

## Blumont soil – gradational soil in granodiorite, under wet forest

### Site description

*Occurrence:* In northeastern lowland Tasmania where mean annual rainfall is >900 mm

*Parent Material:* In-situ granodiorite

*Landform:* Undulating and rolling hills

*Drainage Class:* Moderately well drained

*Vegetation:* Wet sclerophyll forest with

*Eucalyptus regnans*, *E. obliqua*, *Pomaderris apetala*, *Olearia lirata* and *Dicksonia antarctica*

### Distinguishing Soil Properties

#### *Profile Features:*

- Deep gradational profile with silty clay loam texture in upper horizons and light medium clay in lower horizons
- No impediment to roots – weak and moderate structure in subsoils
- Yellowish brown colours with yellowish red mottles in deeper subsoil horizons

#### *Chemical and physical features*

- Low total C, medium total N and medium total P in surface layer (0-30 cm)
- SO<sub>4</sub>-S low to medium throughout
- Low P retention throughout
- Permeability moderate

### Similar soils

- Soil 11.3, Forest Soils of Tasmania (Stronach soil) – similar profile in granite

### Previous description

Blumont soil was first described by Grant et al. 1995 and Laffan et al. 1995.



## Soil Degradation Potential

FACTOR	RATING OF DEGRADATION POTENTIAL
Erodibility:	Moderate
Compaction and puddling:	Moderate
Mixing:	Moderate
Nutrient depletion:	Moderate
Landslides:	Negligible
Flooding:	Negligible

## Site Productivity

Moderate to high productivity, but low to medium levels of nutrients indicate there may be long-term nutrient limitations to production.

## Soil Management

Surface layers where organic matter and nutrients are concentrated should be left undisturbed as much as possible. Excessive disturbance and burning may reduce productivity.

## Native Forest Logging and Regeneration

### LOGGING AND CLEARING:

Suitable for wet weather logging provided soils are not saturated.

### PREPARATION FOR REGENERATION:

Preparation of a seedbed by surface scarification or burning is required. Because of low to moderate nutrient status very hot burns and should be avoided if possible.

### SILVICULTURAL CONSIDERATIONS:

Low to moderate nutrient status may limit long-term productivity and require relatively long rotations.

## Suitability for Plantations

**Moderately to highly suitable** for plantations on slopes  $<20^{\circ}$ .

**CLEARING:** Because of low to moderate nutrient status very hot burns should be avoided. Care should be taken to retain the surface soil in place.

**CULTIVATION:** Weak structure in subsoils indicates that ripping will be beneficial.

**FERTILISER TREATMENT:** Fertilising planted seedlings is required. Secondary fertilisation is likely to be required.

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## Profile

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*Date:* 8 August 2001

*Location:* About 1 km north of Tebrakunna Road, Goulds Country, on south side of west-to-east flowing Class 4 stream, 20 m downhill from firebreak

*Map reference:* Sheet 5844 (Spurrs Rivulet) 594000 5449500

*Landform:* Upper midslope of hillslope ca. 100 m long descending into stream gully

*Vegetation:* *Eucalyptus regnans*, *E. obliqua*, *Pomaderris apetala*, *Olearia lirata* and *Dicksonia antarctica*

*Parent material:* Strongly weathered granodiorite

*Drainage:* Moderately well drained

*Slope:* 14°

*Aspect:* North

*Altitude:* 120 m

*Photographs:* PDM 8-01-7 (site); 8-01-2 (profile)

*Australian Soil Classification:* **Acidic Mesotrophic Brown Dermosol**

O2	6-0 cm	Black (5YR2.5/1) humic layer.
A1	0-16 cm	Very dark greyish brown (2.5Y3/2) (moist) silty clay loam; weak strength; moderate 3-8 mm subangular blocky structure; 5-10% quartz gravels 2-4 mm diameter; many fine roots.
B1	16-43 cm	Yellowish brown (10YR5/4) (moist) silty clay loam; 30% dark greyish brown (2.5Y4/2) inclusions 10 mm diameter (faunal mixing); weak strength; moderate 10-30 mm angular blocky structure; 5-10% quartz gravels 2-4 mm diameter; common fine roots.
B2	43-77 cm	Yellowish brown (10YR5/6) (moist) light medium clay (45% clay, estimated); firm strength; weak to moderate 40 mm angular blocky structure; abundant mica flakes; 2% charcoal fragments; 5-10% quartz gravels 2-4 mm diameter; few fine roots.
B3t	77-100 cm	Yellowish brown (10YR5/6) (moist) silty clay loam (35% clay, estimated); 35% yellowish red (5YR5/8) mottles 50-100 mm diameter; firm strength; moderate 40 mm angular blocky structure; yellowish brown (10YR5/4) clay skins on ped faces; abundant mica flakes; 2% charcoal fragments; 5-10% quartz gravels 2-4 mm diameter; no roots.

## Laboratory Analyses

Horizon	Depth (cm)	pH (H <sub>2</sub> O)	Total C (%)	Total N (%)	C/N	Colwell P (mg/kg)	Total P (mg/kg)	P retn. (%)	SO <sub>4</sub> -S (mg/kg)	Water-stable aggreg. (%)
	<b>0-30</b>	5.2	1.83	0.14	13	3	106	25	11	n.d.
A1	0-16	5.4	2.74	0.21	13	5	156	25	8.4	85
B1	16-43	5.2	1.30	0.10	14	2	95	26	18	75
B2*	43-77	5.2	1.01	0.07	14	n.d.	70	29	24	69
B3t	77-100	4.9	0.48	0.03	16	n.d.	39	29	28	52

Horizon	Depth (cm)	Exch. Ca (cmol(+)/kg)	Exch. Mg (cmol(+)/kg)	Exch. K (cmol(+)/kg)	Exch. Na (cmol(+)/kg)	CEC (cmol(+)/kg)	BS (%)
	<b>0-30</b>	2.01	1.28	0.31	0.29	9.1	43
A1	0-16	3.97	1.53	0.59	0.24	11.1	57
B1	16-43	1.96	1.09	0.28	0.30	8.9	41
B2*	43-77	1.51	0.91	0.27	0.28	7.9	37
B3t	77-100	0.81	0.73	0.32	1.37	9.4	34

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 SO<sub>4</sub>-S (details available from P. D. McIntosh, Forest Practices Board).

\* Citrate-dithionite Fe = 1.5% in B2 horizon.

## 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*.
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## Acknowledgements

To Forestry Tasmania and the Forest Practices Board for funding soil analyses.

## Citation

Laffan, M.D.; McIntosh, P.D. and Rees, S. 2002. Blumont soil. *Tasmanian forest soil fact sheet no. 16*. Forest Practices Board, Hobart and Forestry Tasmania, Hobart. 4 p.

1 May 2002

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