

## Dust down under I: Hunting for parna pellets

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The best-known aeolian soil parent material in eastern Australia is the so-called parna of southern NSW and northern Victoria. Parna deposits are believed to have formed during arid phases of the Pleistocene and the mineral constituents are assumed to have been transported as silt- and fine sand-sized pellets of calcareous clay, with some companion quartz grains of a similar size.

A common property of parna-derived soils is subplasticity, where the apparent field texture grade becomes more clayey with increasing mechanical working of the bolus. This propensity for subplastic behaviour suggests that parna-derived soils contain stable silt- and fine sand-sized pellets of clay, yet there has been little direct micromorphological evidence of these pellets ever published.

Here, thin section samples from a number of parna type-sites in southern NSW have been examined micromorphologically, to reveal the presence of very well size-sorted quartz grain populations (companion grains), and, in the drier locations, identifiable prolate clay aggregations of a similar silt to fine sand size. Where these pelletal aggregations are not evident, such as in the older parna deposits and in the wetter locations, abundant illuviation features suggest that clay particles deposited within the parna, whether as pellets or coatings on grains, have subsequently undergone considerable weathering and a range of pedogenic processes.

A complicating factor in the positive identification of parna pellets is that faecal pellets of soil mesofauna are often of a similar size and colouration, and similar morphologically. Nevertheless, the apparent ubiquity of the silt-sized pellets in parna soils, and the presence of these outside obvious faunal chambers and pores, suggests that the majority of these features are not of biologic origin.