

## PINUS HARTWEGII IN HONDURAS

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Four species of Pinus, pine, have been recorded from Honduras, near the southern limit of this genus in the New World in Nicaragua. A fifth, Pinus hartwegii Lindl., is noted here.

In his article on the conifers of Honduras, Antonio Molina R. (Coníferas de Honduras. Ceiba 10: 5-21, illus. 1964) has described these four species, summarized their geographic distribution, and prepared a key for their identification. The three which extend into Nicaragua are widespread, occupying mainly different but overlapping altitudinal zones. According to Molina, Pinus caribaea Morelet (var. hondurensis Barrett & Golfari) is found between 20 and 900 meters. The most widely distributed species, P. occarpa Schiede, grows at 600 to 1,700 m. P. pseudostrobus Lindl. is confined to higher mountains from 1,600 to 2,300 m.

The fourth, Pinus ayacahuite Ehrenb., is known from Honduras only on Cerro Santa Bárbara, from 1,800 m. to the summit at 2,750 m. (9,300 ft., or 2,835 m., on one map). Its discovery during the difficult ascent in April 1951 was described by Paul H. Allen (The conquest of Cerro Santa Bárbara, Honduras. Ceiba 4: 253-270, illus. 1955). That mountain, perhaps the second highest in the country, is located in northwestern Honduras between Santa Bárbara and Lake Yojoa.

On the summit of Cerro Santa Bárbara, Allen found a strange relic forest in which the following conifers were dominant, making up the bulk of the stand: Abies guatemalensis, Cupressus lindleyi [C. lusitanica], "Pinus pseudostrobus," P. ayacahuite, and Taxus globosa. Though not stated, four of these conifers probably were first records for Honduras. He mentioned also P. pseudostrobus as probably the pine observed on a hill summit at lower altitude.

In January 1965, I made a brief study of pines in Honduras. Several areas were examined where many trees had been killed during the destructive epidemic of the southern pine beetle or bark beetle or gorgojo del pino (Dendroctonus frontalis Zimm.). All three common species of pine were attacked by these insects. At the time I was employed as consultant in dendrology and professor in the forestry program of the Interamerican Institute of Agricultural Sciences, Turrialba, Costa Rica, with a special Fund Mission of the Food and Agriculture Organization of the United Nations.



The record of Pinus hartwegii Lindl. is based upon my examination of the following specimen in the large herbarium of Escuela Agrícola Panamericana (EAP) at Zamorano near Tegucigalpa: Paul H. Allen, Robert Armour, and Alphonse Chable 6096, Cerro Santa Bárbara, Depto. Santa Bárbara, Honduras, April 5-6, 1951. The label adds that it was a tree to 150 ft. (45 m.) frequent on summit, altitude 2750 m. As reported above, this specimen was labeled P. pseudostrobus Lindl. However, another visitor had annotated it as P. montezumae Lamb.

The specimen has stiff, moderately stout needles 5 in a fascicle, 1.0-1.1 mm. broad (dry), 15-20 cm. long (slightly long for this species), with 3 medial resin canals in cross section; stout twigs 8-13 mm. in diameter; and 2 sessile dark-colored cones 7-8 cm. long and 5-6 cm. broad (open), with dark brown, horizontally keeled apophysis and slightly raised blackish umbo.

Pinus hartwegii Lindl., as interpreted here, includes P. rudis Endl. Paul C. Standley and Julian A. Steyermark (Flora of Guatemala Pt. 1, pp. 48-50. 1958) stated that the pine of higher elevations in Guatemala (as Pinus montezumae var. rudis (Endl.) Shaw) was not easily distinguishable at lower elevations from typical P. montezumae. The Honduran specimen is intermediate in needle length but has the smaller, dark-colored cones of the former.

Pinus hartwegii and P. ayacahuite (but not P. montezumae) are known also from the summit of the highest peak in El Salvador, altitude about 2,800 m. (9,200 ft.) and located near the Honduras boundary about 125 km. southwest of Cerro Santa Bárbara. Both should be sought on Cerro Pacayas, altitude about 2,865 m. (9,400 ft.). The last named peak, apparently the highest in Honduras, is between the other two.

The range extension of Pinus hartwegii from El Salvador to Cerro Santa Bárbara is not unexpected, as P. ayacahuite has the same disjunct distribution pattern. The geographic distribution of all these species of Pinus has been mapped by William B. Critchfield and Elbert L. Little, Jr. (Geographic distribution of the pines of the world. U.S. Dept. Agr. Misc. Pub. 991, 97 pp., maps. 1966).

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