A multimethodological approach to reconstruct the processes and environmental implications of Late Quaternary Parna deposition in South-Eastern Australia

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# ABSTRACT

Sedimentary sequences with major aeolian dust contribution blanket the flat to hilly landscapes of eastern New South Wales. The identification of these clay-rich sediments in the Riverine Plain and adjacent hills led Butler (1956) to introduce the term Parna. Defined by its distinct properties and wide distribution, it is thought to be fine grained sediment produced by exogenic processes and transported as stable aggregates by the prevailing westerly winds during the Quaternary. Likely source areas for Parna are primarily arid and semi-arid river and lake systems of the western Murray-Darling-Basin. While the concept and terminology of Parna has been the subject of critical discussion for many years, follow-up research regarding outstanding questions has been limited. Especially absolute dating of the aeolian sequences has been restricted to only a few sites.

Given the complexity of the Parna sequences, we present a multimethodological approach combining field observations, grain size analysis, geochronological and geochemical methods to investigate the processes of deflation and transport, time frames of sedimentation and sediment provenance. We will present results of optically stimulated luminescence (OSL) dating, showing luminescence properties and ages for the Brucedale site (Beattie 1972) reaching back 150,000 years. Sedimentological parameters are used to distinguish between material derived from local hillslope and aeolian input. Geochemical characteristics will help to trace sources and pathways of the aeolian material. The results for this type location for Parna contribute to the understanding of Quaternary landscape development and environmental conditions in south-eastern Australia.

# REFERENCES

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