



APG Consultants

Palynostratigraphic Data

Casterton #1 (*reinterpreted from Price, 1998*)
651/01

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Sample Sample number Depth Preparation Num.	Palynostratigraphic Unit Palynofacies [<i>Index Taxa</i>]	Inferred Lithostratigraphic Unit (<i>Log Interpreted Unit</i>)	Inferred Deposition Environment (<i>Lithology</i>)	Palynomorph			Remarks
				Preservation	Yield (<i>Org Yield</i>)	Diversity	
Core 614.5m	APK4 - APK5 ?APK4 <i>C. hughesii, D. speciosus, P. notensis, C. striatus</i>	Eumeralla Formation					Not examined in this study; assemblage data form Morgan, 1988
Core 617.8m	APK4 - APK5 ?APK4 <i>C. hughesii, D. speciosus, P. notensis, C. striatus</i>	Eumeralla Formation					Not examined in this study; assemblage data form Morgan, 1988
Core 740.7m	APK31 - APK321 ?APK321 <i>C. variabilis, P. notensis, F. asymmetricus M. evansii</i>	Eumeralla Formation					Not examined in this study; assemblage data form Morgan, 1988
Core 1096.1m	APK31 - APK321 ?APK321 <i>C. variabilis, P. notensis, F. asymmetricus M. evansii</i> (notable)	Eumeralla Formation					Not examined in this study; assemblage data form Morgan, 1988 <i>M. evansii</i> common
Core 4 s6562 3598ft (1096.67m) P19348	APK321 - APK32 lower APK321 <i>Pilosporites - Cyathidites</i> Palynofacies [<i>M. evansii, P. notensis, P. "neograndis", P. ingramii, P. parvispinosus M. florida, C. hughesii, F. wonthaggiensis, M. evansii</i> (notable)]	lower Eumeralla Formation (<i>Eumeralla Formation</i>)	Fluvial - lacustrine <i>Sandstone, med grnd & Siltstone, gm gry</i>	Fair	High <i>0.08mL/5mL Extremely low</i>	High	Palynoflora moderately diverse dominated by vascular cryptogams. Fern spores prominent; mostly <i>Cyathidites</i> and <i>Osmundacidites</i> ; <i>Pilosporites</i> notable. Lycopod spores conspicuous and moderately diverse; mostly <i>Retitriletes</i> . Bryophyte spores notable; mostly <i>Aequitriradites</i> . Saccate pollen and inaperturate pollen conspicuous but mostly unidentifiable remnants; <i>Microcachryidites</i> notable. Algal spores notable; mostly <i>Leiotriletes</i> and <i>M. evansii</i>



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				Preservation	Yield (<i>Org. Yield</i>)	Diversity	
Core 4 s6563 3601ft 1097.58m P19349	APK321 - APK32 lower APK321 <i>Pilosporites</i> - <i>Cyathidites</i> Palynofacies [<i>P. notensis</i> , <i>P. ingramii</i> , <i>P. "neograndis"</i> , <i>P. parvispinosus</i> , <i>C. hughesii</i> , <i>F. wonthaggiensis</i> , <i>M. evansii</i>]	lower Eumeralla Formation (<i>Eumeralla Formation</i>)	Fluvial - lacustrine <i>Siltstone, gm gry</i> <i>Sandstone, med gmd</i>	Fair	High <i>0.17mL/5mL</i> Very low	High	Palynoflora moderately diverse dominated vascular cryptogams. Fern spores prominent; mostly <i>Cyathidites minor</i> and <i>Osmundacidites</i> . <i>Pilosporites</i> notable. Lycopod spores notable but moderately diverse; mostly <i>Retitriteles</i> . Bryophyte spores notable; mostly <i>Aequitriradites</i> . Saccate pollen and inaperturate pollen notable but mostly unidentifiable remnants; <i>Microcachryidites</i> notable. Algal spores notable; mostly leiospheres (in fine fraction); <i>M. evansii</i> scarce. [Record of <i>P. notensis</i> at about 1350m ? from cuttings ? Evans 1966]
<p style="text-align: center;">Sample Gap Windermere Sandstone ("basal Eumeralla") 1160m Crayfish (? upper Laira Formation) 1218m</p>							<i>The absence of palynological samples over the Eumeralla - Laira transition precludes the recognition of the APK22 - APK31 "basal Eumeralla" interval and the tentative APK212 upper Laira section thought to present in Gordon, Digby and Mocambo #11. The presence of P. notensis in cuttings at 1350m may support the presence of the APK22 - APK31 section but, on the basis of the present correlation, its occurrence at this level is considered to be contamination.</i>
Core 8 s6564 4508ft 1374.04m P19350	APK12 - APK31 probably Upper APK122 - Lower APK21 very tentatively Upper APK122 <i>Osmundacidites</i> Palynofacies [<i>C. hughesii</i> , <i>M. evansii</i> (abundant)]	basal Laira Formation or upper Pretty Hill Sandstone (<i>Laira Formation</i>)	Fluvial - lacustrine <i>Siltstone, gm gry</i>	Fair Stained	Low <i>0.16mL/5mL</i> Very low	Low	Unoxidised residue only. Palynoflora dominated by bisaccate pollen remnants. Spores prominent; mostly fern spores (mostly <i>Osmundacidites</i> ; and <i>Cyathidites minor</i>); <i>Contignisporites spp</i> notable and modestly diverse. Algal spores notable; mostly <i>Microfaster evansii</i> . <i>This association has some of the characteristics of the APK21 associations (a common occurrence of M. evansii and prominence of fern spores) of Gordon, Mocambo and Digby but lacks the bryophyte component.</i>
Pretty Hill Formation 1420m							
Core 8 s6565 4509ft 1374.34m P19351	Upper APK122 - APK21 tentatively Upper APK122 <i>Cyathidites</i> Palynofacies [<i>C. hughesii</i> , <i>D. speciosus</i> , <i>M. evansii</i> , <i>A. spinulosus</i> , <i>C. equalis</i>]	basal Laira Formation or upper Pretty Hill Sandstone (<i>Pretty Hill Formation</i>)	Fluvial - lacustrine <i>Mudstone, dk brwn gry</i>	Fair - poor thin but entire and not corroded; predepositional oxidisation	Very high <i>0.63mL/5mL</i> Moderate	Low	Specialised palynoflora restricted in diversity. Fern spores dominant; mostly <i>Cyathidites minor</i> , <i>Osmundacidites wellmanii</i> conspicuous; other spore taxa represented as only a minor component. Bisaccate pollen conspicuous; mostly <i>Alisporites</i> ; very few Podocarp forms represented. Cheirolepidiacean pollen notable. Few aquatic spores; mostly leiospheres (in fine fraction); isolated <i>Microfaster evansii</i> <i>A Cyathidites</i> palynoflora is unusual in APK1 but this association lacks the <i>Ruffordiaspora spp</i> or Bryophyte diversity of the APK31 - APK22 <i>Cyathidites</i> dominated palynofloras.



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				Preservation	Yield (<i>Org. Yield</i>)	Diversity	
Core 1819.1m	APK122 - APK21 probably APK122 <i>D. speciosus</i>	basal Laira Formation or upper Pretty Hill Sandstone (<i>"Sawpit Sandstone", Pretty Hill Formation</i>)					Not examined in this study; assemblage data from Morgan, 1988
Sample Gap							
Core 14 s6569 6398ft 1950.11m P19355	APK121 - APK21 tentatively APK12 Conifer Palynofacies [<i>C. equalis, M. florida, C. hughesi</i>]	basal Laira Formation or upper Pretty Hill Sandstone (<i>"Sawpit Sandstone", Pretty Hill Formation</i>)	Fluvial <i>Siltstone, dk gry</i>	Poor thin corroded	Low - moderate <i>0.15mL/5mL Very low</i>	Low	Palynoflora dominated by bisaccate pollen remnants; mostly <i>Alisporites</i> . Spores sparse and restricted in diversity; mostly <i>Cyathidites</i>
Sample Gap Sawpit #1 "basal shale unit" 1960m McEachern Sandstone 2072.0m							
Core 15 s6577 6765ft8in 2062.18m P19356	Indeterminate	Indeterminate <i>McEachern Sandstone Mbr, Pretty Hill Formation</i>)	Indeterminate <i>Sandstone, silty gry, carb lam</i>	Poor	Almost nil <i>0.08mL/5mL Extremely low</i>	Almost nil	Unoxidised residue only. Organic residue mostly opaque humic palynodebris. Few cuticle and saccate pollen remnants. Isolated spores; isolated spinose acritarch. The few identifiable palynomorphs may represent extremely minor contamination.



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				Preservation	Yield (<i>Org. Yield</i>)	Diversity	
Core 15 s6586 6767ft6ins 2062.73m P19357	APK122 - APK2 probably APK122 <i>Osmundacidites</i> - <i>Retitriteles</i> Palynofacies [<i>D. speciosus</i> , <i>C. equalis</i> , <i>M. florida</i>]	basal Laira Formation or Pretty Hill Formation (<i>McEachern Sandstone Mbr</i> , <i>Pretty Hill Formation</i>)	Fluvial <i>Mudstone, dk gry</i>	Poor stained, some fragmented & corroded	Very low <i>0.01mL/5mL</i> <i>Extremely low</i>	Low	Unoxidised residue only. Sparse palynoflora dominated by fern spores; mostly <i>Osmundacidites</i> ; Lycopod spores (mostly <i>Retitriteles</i>) notable. Saccate pollen conspicuous; mostly fragmented remnants. Few leiospheres in fine fraction. Morgan, 1988 records <i>C. hughesii</i> at 2063.2m <i>This is one of the few reliable dates from within the McEachern Sandstone in this region; it demonstrates that the APK122 interval extends at least to about the same distance above the Casterton Formation as it does in Sawpit #1.</i>
Sample Gap Casterton Formation 2225m							
Core 18 s6587 7368ft 2245.77m P19358	APJ6 - APK2 tentatively APK11 Casterton Palynofacies [<i>C. equalis</i>]	Casterton Formation (<i>Casterton Formation</i>)	Fluvial - lacustrine <i>Siltstone, dk gry</i>	Extremely poor diffuse, corroded stained	High <i>0.36mL/5mL</i> <i>low</i>	Very low	Oxidised organic residue mostly diffuse corroded cuticle, saccate pollen and inaperturate pollen (and or possible leiospheres) fragments; very few identifiable. Spore remnants extremely scarce.
Core 18 s6588 7388ft 2251.86m P19359	APJ62 - APK2 tentatively APK11 Casterton Palynofacies [<i>C. equalis</i>]	Casterton Formation (<i>Casterton Formation</i>)	Fluvial - lacustrine <i>Mudstone, brwn blk, few leaf rem</i>	Extremely poor diffuse, corroded stained	High <i>0.23mL/5mL</i> <i>Very low</i>	Very low	Oxidised residue dominated by diffuse corroded cuticle and inaperturate pollen fragments; saccate pollen remnants notable. Spores very scarce and restricted; mostly <i>Cyathidites</i> .
Core 18 s6589 7392ft 2253.08m P19360	APJ62 - APK2 possibly APK11 Casterton Palynofacies [<i>?C. quasihughesii</i>]	Casterton Formation (<i>Casterton Formation</i>)	Fluvial - Lacustrine <i>Siltstone, dk grey; few leaf rem.</i>	Extremely poor diffuse, corroded stained	High <i>0.21mL/5mL</i> <i>Very low</i>	Very low	Oxidised residue dominated by diffuse corroded cuticle and / or inaperturate pollen fragments; very few identifiable. Spores very scarce and restricted; mostly <i>Cyathidites</i> .

