

Floras from the Late Jurassic of Northeastern Thailand

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Non-marine Jurassic outcrops occur predominantly in northeastern, but also in northern, eastern, and southern Thailand. In the northeast, the Phu Kradung Formation is considered to be Late Jurassic or possibly Early Cretaceous in age. Although animal fossils from this formation have been rather extensively collected and studied, fewer plant remains have been studied. A large silicified trunk of *Araucaryoxylon* sp. (= *Agathoxylon* sp.) was described by Srisuk in 2000. Four species of conifer wood were described by Philippe et al. in 2004: *Agathoxylon saravanensis*, *Brachyoxylon boureaui*, *B. orientale*, and *B. sp.* Wang and colleagues in 2004 reported wood of *Araucaryoxylon* and *Protocedroxylon*. Additional fossils have been collected of fragments of fern fronds, a conifer twig, and possible pteridosperm reproductive structures. Palynomorphs, including *Cyathidites*, *Baculatisporites*, and *Corollina*, were reported by Racey and colleagues in 2004. To increase the knowledge of Jurassic plants, additional fossils, including silicified wood, were collected from Nakhon Ratchasima province in the southern part of Northeast Thailand. The wood was found to comprise at least two types of conifers. The first type has uniseriate rays composed of parenchyma and reaching a height of at least 17 cells. The radial pitting on the tracheids is mostly uniseriate with contiguous or slightly separated rounded bordered pits. Some radial pitting is biseriate for part of the length of the tracheid with opposite or subopposite pits. The crossfields appear to bear up to approximately 6 small pits. This wood type is thought to have affinity with *Brachyoxylon*. The second wood type has uniseriate parenchymatous rays. The pitting of the radial wall of the tracheids is variable. Most tracheids have two rows of alternately arranged pits that are rounded or polygonal, although some have three rows. Some tracheids have two rows of opposite squarish pits, and others have single rows of rounded contiguous or slightly separated pits or compressed pits. Pits were not observed in the crossfields. This wood type can be placed into *Agathoxylon*. Lack of clear annual rings in the wood specimens suggests a climate without strong seasonal variation.