Ips integer

Scientific Name

Ips integer (Eichhoff, 1869)

Diagnostic notes

-Has four spines on the elytral declivity and its general appearance is similar to *I. pini*.
-sister species to *I. plastographus*, from which is diagnosable (in most specimens) by presence of a frons central carina (or elongate central tubercle) or by evidence (Cognato and Sun 2007).
-Potentially sympatric with *I. plastographus* in temperate forests of western North America.
- *I. plastographus* is mostly restricted to hosts *Pinus contorta* and *P. muricata*.

Morphological Summary

females

Body. (4.1-)4.6-5.7 mm long, 2.5-2.6 times longer than wide; pronotum 1.1-1.2 times longer than wide.
Head. Epistomal 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; central carina present; central tubercle present and single, separated from base of epistomal setae by 2-4 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 - more than one third of all frontal tubercles. Vertex and pronotum with 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 impunctate (observed on interstriae 2 and 3 on middle third of elytral disc), punctures (0.4-)0.5(-0.6) times diameter of adjacent strial punctures (punctures and striae measured at steepest part of puncture wall), interstrial setae longer than width of scutellar shield, interstriae 1-2 times as wide as adjacent striae. Elytral declivity with four spines per side, spine 2 or 3 largest; spine 1 (largest on 2nd interstria) closer to spine 2 than suture or 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, apex acute, with apical half symmetrical in lateral view; spines 2 and 3 on shared tumescence, not in line with spines 1 and 4 (posterodorsal view); declivital integument shiny.

males

Body. (4.1-)4.6-5.7 mm long, 2.5-2.6 times longer than wide; pronotum 1.1-1.2 times longer than wide.
Head. Epistomal margin with uniseriate row of tubercles with elongate

Ips integer, male frons

Ips integer, female frons

Ips integer, male declivity

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; central tubercle present and single, separated from base of epistomal setae by 2-4 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, or more than 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 impunctate (observed on interstriae 2 and 3 on middle third of elytral disc), punctures (0.4-)0.5(-0.6) times diameter of adjacent strial punctures (punctures and striae measured at steepest part of puncture wall), interstrial setae longer than width of scutellar shield, interstriae 1-2 times as wide as adjacent striae. Elytral declivity with four spines per side, spine 3 largest; spine 1 (largest on 2nd interstria) closer to spine 2 than suture or 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), apex acute, with apical half asymmetrical in lateral view; spines 2 and 3 on shared tumescence, not in line with spines 1 and 4 (posterodorsal view); declivital integument shiny.

Geographic Distribution

Canada (British Columbia); Guatemala; Mexico (Chiapas, Chihuahua, Colima, Distrito Federal, Durango, Guerrero, Hidalgo, Jalisco, Mexico, Michoacan, Morelos, Quere´taro, Tamaulipas, Veracruz, Zacatecas); USA (Arizona, California, Idaho, Montana, New Mexico, Oregon, South Dakota, Utah, Washington).

Hosts

Pinus spp.

Notes

I. pini, *I. integer*, and *I. plastographus* form clade (Cognato and Sun 2007).

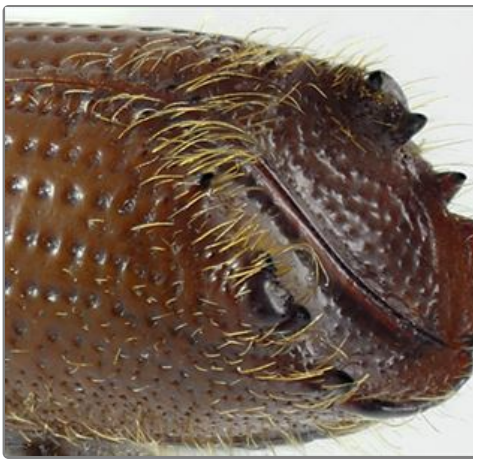
References

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.

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=1712



Ips integer, male declivity, spines broken

Ips integer, female declivity

Ips integer, female declivity, spine 3

Ips integer, male lateral habitus