



Landscape— Level to gently undulating floodplains, terraces and minor aeolian deposits on Quaternary alluvium and scattered relict Tertiary gravel deposits east of Canberra. Slopes <3%, local relief <3 m, elevation 560 - 590 m. Mostly cleared woodland, open-woodland and grassland.

Soils— Deep (>100 cm), moderately well-drained Red Kandosols (Red Earths) on upper terrace elements. Deep (>100 cm), moderately well-drained Brown Kandosols (Yellow Earths) on lower terrace elements. Deep (>100 cm), imperfectly drained Stratic Rudosols (Alluvial Soils) on floodplains.

Qualities and limitations— widespread complex soils, localised non-cohesive soils, localised foundation hazard, widespread complex terrain, widespread recharge zone, localised wind erosion hazard, widespread high run-on, localised poor drainage, localised permanently high watertables, widespread seasonal waterlogging, widespread flood hazard.

LOCATION AND SIGNIFICANCE

Gently undulating plain of the Canberra Lowlands. Occurs in the vicinity of Dairy Flat Road, Pialligo, Canberra Airport and Woolshed Creek. First identified in Jenkins (2000). Type location is adjacent to Majura road near the airport fence (MGA grid reference 699350E, 6092500N, grid zone 55).

Variants

Within the ACT, 3 variants have been identified.

Pialligo variant a (piya) consists of Quaternary sands and is located on the floodplain.

Pialligo variant b (piyb) consists of aeolian deposits blown out of the Molonglo River.

Pialligo variant d (piyd) consists of a mosaic of small terrace, floodplain, in situ and colluvial elements above Woolshed Creek. It includes portions of the pediplain as identified by van Dijk (1959).

Included landscapes

Small areas of Williamsdale (wiw) and Luxor (luy) soil landscapes have been included along the margins of Pialligo (piy) soil landscape. These soil landscapes have transitional soil boundaries with Pialligo (piy) soil landscape and some overlap is inevitable. Williamsdale (wiw) and Luxor (luy) soil landscapes occur in areas of higher local relief. Isolated pockets of Williamsdale (wiw) soil landscape also occur on small rises elsewhere in this soil landscape.

LANDSCAPE

Landform

Level to gently undulating floodplain, terraces, aeolian and relict iron gravel deposits of the Molonglo River and its tributaries. Slopes are <3%, local relief is minimal (<3 m) and elevation ranges from 590 – 600 m. Depositional processes dominate. Rock outcrops and surface stone are rare. Occasional small areas of gravels and sands occur at the surface. Small patches of aeolian material have been deposited overparts of the landscape.

Geology

Quaternary alluvium, including gravel, sand, loam and clay. Small patches of aeolian sediments occur across parts of the landscape. There are also isolated occurrences of Tertiary-aged ferruginous quartz pebble conglomerate.

Source: Abell 1991, DMR 2002.

Vegetation

The original native vegetation consisted of woodland, open-woodland and grassland but has been almost completely cleared. Dominant tree species are expected to have been *Eucalyptus bridgesiana* (apple box), *E.viminalis* (ribbon gum) and *E.melliodora* (yellow box).

Artificial wetlands have been created where the Molonglo River enters Lake Burley Griffin. The Jerrabomberra wetlands are described in Ecological Resources of the ACT (1984) as the “most significant wetland habitat in the ACT”.

A number of exotic species have established adjacent to the Molonglo River. Exotics present include *Salix* spp. (willows), *Populus* spp. (poplars) and *Rubus fruticosus* (blackberry).

Source: National Capital Development Commission, 1984.

Land use

A range of land uses are undertaken. These include market gardens, industrial estates, artificial wetland reserves, sewage treatment ponds, turf farming, sports ground and the margins of Canberra Airport. Sand mining has occurred in the past.

Land degradation

Little or no active erosion was evident at the time of field sampling.

A number of exotic species have established adjacent to the Molonglo River.

Erosion hazard

Land use	Non-concentrated flows	Concentrated flows	Wind
grazing	slight	moderate	moderate

SOILS

Soil variation and distribution

Various alluvial layers are found on the active floodplain and younger terraces. An assortment of alluvial materials, aeolian deposits and relict gravel deposits are found at the margins of the unit. The complex distribution of soils is further enhanced by the presence of in situ outliers, alluvial fans and colluvium from adjoining landscapes and the varying degrees of pedogenesis that older alluvial deposits have undergone. Soils observed include: deep (>100 cm), moderately well-drained Red Kandosols (Red Earths) on upper terrace elements; deep (>100 cm), moderately well-drained Brown Kandosols (Yellow Earths) on lower terrace elements; and deep (>100 cm), imperfectly drained Stratic Rudosols (Alluvial Soils) on floodplains.

QUALITIES AND LIMITATIONS

Land capability

Urban Capability	D	Soil Regolith Class	R2
Limitations to land use			
Grazing	slight to moderate	Cultivation	moderate to high
Urban	high to extreme		
Landscape			
Steep slopes	not observed	Mass movement hazard	not observed
Rock outcrop	not observed	Rockfall hazard	not observed
Foundation hazard	localised	Complex terrain	widespread
Productive arable land	not observed		
Soils			
Shallow soils	not observed	Complex soils	widespread
Poor moisture availability	not observed	Non-cohesive soils	localised
Hydrology			

High run-on	widespread	Poor drainage	localised
Permanently high watertables	localised	Permanent waterlogging	not observed
Seasonal waterlogging	widespread	Flood hazard	widespread
Erosion			
Wind erosion hazard	localised	Wave erosion hazard	not observed
Gully erosion hazard	not observed	Sheet erosion hazard	not observed
Streambank erosion hazard	not observed		
Salinity			
Recharge zone	widespread	Discharge zone	not observed
Salinity hazard	not observed	Seepage scalds	not observed
Salt stores	low		

FACETS

piy(1)— Alluvial floodplains

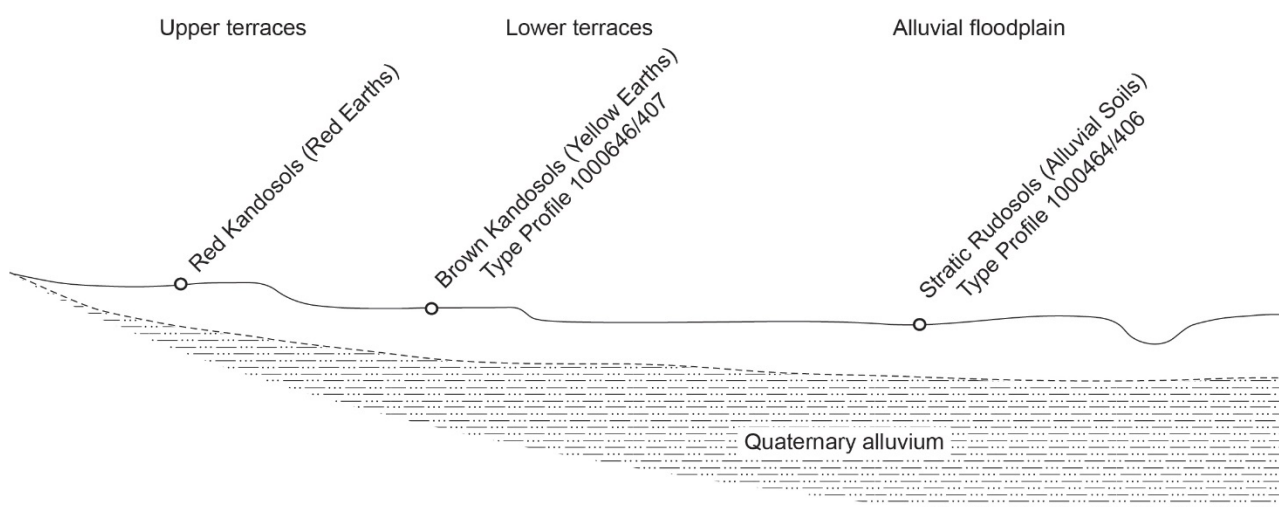
Soils	Deep (>100 cm), imperfectly drained Stratic Rudosols (Alluvial Soils)
Type Profile(s)	Stratic Rudosol (Alluvial Soil): Soil Landscapes of the Canberra 1:100 000 Sheet (1000464) profile 406 (Master Type Profile)
HGL Reference	Typically corresponds with: HGL 22 (South Canberra) MA 9/10.

piy(2)— Upper terraces

Soils	Very deep (>150 cm), moderately well-drained Red Kandosols (Red Earths).
Type Profile(s)	No Type Profile recorded
HGL Reference	Typically corresponds with: HGL 22 (South Canberra) MA 9/10.

piy(3)— Lower terraces

Soils	Very deep (>150 cm), moderately well-drained Brown Kandosols (Yellow Earths).
Type Profile(s)	Brown Kandosol (Yellow Earth): Soil Landscapes of the Canberra 1:100 000 Sheet (1000464) profile 407 (Master Type Profile)
HGL Reference	Typically corresponds with: HGL 22 (South Canberra) MA 9/10.



Schematic cross-section of the Pialligo (piy) soil landscape, showing facets and soil types

REFERENCES

- Abell, R.S. 1991. Geology of the Canberra 1:100,000 Sheet area, Bureau of Mineral Resources, Bulletin 233.
- DMR, 2002. New South Wales Statewide Geology coverage – 1:250 000 scale. Department of Mineral Resources, Sydney.
- Hazelton, P.A. and Murphy, B.M. 1992, What Do All the Numbers Mean? A Guide for the Interpretation of Soil Test Results, Department of Conservation and Land Management, Sydney.
- Jenkins B.R. 2000, Soil Landscapes of the Canberra 1:100 000 Sheet map and report, Department of Land and Water Conservation, Sydney.
- National Capital Development Commission, 1984. Ecological Resources of the ACT, Technical Paper 42, Canberra, ACT.

NOTES

(1) This report describes reconnaissance soil landscape information mapped at 1:100,000 scale and does not negate the need for site assessment at a scale suitable to the land use or development under consideration.

(2) 'Not observed' means unlikely to be found. 'Localised' means observed to a level considered significant for land management. 'Widespread' means prevalent and significant over most of the landscape. 'None recorded' means no occurrence has been recorded. 'Not assessed' means no result has been recorded for this attribute and it may or may not be present in the soil landscape.

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