

## Accepted Manuscript

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PII: S0034-6667(17)30259-2  
DOI: doi:[10.1016/j.revpalbo.2018.05.003](https://doi.org/10.1016/j.revpalbo.2018.05.003)  
Reference: PALBO 3958  
To appear in: *Review of Palaeobotany and Palynology*  
Received date: 17 November 2017  
Revised date: 1 April 2018  
Accepted date: 19 May 2018

Please cite this article as: Vera A. Korasidis, Malcolm W. Wallace, Barbara E. Wagstaff, Stephen J. Gallagher, Jackson C. McCaffrey, Tony Allan, Sid Rastogi, Michael-Shawn Fletcher , New age controls on Oligocene and Miocene sediments in southeastern Australia. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Palbo(2017), doi:[10.1016/j.revpalbo.2018.05.003](https://doi.org/10.1016/j.revpalbo.2018.05.003)

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**New age controls on Oligocene and Miocene sediments in southeastern Australia**

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**Key words:** biostratigraphy, palynology, Latrobe Group, Torquay Group, Oligo-Miocene

**Abstract**

The Cenozoic spore-pollen zonation scheme of southeastern Australia is used to constrain the ages of marine and terrestrial strata throughout Australasia. New palynological, strontium isotope and foraminiferal data from the Torquay and Gippsland basins in southeastern Australia are here used to revise and chronologically calibrate the Oligocene and Miocene portions of this scheme. The revised age assigned to the Upper *Nothofagidites asperus*/Lower *Proteacidites tuberculatus* zonal boundary is 30.5-31.2 Ma, the Lower/Middle *P. tuberculatus* zonal boundary is 23.03 Ma, the Middle/Upper *P. tuberculatus* zonal boundary is approximately 21.1 Ma and the Upper *P. tuberculatus*/*Triporopollenites bellus* zonal boundary is 17.54 Ma. This revision confirms that a near-continuous Early Miocene neritic sequence is present in the Torquay Basin. The new ages also suggest that the timing of coal seam deposition in the Latrobe Valley was episodic, rather than continuous as has previously been interpreted. We propose that abrupt changes in moisture content across seam boundaries are associated with stratigraphic gaps. The new age controls facilitate more accurate

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