

Ips borealis borealis

Scientific Name

Ips borealis borealis Swaine, 1911

Synonyms

Ips borealis Swaine, 1911

Diagnostic notes

Species:

- Has four spines on the elytral declivity.
- Potentially sympatric with related species *I. tridens*, *I. pilifrons*, *I. perturbatus* and morphologically similar species *I. pini* (*impunctate*) by the uniseriately punctured discal interstriae.
- Differs from the related species by the even, minute punctures on the upper female frons, and smaller size, 2.6–3.8 mm and from *I. pini* (*impunctate*) by the uniseriately punctured discal interstriae.

Subspecies:

- Diagnosable by morphology of female head only. Female frons glabrous, smooth with sparse minute punctures. Wood (1982) provides more detail on subspecies level diagnosis.

Morphological Summary

females

Body. 2.6-3.8(-4.1) 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 absent or present with gap at midline. Frons outline convex or protruding; vestiture absent (glabrous) or fine (not hiding part of integument); surface sculpture near epistoma smooth - dull; central carina absent; central tubercle absent, 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 absent. Vertex and pronotum without stridulatory apparatus (pars stridens). Antennal club sutures bisinuate.

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 0.3-0.5 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 four 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 tapered or straight sided with tapered apex, apex obtuse to rounded, with apical half symmetrical or asymmetrical in lateral view; spines 2 and 3 on or not on shared tumescence, in line with spines 1 and 4 (posterodorsal view); declivital integument shiny.



Ips borealis borealis, female frons



Ips borealis borealis, male frons



Ips borealis borealis, female declivity

males

Body. 2.6-3.8(-4.1) 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 uninterrupted medially or with gap at midline. Frons outline convex in lateral view; vestiture fine (not hiding part of integument); surface sculpture near epistoma with isolated tubercles; central carina absent; central tubercle absent or present and single, separated from base of epistomal setae by 2-4(-5) tubercle diameters, without pair of circular tubercles on either side of midline; transverse carina absent or present; frons central fovea

present or 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 bisinuate or straight.

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 0.3-0.5 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 four 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 tapered or straight sided with tapered apex, apex acute, right-angled or obtuse to rounded, with apical half symmetrical or asymmetrical in lateral view; spines 2 and 3 on or not on shared tumescence, in line with spines 1 and 4 (posterodorsal view); declivital integument shiny.

Geographic Distribution

Species: Canada (Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland, Northwest Territories, Nova Scotia, Ontario, Prince Edward Island, Quebec, Saskatchewan); USA (Alaska, Colorado, Maine, Michigan, Minnesota, Montana, South Dakota, Wyoming).

Subspecies: Canada (Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland, Northwest Territories, Nova Scotia, Ontario, Quebec, Saskatchewan); USA (Alaska, Colorado, Maine, Michigan, Minnesota, Montana, Wyoming).

Hosts

Picea spp.

Notes

I. borealis, *I. pilifrons*, and *I. tridens* 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.

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.

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=1702



Ips borealis borealis, male lateral habitus