# Ips borealis lanieri

## Scientific Name

*Ips borealis lanieri* Wood, 1974

## 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*.
-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 not protuberant, covered with short sparse pubescence; epistoma with tranverse row of granules.
-Wood (1982) provides more detail on subspecies level diagnosis.

*Ips borealis lanieri*, female frons

*Ips borealis lanieri*, female head, lateral

*Ips borealis lanieri*, male frons

## Morphological Summary

### females

**Body.** 2.6-3.8(-4.1) mm long, 2.4-2.8 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 in lateral view; vestiture fine (not hiding part of integument); surface sculpture near epistoma densely tuberculate-punctate; central carina absent; central tubercle absent, without pair of circular tubercles on either side of midline; transverse carina absent; frons central fovea 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 strial punctures (punctures and striae measured at steepest part of puncture wall), interstrial 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.

### males

**Body.** 2.6-3.8(-4.1) mm long, 2.4-2.8 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 densely tuberculate-punctate or with isolated tubercles; central carina absent; central tubercle absent, 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 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 strial punctures (punctures and striae measured at steepest part of puncture wall), interstrial 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 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.

*Ips borealis lanieri*, female declivity

*Ips borealis lanieri*, male declivity

*Ips borealis lanieri*, male declivity

## 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: USA (Colorado, South Dakota, 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=1703

*Ips borealis lanieri*, female lateral habitus

*Ips borealis lanieri*, male lateral habitus