UNIVERSITY OF CALIFORNIA PINE STUDY

by W. Douglas Hamilton

The purpose of this study was to observe the performance of several exotic pine species and one hybrid. Also, two lots each of *Pinus halepensis, brutia,* and *eldarica* were compared for habits of growth, form, and color. Insect activity became an item of major concern and was therefore noted.

The planting was made at the University of California Deciduous Fruit Field Station (DFS), San Jose, in April 1971. It was maintained under the supervision of Tom Kretchum, Superintendent of the Station. The plants had been grown from seed and transplanted into one gallon cans at U.C. Davis.

Prior to planting, the level and deep loam soil was disced, irrigated, and furrowed. The planting was made on the ridges and the furrow were irrigated as needed. No fertilizer was added at any time. Weed oil was used for weed control. The planting started with eight plants per lot and was thinned to half that number in 1975. The plants were rated for injury following the December 1972 freeze and for their recovery eight months later in August. There were no observed effects on the pines at either time. Here are summaries on habit and growth rates:

Pinus rigida Mill. Prostrate the first three years. Became erect in the fourth year and is an attractive single trunk, short needle pine.

Pinus pinaster Ait. Slow growing the first two years after planting; quadrupled in height in the third season; has spreading branches and appears well adapted (healthy, vigorous). Very distinctive tree with red buds and very long and coarse needles.

Pinus nigra Arnold. Slow growing the first three seasons, but doubled its growth in the fourth. Its width nearly equals its height.

Pinus resinosa Ait. Died of unknown causes in the first year.

Pinus jeffreyi × *coulteri hybrid.* Grew slowly the first three seasons; has long grey-green needles with a *P. jeffreyi* form.

Pinus halepensis Mill. The two lots did not noticeably differ in form or appearance and were typically *P. halepensis.* They grew rapidly after the second season.

Pinus brutius Ten. Lot. 69.784 grew in height and appearance very similarly to *P. eldarica*; grew slowly the first two seasons, then rapidly. Lot 69.372 was a typical *P. halepensis.*

Pinus eldarica Medwed. Both lots appeared similar in all respects; blue-dark green needle color and a compact habit of growth; ideal for Christmas tree use. They grew more rapidly after the first year than *P. halepensis* and *P. brutia* in this study. In comparison with *P. halepensis, P. eldarica* appears similar except for the darker green needle color and the more compact less rangy habit of growth. *P. eldarica* appears to be more sensitive to Sequoia pitch moth than *P. halepensis.*

Insect Activity

The activity of several kinds of insects was noted in this closely-spaced planting (6′ × 8′). In the first seven years, no trees died from insect damage, but on some, pitch globs were numerous from Sequoia pitch moth, *Synanthedon sequoiae* (Edwards), needles were discolored from mite injury and white pine needle scale, *Phenacaspis pinifoliae* (Fitch) and were not difficult to see.

Bark boring activity caused by *dioryctria sps.* was observed on the basal part of the densely foliated young tree trunks in 1973, 1974, and 1975 on the two lots each of *Pinus brutia* and *Pinus eldarica.* Attacks on *Pinus halepensis* in 1974 were unsuccessful. *Dioryctria* was not observed on any other pine in the planting.

Sequoia pitch moth infestations were observed several years after planting on *P. pinaster* and on all lots of *P. halepensis, brutia* and *eldarica,* but not on others.

Pine needle scale was observed on *P. pinaster, P. jeffreyi* × *coulteri* hybrid, both lots of *P. halepensis,* the 69.784 lot of *P. brutia* and both

lots of *P. eldarica;* others were not affected.

Pine aphis was observed only on the new growth of *P. jeffreyi* × *coulteri* hybrid during the first season only.

Adelgids (pine bark aphids) were observed on *P. pinaster* and all lots of *P. brutia* and *P. eldarica.* They were not apparent on the others.

Oligonychus mites were observed on *P. rigida* and all lots of *P. halepensis, P. brutia* and *P. eldarica.*

Table 1. Name, origin and height

Botanic Name	*Common Name*	*Native Location*	*Seed Source*	*Height (Ft.) @ DFS at end of fifth season*
Pinus rigida	Northern Pitch Pine	Eastern U.S.	Montreal Bot. Garden	4.7
Pinus pinaster	Cluster Pine	Western Mediterranean	Combra, Portugal	13.2
Pinus nigra var. carmanicz	Austrian pine	Balikesir, Turkey @ 3500 ft. elev.	USFS Placerville	4.0
Pinus resinosa	Red pine	Eastern U.S.	Montreal Bot. Garden	died
Pinus jeffreyi × coulteri	—	*Eastern Sierras* × So. Calif. Mts.	USFS Placerville	8.75
Pinus halepensis (69.370)	Aleppo	Mediterranean Yugoslavia @ 1650 ft. elev.	USFS Placerville	16.5
Pinus halepensis (69.371)	Aleppo	Yugoslavia @ 500 ft. elev.		16.5
Pinus brutia (69.372)	—	Mediterranean Turkey @ 2100 ft. elev.	USFS Placerville	10.5
Pinus brutia (69.784)		Afghanistan		17.25
Pinus eldarica (69.367)	—	Middle East Iran @ 3950 ft. elev.	USFS Placerville	15.2
Pinus eldarica (69.368)		Iran @ 4320 ft. elev.		14.7

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ABSTRACT

Smith, Alice U. 1979. **Vines, problems solvers in the landscape.** Landscape Industry 24(2): 46-47.

Vines are especially useful in solving planting problems because their often rampant growth can be easily trained in so many delightful ways, so that they enhance as well as being able to cover. Vines are useful in conserving energy and cutting out glare, by keeping walls cool and shaded in hot weather. Gazebos have become popular garden structures and they are just made for vines. Nothing can beat vines for providing quick privacy. The functional plain look of garages and carports needs softening and vines are a perfect solution. Some vines make excellent ground covers. Fences are obvious places to show off colorful vines especially climbing roses. Turn to vines for help in adding color, inspiration and charm to your plantings.