

Assembling coniferous plants from Mexico based on reproductive and vegetative organs

Huerta Vergara, A.R.^{1,*} and Cevallos Ferriz, S.R.S.²

1) Posgrado en Ciencias de la Sostenibilidad, Instituto de Ecología, UNAM, CDMX, Mexico,

*E-mail: alma12136@hotmail.com

2) Instituto de Geología, UNAM, Mexico DF, Mexico

Little is known from Mexican Cretaceous floras, but since the 1970's sporadic reports suggest they were an important component of the vegetation. In the last decade material from the Lower Cretaceous Sierra Madre Formation, Chiapas, and Upper Cretaceous, Cabullona Group, Sonora, have yield well preserved vegetative and reproductive organs, some in organic connection. Recently, members of Cupressaceae and Podocarpaceae from Chiapas have been described based on leafy twigs, and ovuliferous cones. Their systematic affinity was further explored through a cladistic analysis (GÓNZALEZ-RAMÍREZ, 2017). Presence of a member of the Cheirolepidaceae is proposed based on leafy twigs that carry a mature cone. Isolated leaves further suggest the presence of a different member of Podocarpaceae, and a probable Araucariaceae plant, but cuticle (not well preserved in the material so far collected) studies are needed to confirm their systematic position. From Sonora a leafy twig and an ovuliferous cone support the presence of a Pinaceae plant, and their morphology and anatomy suggest that both may be members of a plant representing an extinct section of *Pinus*, if their match to the same plant is proved. The proposed plant reconstructions based on the associations of leafy twigs and ovuliferous cones is greatly improved by their association with recently collected twigs holding pollen cones in both localities. Those from Chiapas further support the presence of extinct Cupressaceae plants, while the material from Sonora further supports the presence of Pinaceae. The extinct fossil plants represent taxa that formed part of the conifer vegetation of low latitude North America. Their relative importance, measured as their dominance in the collection effort, suggest that at that time Cupressaceae were dominant in the vegetation, and that only in recent time Pinaceae became the dominant element among coniferous vegetation in Mexico. Further work in the area will help to construct a continuous account of coniferous vegetation in Mexico, and establish biogeographic relationships among lineages involved in this history.

GONZÁLEZ-RAMÍREZ, I.S., 2017. Diversidad de coníferas fósiles... M.Sc. Thesis, UNAM, Mex.