

case in Kon Kon-1. Spore-pollen species diversity is high, and specimens are well preserved. In contrast, specimens are much less well preserved and the species diversity is reduced in the sidewall core from 3900 feet. The assemblage contains *Tricolporites delicatus*, *Proteacidites recavus*, *Nothofagidites falcatus* and *Gothanipollis* sp., and the presence of these forms (all rare) coupled with the low species diversity, which appears to be characteristic of the basal part of the Lower *Nothofagidites asperus* zone, justifies assignment to this zone.

The co-occurrence of *Proteacidites aperopolus* and *P. pachypolus*, plus the first (oldest) appearance of *Nothofagidites asperus* in the sample from 3950 feet are the basis for placing this sample in the *Proteacidites asperopolus* zone. Species diversity is moderate, although there is a noticeable reduction in the abundance of specimens of *Nothofagidites* spp. Preservation is fair and no microplankton occur in the sample.

Assemblages indicative of the *Malvacipollis diversus* zones occur between 4210 and 4480 feet. Following the tripartite subdivision proposed by Partridge (1973) for this Early Eocene part of the section, the samples from 4210 and 4310 feet are assigned to the Upper *Malvacipollis diversus* zone because of the presence of *Myrtaacidites tenuis* and *Kuylisporites waterbolkkii*, plus the oldest occurrences of *Proteacidites pachypolus*, *P. crassis* and *Santalumidites cainozoicus* in this interval. Except for a few poorly preserved dinoflagellate fragments at 4310 feet, the interval lacks microplankton. In contrast, the samples between 4437 and 4480 feet contain abundant microplankton, except for the coal at 4445 feet. The oldest occurrences of *Beaupraeidites elegansiformis/verrucosus* and *Simplicipollis meridianus* (the large form, not the small type that occurs commonly in the *Tricolporites lilliei-Tricolpites longus* interval) are in this interval which is assigned to the Middle *Malvacipollis diversus* zone. This assignment, however, is based more on the microplankton owing to the prevalence of dinoflagellates at 4437 feet and the obvious ecological bias of the coal sample at 4445 feet. Significant forms of dinoflagellates from 4437 feet include *Kenleyia leptocerata*, *Cordosphaeridium bipolare*, *Muratodinium fimbriatum*, a new species of *Wetzeliella* similar to *W. quadrata* Fairchild, and *W. hyperacantha*.

Most of the dinoflagellate species at 4437 feet occur also in the samples from 4460 and 4480 which contain additionally *Achomosphaera septata* and have *Wetzeliella homomorpha* as the dominant peridinioid dinoflagellate. The samples also have the oldest occurrences of the spore-pollen species listed below, all of which begin in the Lower *Malvacipollis diversus* zone.

*Spinizonocolpites prominatus*  
*Proteacidites lapis*  
*Proteacidites pseudomoides*  
*Cupanieidites orthoteichus/major*  
*Crassiretiritriletes vanraadshoovenii*  
*Intratriporopollenites notabilis*  
*Polycolpites esobalteus*