Stand Density Index

Stand density index (SDI) is a relative measure of stand density the converts a stand's current density into a density at a reference size. Stand density index was present by Reineke (1933) and can be defined as:

$$SDI = TPA \left[\frac{D_q}{10}\right]^{1.605}$$

where **SDI** is Stand Density index, $\mathbf{D_q}$ is the quadratic mean diameter. Quadratic mean diameter is the diameter of average basal area per tree. A number of maximum stand density indices have been proposed for various species. Table 1 list these stand density indices by species and source.

Table 1. Suggested Maximum SDI by species and source. English units are number of 10-inch trees per acre. Metric units are number of 25.5cm trees per hectare.

Species	Maximum SDI (English)	Maximum SDI (metric)	Source
White fir	830	2050	Reineke, 1933
Red fir	1000	2470	Reineke, 1933
Mixed conifer for CA	750	1850	Reineke, 1933
Douglas-fir for WA-OR	595	1470	Reineke, 1933
Douglas-fir for CA	600	1480	Reineke, 1933
Eucalyptus	490	1210	Reineke, 1933
Redwood	1000	2470	Reineke, 1933
Ponderosa Pine	800	1980	Reineke, 1933
Loblolly Pine	450	1110	Reineke, 1933
Longleaf Pine	400	990	Reineke, 1933
Slash Pine	400	990	Reineke, 1933
Slash Pine	450	1110	Dean and Jokela, 1992
Shortleaf Pine	400	990	Reineke, 1933
Upland Oak	230	570	Schnur, 1937
Ponderosa Pine	830	2050	Long, 1985
Lodgepole pine	690	1700	Long, 1985
Douglas-fir	587	1450	Long, 1985
Western Hemlock	790	1950	Long, 1985
Teak	480	1200	Kumar et al., 1995

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Created: October 6, 2013
Last Updated: August 18, 2014

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