

Catgut soil – sandy soil with bleached A2 horizon in sandstone under dry forest

Site description

Occurrence: Mainly on east coast below 500 m altitude, where mean annual rainfall is in the 500-800 mm range

Parent Material: In-situ Triassic sandstone

Landform: Undulating and rolling land dissected by hilly and steep-sided gullies

Drainage Class: Well drained and moderately well drained (where mottles occur below 60 cm depth)

Vegetation: Dry sclerophyll forest with *Eucalyptus amygdalina*, *E. obliqua*, *E. viminalis*, *Acacia dealbata*, *Banksia marginata*, *Pteridium esculentum* and ferns



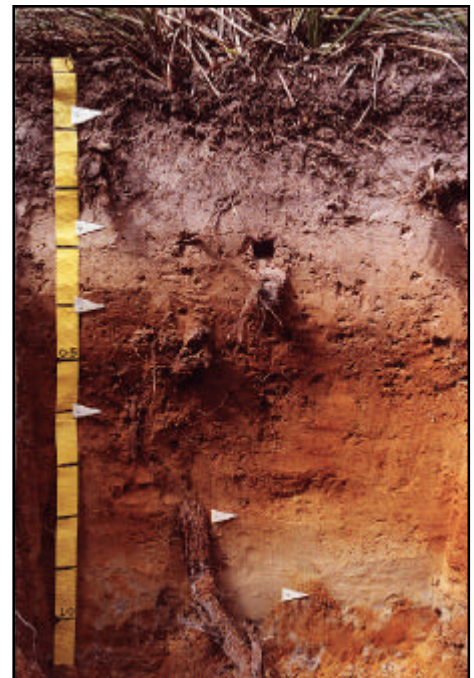
Distinguishing Soil Properties

Profile Features:

- Sandy profiles with weak structure overlying sandstone
- Prominent bleached A2 horizon about 20 cm thick

Chemical and physical features

- Low total C, total N and total P in topsoil (0-30 cm)
- High susceptibility to nutrient leaching (low P retention, low CEC)
- Low aggregate stability
- Permeability – high in shallow and moderately deep soils over jointed sandstone; moderate in deep soils with mottles at depth (see described profile)



Similar soils

- Soils 14.1 and 14.2, Forest Soils of Tasmania - clayey subsoils

Soil Degradation Potential

| FACTOR | RATING OF DEGRADATION POTENTIAL |
|--------------------------|---------------------------------|
| Erodibility: | Moderate to high |
| Compaction and puddling: | Low |
| Mixing: | Low |
| Nutrient depletion: | High |
| Landslides: | Slight |
| Flooding: | Negligible |

Site Productivity

Very low productivity, limited by low nutrients and low moisture availability

Soil Management

Soils on hilly and steep slopes are prone to erosion following clearfelling and/or cultivation. Surface horizons, with higher organic and nutrient levels, should be left intact as far as possible. Excessive disturbance and burning will reduce productivity.

Native Forest Logging and Regeneration

LOGGING AND CLEARING:

Nutrient levels are low and concentrated in the surface horizon. The soils are prone to degradation by erosion (including wind erosion if large areas are cleared).

PREPARATION FOR REGENERATION:

Minimal seedbed preparation is required. Disturbance during logging should be sufficient.

Burning should be minimised.

SILVICULTURAL CONSIDERATIONS:

Low nutrient status and droughtiness limits long-term productivity. Long-term management as a low wood-production forest following appropriate partial logging is likely to be the most viable option.

Suitability for Plantations

Unsuitable for plantations because of very low site productivity and moderate to high erodibility.

Profile

Authors: PDM and MDL

Date: 21.9.00

Location: "P" road to Cat Gut Gully, 1 km east of Buckland Road (C318)

Map reference: Sheet 5429 (Woodsdale) 537 933

Landform: Shoulder slope above gully side 100 m long

Vegetation: *Eucalyptus amygdalina*, *E. obliqua*, *E. viminalis*, *Acacia dealbata*, *Banksia marginata*,
Herbertia tetratheca, saggs, *Pteridium esculentum*

Parent material: Triassic sandstone

Drainage: Well drained

Slope: 3°

Aspect: Northwest

Altitude: 265 m

Photographs: PDM 9-00-19a (site); PDM 9-00-18a (profile)

Australian Soil Classification: **Bleached-Orthic Tenosol**

| | | |
|-----|-----------|---|
| A1 | 0-8 cm | Black (10YR2/1) (moist) loamy fine sand; loose; very weak 1-3 mm granular structure; abundant medium and coarse roots; NaF 0/5. |
| A2e | 8-27 cm | Greyish brown (10YR5/2) (moist) fine sand; loose; very weak 3-5 mm subangular blocky structure, breaking to single grain; abundant medium and coarse roots; NaF 0/5. |
| B1 | 27-40 cm | Brown (10YR4/3) (moist) loamy fine sand; very weak strength; very weak 3-5 mm subangular blocky structure, breaking to single grain; many medium and coarse roots; NaF 1/5. |
| B21 | 40-60 cm | Dark yellowish brown (10YR4/4) (moist) fine sandy loam; 5% subrounded sandstone stones 5-10 mm diameter (possibly concretions); very weak strength; weak 5-10 mm blocky structure breaking to 2-5 mm blocky; many medium and coarse roots; NaF 2/5. |
| B22 | 60-80 cm | Dark yellowish brown (10YR4/6) (moist) loamy fine sand; 25% yellowish brown (10YR5/6) mottles 10 cm diameter; very weak strength; weak 10-20 mm blocky structure breaking to 3-5 mm blocky; common fine roots; NaF 2/5. |
| BC | 80-95 cm | Pale yellow (2.5Y7/3) (moist) medium sand; loose; single grain; few fine and coarse roots; NaF 0/5. |
| 2BC | 95-110+cm | Strong brown (7.5YR5/8) (moist) medium sandy clay loam; 20% light grey (10YR7/1) veins; firm strength; moderate 20-50 mm blocky structure, breaking to 5-10 mm blocky; few fine roots; NaF 0/5. |

Laboratory Analyses

| Horizon | Depth (cm) | pH (H ₂ O) | Total C (%) | Total N (%) | C/N | Colwell P (mg/kg) | Total P (mg/kg) | P retn. (%) | SO ₄ -S (mg/kg) | Water-stable aggreg. (%) |
|---------|-------------|-----------------------|-------------|-------------|-----|-------------------|-----------------|-------------|----------------------------|--------------------------|
| | 0-30 | 4.6 | 0.94 | 0.03 | 30 | 4 | 25 | 6 | 0 | n.d. |
| A1 | 0-8 | 4.4 | 2.54 | 0.07 | 36 | 5 | 55 | 6 | 1 | 8 |
| A2e | 8-27 | 4.3 | 0.61 | 0.02 | 31 | 2 | 38 | 5 | 0 | 15 |
| B1 | 27-40 | 5.6 | 0.48 | 0.02 | 23 | n.d. | 74 | 10 | 1 | 17 |
| B21 | 40-60 | 5.9 | 0.71 | 0.04 | 16 | n.d. | 129 | 34 | 5 | 34 |
| B22 | 60-80 | 6.2 | 0.17 | 0.01 | 15 | n.d. | 111 | 15 | 3 | 26 |
| BC | 80-95 | 6.2 | 0.03 | 0.00 | 55 | n.d. | 46 | 4 | 1 | 6 |

| Horizon | Depth (cm) | Exch. Ca (cmol(+)/kg) | Exch. Mg (cmol(+)/kg) | Exch. K (cmol(+)/kg) | Exch. Na (cmol(+)/kg) | CEC (cmol(+)/kg) | BS (%) |
|---------|-------------|-----------------------|-----------------------|----------------------|-----------------------|------------------|--------|
| | 0-30 | <i>0.13</i> | <i>0.34</i> | <i>0.17</i> | <i>0.24</i> | <i>4.1</i> | 22 |
| A1 | 0-8 | 0.67 | 0.88 | 0.30 | 0.40 | 9.4 | 24 |
| A2e | 8-27 | 0.19 | 0.28 | 0.08 | 0.22 | 3.2 | 24 |
| B1 | 27-40 | 0.17 | 0.62 | 0.19 | 0.17 | 3.2 | 36 |
| B21 | 40-60 | 0.20 | 1.08 | 0.33 | 0.38 | 5.3 | 38 |
| B22 | 60-80 | 0.20 | 0.44 | 0.12 | 0.18 | 1.7 | 54 |
| BC | 80-95 | 0.18 | 0.19 | 0.03 | 0.11 | 0.8 | 61 |

Analytical methods were those of Blakemore et al. (1987), Laffan et al. (1996) and Rayment and Higginson (1992), with variation of methods for C, N and SO₄-S (details available from P. D. McIntosh, Forest Practices Board).

References

- Blakemore, L. C.; Searle, P. L. and Daly, B. K. 1987. Methods of chemical analysis of soils. *New Zealand Soil Bureau Scientific Report 80*.
- Laffan, M.D.; Grant, J. and Hill, R. 1995. Soils of Tasmanian State Forests 1. Pipers Sheet. *Soils Bulletin No. 1*. Forestry Tasmania, Hobart, 271 pages plus maps.
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Acknowledgements

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Citation:

McIntosh, P.D.; Laffan, M.D.; Wong, L.; Miller, M. and Holz, G. 2001. Catgut soil. *Tasmanian forest soil fact sheet no. 2*. Forest Practices Board, Hobart; Gunns Ltd, Launceston and Forestry Tasmania, Hobart. 4 p.

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