

in diameter: scales nearly twice as broad as long: bracts not exerted. On the higher parts of the Cascade Mountains.

A. nobilis Linell Penny Cyc. i, 30. A very large tree 200-300 feet high and 8-6 feet in diameter, with spreading branches and somewhat rough dark gray or blackish bark: leaves rigid, acute or obtuse, 1-2 inches long, on the lowest branches and on young trees somewhat 2-ranked, flattish and slightly grooved; on the upper branchlets curved upward and covering the upper side, glaucous and keeled on both sides: cones cylindrical-oblong, 5-9 inches long, 2-4 inches in diameter, almost covered by the exerted and reflexed cuneate cuspidate-pointed bracts: scales 12-18 lines wide by 12-15 lines long: seed slender, with a cuneate somewhat retuse wing nearly as long as the scale: cotyledons 7 or 8. Common in the high mountains at 4000-6000 feet elevation, Washington to California.

8 PSEUDOTSUGA Carr. Conf. ed. 2, 256.

Large trees with rough dark brown or whitish bark, flat distinctly petioled evergreen leaves, that are stomatose only on the lower side with 2 lateral resin-ducts close to the epidermis of the lower side, leaving on the branchlets scarcely prominent transversely oval raised scars. Flowers monoecious, from the axils of the previous year's leaves. Staminate flower an oblong or subcylindric column surrounded and partly enclosed by numerous conspicuous orbicular bud-scales: commissure of the anthers terminating in a short spur; the cells opening obliquely by one continuous slit: pollen grains ovate-subglobose. Pistillate flowers with the scales much shorter than the broadly linear acutely 2 lobed long-pointed or aristate bracts. Cones maturing the first year, with persistent scales and exerted bracts. Seeds without resin-vesicles. Cotyledons 6-10.

P. Douglasii Carr. l. c. A large tree 100-300 feet high and 2-15 feet in diameter: leaves linear, mostly obtuse, 8-18 lines long, but slightly if at all 2-ranked, glossy green above, white with a green midnerve beneath: staminate aments oblong-cylindrical, 5-10 lines long: cones oblong to cylindrical, 1-4 inches long: scales 10-14 lines wide, broader than long: bracts 2-3 lines wide, more or less exerted, acutely 2-toothed or lacerate at the apex, the prominent midnerve prolonged into a long subulate awn: seed triangular, convex and reddish-brown on the upper side, flat and white on the lower side, about 8 lines long, with an oblong usually obtuse wing 3-5 lines long. Common from Alaska to Mexico and the Rocky Mountains.

9 TSUGA Carr. Conf. 185.

Large evergreen trees with slender often drooping terminal branchlets and monoecious flowers. Leaves flat or somewhat angled, with a single dorsal resin duct, conspicuously petioled, articulated upon a prominent and at length ligneous persistent base. Staminate flowers a subglobose cluster of stamens in the axils of last years leaves, the long stipe surrounded by numerous bud-scales: commissure of the anthers terminating in a short spur or knob: anther-cells opening transversely by a continuous slit. Pistillate aments terminal on the previous year's branchlets: bracts somewhat shorter than the scales. Cones maturing the first year, pendulous, the scales and enclosed bracts persistent on

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