

*Ips pilifrons* Sw. is entirely distinct from *engelmanni* in its larger size, with the stria punctures very coarse, close and usually quadrate, the frontal tumulus still less elevated, with its cephalic face more oblique, longer, and clothed with extremely dense, short, orange to brownish hairs, resembling the pile on velvet. *Engelmanni* has variations in punctuation, depth of striae and in the stoutness of the third declivital tooth. Ten specimens were dissected, representing all variations, but all were females. The male is thus far unknown. This species is found in the same sticks with *tridens* and, probably through the wandering of the autumn-feeding adults, even in the same tunnels during the winter.

The egg-tunnels were not distinguished from those of *tridens*.

Host trees: *Picea engelmanni*, and probably also *Picea canadensis*.

Distribution: Known to us from the Selkirks and Rockies of central British Columbia and from Alberta.

### *Ips yohoensis*, n. sp.

A species with the pronotal and elytral characters of *tridens* Mannh., but distinct by the characters of the front. The front is very finely and very densely granulate and finely pubescent on the cephalic half, slightly but distinctly transversely elevated behind the epistoma, which is broadly triangularly impressed medially, immediately in front of the elevation, the epistomal margin and the median impression bearing long yellow hairs; the elevation more evidently pubescent than the remainder of the granulate part of the front, with a trace of a smooth median line. The punctuation of the pronotum is usually coarse and close; the elytral striae are usually deeply impressed and coarsely punctured with sparser interstria punctures nearly as large as those of the striae. The male has the front somewhat more strongly granulate and the third declivital tooth usually somewhat longer and more evidently capitate.

Variations in the size of the punctures and in the depth of the striae are found. The median line is in some individuals smooth, shining, sulcate from the epistomal impression to the vertex, and guarded on each by a small tubercle at the summit of the epistomal elevation. A considerable number of our specimens have the front entirely or almost entirely free of pubescence. They were taken from the same sticks as the typical series and are probably abraded.

Host trees.—*Picea engelmanni* and probably *P. canadensis*.

Distribution.—Known to us only from the Yoho valley, British Columbia.

### *Ips hunteri*, n. sp.

Very closely allied to *I. interruptus* Mannh. in size and sculpture, from which it differs most noticeably by the regularly impressed elytral striae, and the feebly granulate first and second elytral interspaces.

The front of the head is convex, opaque, densely granulate with coarser granules intermixed, closely hairy; the club with the first two sutures bisinuate. The pronotum about as wide as long, narrowly rounded in front, slightly wider at hind angles (this character variable); rather finely and densely asperate in front, moderately, not closely punctured behind, more closely and coarsely on the sides. The elytral striae narrow, regularly, distinctly impressed, the sutural striae deeper; the stria punctures small and close; the interspaces finely, uniseriately punctured, somewhat confused and granulate near the declivity, the punctures of interspaces 1 and 2 granulate behind but hardly so on the basal half; the declivity coarsely punctured, not closely, with four spines, the third stout, capitate and acute in the male, more slender and less distinctly capitate in the female.

Described from a series of about 180 specimens collected by Prof. S. J. Hunter, at Creede, Colo., 8,844 ft.