



Pinus ponderosa Dougl. Ex Laws.

Family: Pinaceae

Ponderosa Pine

Ponderosa pine (*Pinus ponderosa*) is known also as western soft pine, western yellow pine, bull pine, and blackjack pine. Jeffrey pine (*P. jeffreyi*), which grows in close association with ponderosa pine in California and Oregon, is usually marketed with ponderosa pine and sold under that name. The name *ponderosa* refers to ponderous, or heavy, referring to the wood.

Other Common Names: Arizona pijn, Arizona pine, Arizona ponderosa pine, Arizona white pine, Arizona yellow pine, Arizona-tall, big pine, bird's-eye pine, blackjack pine, British soft pine, British Columbia soft pine, British Columbia pine, bull pine, California white pine, California yellow pine, foothills yellow pine, gelb kiefer, gul-tall, heavy pine, heavy-wooded pine, knotty pine, longleaf pine, Pacific ponderosa pine, pin a bois lourd, pin d'Arizona, pin de Bentham, pinabete, pino, pino blanco, pino cenizo, pino chino, pino de Arizona, pino di Arizona, pino giallo, pino ponderosa, pino ponderoso, pino real, pitch pine, **ponderosa pine**, ponderosa pijn, pondosa, pondosa pine, red pine, rock pine, vastamerikansk langbarri tall, western pitch pine, western yellow pine, westerse gele pijn, yellow pine.

Distribution: Widely distributed throughout the Rocky Mountains and mountains of the Pacific coast. Also grows from North Dakota and Montana west to British Columbia and south through Washington, Oregon and southern California east through Arizona and the trans-Pecos area of Texas, north through New Mexico, Oklahoma, Colorado, Nebraska and South Dakota. It also grows in northern Mexico. Major producing areas are in Oregon, Washington, and California. Other important producing areas are in Idaho and Montana; lesser amounts come from the southern Rocky Mountain region and the Black Hills of South Dakota and Wyoming. It has been planted in New Zealand, Australia and South Africa.

The Tree: Ponderosa pine reaches heights of 180 feet, with diameters of 4 feet. It has a pyramidal crown when young, maturing to a flat crown. The trees may live for 300 to 600 years.

General Wood Characteristics: Botanically, ponderosa pine belongs to the yellow pine group rather than the white pine group. A considerable proportion of the wood, however, is somewhat similar to the white pines in appearance and properties. The heartwood is yellowish to light reddish brown or orange and the wide sapwood is nearly white to pale yellow. In young trees, the sapwood can make up over half of the volume, while in older trees, the sapwood may be two inches or more wide. The wood of the outer portions of ponderosa pine of saw timber size is moderately light in weight, moderately low in strength, moderately soft, moderately stiff, and moderately low in shock resistance. Ponderosa pine is moderately weak in bending and in endwise compression. It is straight grained (but can be dimpled on the tangential surface) and has moderately small shrinkage. It is quite uniform in texture and has little tendency to warp and twist.

Mechanical Properties (2-inch standard)

	Specific gravity	MOE x10 ⁶ lbf/in ²	MOR lbf/in ²	Compression		WML ^a in-lbf/in ³	Hardness lbf	Shear lbf/in ²
				Parallel lbf/in ²	Perpendicular lbf/in ²			
Green	0.38	1.00	5100	2450	280	5.2	320	700
Dry	0.42	1.29	9400	5320	580	7.1	460	1130

^aWML = Work to maximum load.
Reference (56).

Drying and Shrinkage

Type of shrinkage	Percentage of shrinkage (green to final moisture content)		
	0% MC	6% MC	20% MC
Tangential	6.2	5.0	2.1
Radial	3.9	3.1	1.3
Volumetric	9.7	7.7	3.2
References: (185, 192).			

Kiln Drying Schedules^a

Conventional temperature/moisture content-controlled schedules^a

Condition	4/4, 5/4 stock	6/4 stock	8/4 stock	10/4 stock	12/4 stock	British schedule 4/4 stock
Standard	T9-C6	T7-A6	T5-A5	T7-A4	T7-A4	L
Antibrown-stain	T7-E6	NA	T7-E5	NA	NA	NA

^aReference (28, 185).

Working Properties: Ponderosa pine works easily with both hand and machine tools. It finishes and glues well, but the presence of knots make painting difficult. It is resistant to splitting when nailed, but is rated average in nail holding ability.

Durability: Ponderosa pine is not durable unless treated with a preservative, under conditions favorable to decay. It is rated as slightly to nonresistant to decay. Can be susceptible to attack by drywood termites, ambrosia (pinhole borer) beetles, longhorn beetles and Buprestid beetles.

Preservation: The sapwood is permeable to preservatives, while the heartwood is moderately resistant to preservative treatments.

Uses: Ponderosa pine is used mainly for lumber and to a lesser extent for piles, poles, posts, mine timbers, veneer, and railroad crossties. The clear wood is especially well suited for millwork, such as window frames, doors, shelving, moldings, sash doors, blinds, paneling, mantels, trim, and built-in cases and cabinets. Lower grade lumber is used for boxes and crates. Much of the lumber of intermediate or lower grades goes into sheathing, subflooring, and roof boards. Knotty ponderosa pine is used for interior finish. A considerable amount now goes into particleboard and paper.

Toxicity: In general, working with pine wood may cause dermatitis, allergic bronchial asthma or rhinitis in some individuals.

Additional Reading and References Cited (in parentheses)

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4. Henderson, F. Y. A handbook of softwoods. London: HMSO; 1977.

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