Vega and R.W. Hofstetter. Elsevier, San Diego, California. Pp. 351–370.
- Cognato, A.I. and Sun, J.H. 2007. DNA based cladograms augment the discovery of a new *Ips* species from China (Coleoptera: Curculionidae: Scolytinae). *Cladistics*, **23**: 539–551.
- EPPO. No date. Data Sheets on Quarantine Pests: *Ips calligraphus*. European and Mediterranean Plant Protection Organization.
- Wood, S.L. 1982. The bark and ambrosia beetles of North and Central America (Coleoptera: Scolytidae), a taxonomic monograph. *Great Basin Naturalist Memoirs*, **6**: 1–1359.

Internet resources

https://www.barkbeetles.info/regional_chklist_target_species.php?lookUp=1704



Ips calligraphus, male dorsal habitus



Ips calligraphus, female dorsal habitus

Rotatable images of *Ips calligraphus* (Germar 1824)
(click on dorsal habitus images)

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