

Waikato LUC Units Correlated

M R Jessen

13 November 1992

New LUC units used in 2nd edition Waikato region work are correlated within the North Island correlation of Page, M.J.: Water and Soil Misc. Pub. 75, 1985.

Notes:

1. most units have a direct correlation with no problems. Waikato unit 2e5 does not have an existing place in Pub 75, but fits nicely into the 2e series at the end - so a new correlation unit is created (N2e9).
2. units 3e7, 3w4, and 3s2 can not be correlated with the Pub 75 classification. They fit in somewhere in the middle of existing series of Pub 75 correlation units - they are not able to be tagged on to the end as was done for 2e5 (above). So, this message provides no answers for these three and I ask "does it matter at this stage?" - can we have a few uncorrelated units lying around the NZLRI database? They will be no different in uncorrelated status than the raft of new Northland and Wellington units - comments please. Clearly, we will have to develop a brand new North Island correlation classification eventually. Mike is hanging out to do it - this I know because he told me as he leapt out of the window!

Correlated units:

2e5=N2e9(new correlation unit)

2w4=N2w2

3e7=?

3w3=N3w8

3w4=?

3s2=?

3w3=N3w8

4w1=N4w2

4w2=N4w6

4s1=N4s2

5c1=N5c1

6e18=N6e88

6e19=N6e62

6e20=N6e19

6e21=N6e48

7e10=N7e30

7e11=N7e45

7e12=N7e60

7e13=N7e35

8e4=N8e1

Additional Notes to Accompany Waikato Region Land Use Capability Extended Legend For NZ Land Resource Inventory

LUC Unit	Unit Description	Land Use		Slope	Rocktype		Typical Soils ++		
		Present	Potential			Symbol		Survey	Symbol
Ile5	Undulating slopes on yellow-brown earths developed on terraces. There is potential for slight sheet & rill erosion under arable uses. Soil physical properties are imperfect.	Intensive grazing	Horticulture, cereals, root & green fodder crops, intensive grazing.	B B+A	Unconsol. Clays sands silts & tephra	Us	Yellow-brown earths: Ruawaro Clay Loam Churchill Silt Lo	2 2	Ru Cc
IIw4	Flat low-lying river terraces with recent & gleyed recent soils	Intensive grazing, cereal, root & green fodder crops.	Intensive grazing, cropping, production forestry.	A	Aluvium	Al	Recent & gley rec. soils f. alluvium: Korakonui soils Ngarua soils Gley soils: Puniu silt loam Clay loam & sandy loam	6 3 1	Koi Nr 98c
IIIe7	Rolling poorly drained low angle fans of strongly weathered alluv. Poor soil physical properties and drainage. Potential for mod. rill & sheet	Semi-intensive grazing	Semi-intensive grazing, root & green fodder crops	C C+B	Unconsol. Clays silts & sands	Us	Intergrades btn. Gley & yellow-brown earths: Tahuna soils	3	Tn
IIIw3	Flat low-lying river terraces with soils from alluv. Admixed with water-sorted tephra. There is a continuing moderate wetness limitation after drainage & risk of flooding.	Semi to intensive grazing	Intensive grazing	A	Alluvium	Al	Recent & gleyed recent soils from alluvium: Korakonui soils Ngarua soils Ohinemoa series Gley soils: Puniu silt loam, Clay loam & sandy loams	6 3 5 1	Koi Nr Oe 98c
IIIw4	Flat to undulating, poorly drained low angle fans of pre-weathered alluvium. Poor soil physical properties & drainage constrain arability.	Semi-intensive grazing	Semi-intensive grazing, Root and green fodder crops	A, B. A+B	Unconsol. Clays silts & sands	Us	Intergrades btn. Gley soils and yellow-brown earths: Patetonga soils	3	Pa

Worksheets 2nd Edition (Interim only to June 1987)

Erosion		Vegetation	Type Locality	Soil conservation & water management measures	Comments
Present	Potential				
Nil	Slight sheet & rill	High producing pasture	N 52/600841	Contour cultivation Mole drainage may improve Ru soils. Puddling may occur in winter on clay loams.	The unit contains soils that have poorer properties than other lie units.
Nil	Slight streambank	High producing pasture, rushes & sedges podocarps		Lower terraces are imperfectly to poorly drained & experience frequent flooding. Willow planting for streambank stability.	
Nil	Mod sheet & rill	High producing pasture	N 56/940698	Drainage	Poor soil & drainage make this unit unsatisfactory for horticulture & forestry.
Nil to slight strmbank	Slight streambank	High & low producing pasture, podocarps, rushes & sedges		Willows for streambank stabilisation.	
Nil	Nil	High & producing pasture, rushes & sedges	N 56/900700	Drainage	

LUC Unit	Unit Description	Land Use		Slope	Rocktype		Typical Soils ++		
		Present	Potential		Symbol	Survey	Symbol		
IIIs2	Undulating-rolling weakly dissected, low angle fans with yellow-brown loams on water-sorted tephra over gravely alluvium.	Intensive grazing	Intensive grazing, green fodder crops	A, B, C	Unconsol. Clays silts Sands Tephra Breccias & gravels.	(Mo)/Us+Gr (Mo)/Gr+Us	Yellow-brown Loams: Mangaiti soils	3	Mg
IVw1	Narrow river terraces with high water table subject to flooding, ponding	Semi-Intensive Grazing	Intensive grazing, root & green fodder crops	A	Alluvium	Al	Recent soils from alluvium: Kairanga silt loam & clay loam. Mangapiko clay Lo. Mercer loam etc Mercer silt loam & peaty silt loam Ohinewai soils	1 2, 7 1 2 4	2 Mp 2c Mc 0
IVw2	Plains & terraces with organic soils from peat admixed with alluvium. Severe wetness limitation on arable use.	Semi-intensive grazing	Semi-intensive grazing with green fodder cropping.	A	Peat, Peat plus alluvium	Pt Pt + Al	Organic soils: Piako peaty loam & loamy peat Rotongaro Loamy peat Whangamarino loamy peat	1 2 1 2	108 Rt 110b Wo
IVs1	Flat to undulating slopes on basalt with stony & bouldery soils.	Semi-intensive grazing, undeveloped	Semi-intensive grazing, cropping production forestry.	A, B, A+B, B+A	Basaltic Lava Scoria	Vo Sc	Red & brown loams Unnamed soils Bare Rock	8	AJ, BJ, CJ BR
Vc1	Strongly rolling to moderately steep slopes with yellow-brown loams on airfall tephra over stable lithologies.	Semi-intensive to intensive grazing.	Intensive grazing, production forestry	D+E, D/E E	Airfall tephra over limestone, sandstone or banded sandstone	Mo/Li Mo/Sm Mo/Sb	Yellow-brown loams: Wairere silt loam & clay loam, Hill soil Tumutumu silt loam & sandy clay loam hillsoil	1 1 1	60c 60ch 60dH

Erosion	Vegetation	Type Locality	Soil Conservation &	Comments
---------	------------	---------------	---------------------	----------

Present	Potential			Water Management Measures	
Nil to slight deposition streambank & tunnel gully	Slight streambank deposition & tunnel gully	High & low producing pasture	N 57/314595	Contour cultivation. Poplars in tunnel gullies Streambank stablisation with willows.	Restricted to fans below the kaimai ranges.
Nil to moderate streambk	Moderate to severe streambank	Low-producing pasture, rushes & sedges podocarps	N 54 & Pt54/133894	Drainage. Streambank stabiliation with willows.	
Nil	Nil	Low producing pasture, rushes & sedges swamp assns.	N 52/576010	Drainage. Care to avoid overdrainage as peatland is difficult to rewet.	Peatland is usually partly developed.
Nil	Nil	Low & high producing pasture, blackberry, gorse	N 42/375415		Previously recorded is IIIst
		High producing pasture, lowland podocarp-hardwood forest, hardwood forest	N 83/717771		

LUC Unit	Unit Description	Land Use		Slope	Rocktype		Typical soils ++		
		Present	Potential		Symbol	Survey	Symbol		
Vle18	Steep to moderately steep slopes with a patchy mantle of airfall tephra over massive sandstone. Many slowly revegetating shallow soil slip scars expose much bare rock.	Grazing, undeveloped reversion	Grazing, production forestry	F, E F+E E+F	Patchy cover of tephra over sandstone	(Mo)/Sm	Yellow-brown earth Oniao clay loam & silt Lo hill soil Yellow-brown loams Tumutumu silt loam & sandy clay loam hill soil Steepland soils related to yellow-brown earths: Mohakatino sand Lo Bare rock	1 1 1	32bH 60dh 117b BR
Vle19	Rolling to mod. Steep slopes on sedimentary lithologies with potl. For earthflow, slump & gully erosion.	Semi-intensive grazing, undeveloped	Intensive to semi-intensive grazing, production forest.	C, D, E	Mudstone Argillite	Mb, Mj Ar	Yellow-brown earth Atua silt loam hill soil Mangaotaki clay loam & silt loam hill soil Mangatea clay loam & silt Lo hillslope	1 1 1	29 H 29aH 25 H
Vle20	Mod. steep to steep slopes with yellow-brown loams on airfall tephra over ignimbrite.	Grazing, reversion	Semi-intensive grazing, production forestry.	E, F E+F	Airfall tephra over ignimbrite	Mo/Vo	Yellow-brown loam: Te Kuiti silt loam & clay Lo hillsoil Te Kuiti series Steepland soils related to Yellow-brown loam: Mahorehore series Bare rock	1 5 5	60 H TKH MaS BR
Vle21	Steep to moderately Steep slope underlain Lain by Tertiary-aged Sedimentary lithologies	Semi-intensive grazing reversion	Semi-intensive grazing, production forestry	F+E F	Sandstone Jointed mudstone	Sm Sb MJ	Yellow-brown earth & steepland soils: Akatea Steepland soils Kapamahunga steepland soils Kohemarere hill soils Ruakiwi hill soils Bare rock	 2 2 2 2 2	 AkS KpS KeH RwH BR
Vlle10	Gullies formed in unconsolidated sands and gravels of the Hinuera formation	Undeveloped intensive grazing, woodlots	Extensive grazing, erosion control forest	F, G	Unconsol. Silts sands tephra breccias & gravels.	Us	Yellow-brown loams Horotiu sandy loam Waihou sandy loam	1 1	48a 48

Erosion		Vegetation	Type Locality	Soil Conservation & Water Management Measures	Comments
Present	Potential				
Slight - moderate soilslip slight sheet	Moderate soilslip & sheet	Low producing pasture, manuka/kanuka, mixed native scrub.		Open plant poplar poles in areas susceptible to erosion. Feral animal control.	
Sl - mod. eSI, G Sheet. Nil to slight soilslip & sheet	Moderate earth slip & gully. Slight soilslip & sheet	Low & high producing pasture, podocarp-hardwd forest, mixed native scrub, rushes & sedges		Dewater earthflows & slumps. Stabilise stream channels w debris dams pair & block plant poplars	Previously included in Vle9
Slight soilslip & sheet	Moderate soilslip & sheet, slight gully		N 83/700715	Care of the siting of fence lines & tracks	
Slight soilslip slight - moderate sheet.	Mod to sev soil slip & sheet	High & low producing pasture, mixed native scrub, manuka/kanuka, hardwood forest fern		Open plant poplar poles, dewater earthflows, pair plant willows in gullies. Feral animal control.	Steeper than Vle3, or Vle7
Nil to slight gully, soilslip	Mod to sev. gully, moderate rill, sheet & soilslip	Mixed native scrub, erosion control trees, some pasture	N 65/867426	Maintain a vegetation cover. Block plant sensitive areas. Pair plant willows beside waterways.	

LUC Unit	Unit Description	Land Use		Slope	Rocktype	Symbol	Typical Soils ++		
		Present	Potential					Survey	Symbol
VIIIe11	Steep to very steep slopes underlain by Tertiary aged sedimentary lithologies.	Extensive grazing, undeveloped reversion	Extensive grazing, erosion control forest	F, G F+G	Sandstone Thin cover of airfall tephra over sandstone	Sm, Sb (Mo)/Sm (Mo)/Sb	Steepland soils related to yellow-brown earths: Mahoenui series Mohakatino sand. Lo Mokau series Moumahaki series	5 1 5 5	MeS 117b MkuS MiS
VIIe12	Steep to very steep slopes underlain by sandstone. Many slowly revegetating shallow soil slip scars expose much bare rock.	Extensive grazing, undeveloped reversion	Extensive grazing, erosion control forest	F, G F+G	Sandstone	Sm	Steepland soils related to Yellow-brown earth Mohakatino sandy loam	1	117b
VIIe13	Steep to very steep slopes underlain by ignimbrite.	Extensive grazing, undeveloped, reversion	Semi-intensive grazing, erosion control forest production forestry.	F, G F+G	Ignimbrite & massive sandstone or banded. Mudstone - May have a cover of airfall tephra	Vo Vo+Sm Vo+Sb (Mo)/ Vo+Sm	Steepland soils related to yellow-brown loams: Mahorehore series Haupeehi rocky loams	5 1	MaS 126a
VIIIe4	Undulating-strongly rolling unstable coastal sand dunes with potential for extreme wind erosion.	Protection undeveloped	Protection forestry	B, C, D	Windblown sands	Wb	No soil development		BR

++ Soil Surveys Used:

- 1 DSIR 1854: General survey of soils of North Island, New Zealand. NZ Soil Bur. Bull. (ns)5
- 2 Bruce, J.G. 1978: Soils of part Raglan County, South Auckland, N.Z. NZ Soil Bur. Bull. 41
- 3 Wilson, A.D. 1980: Soils of Piako County, North Island, N.Z. NZ Soil Bur. Bull. 39
- 4 McCraw, J.D. 1968: Land Inventory Survey County Series, Ohinemuri Soils 1: 63360 NZ Soild Bureau.

Erosion		Vegetation	Type Locality	Soil Conservation & Water Management Measures	Comments
Present	Potential				
Nil-mod soilslip & sheet. Nil-Sl earthflow & debris avalanche	Severe soil slip, sheet Moderate gully, Slight earthflow	Low producing pasture, podocarp-hard-wood forest, mixed native scrub, manuka/kanuka, hardwood forest		Open & block plant poplar Maintain vegetation cover Feral animal control	
Slight soilslip Slight-moderate sheet	Moderate to severe soil slip & sheet	Low producing pasture, Manuka/Kanuka, lowland podocarp-hardwd forest		Open & block plant poplar Maintain vegetation cover Feral animal control	
Sl-mod soilslip Nil-sl sheet & debris avalanche	Severe soil slip, moderate sheet, slight gully	Low producing pasture, lowland podocarp/hardwd forest, beech forest, mixed native scrub.		Care with location of fencing and roads. Maintain vegetation cover. Open plant populars. Feral animal control.	
V severe - extreme wind, moderate gully.	Extreme wind Moderate gully.	No vegetation, sand dune associations	N 51/240954	Stabilise with marram, lupins or protection forest	

- 5 Rijkse, W.C. ; Wilde, R.H. 1977 : Soil map of the King Country Sh. 1 1: 63360 NZ Soil Bur. Map 170/1
- 6 Barratt, B. C. 1981 : Soils of part Otorohanga County, North Island, N.Z. NZ Soil Survey Report 62
- 7 Bruce, J.G. ; Bell, J.L. (unpub): Land Inventory County Series. Raglan Soils 1:63360 NZ Soil Bur Map 113/1
- 8 Purdie, B. R. (unpub) : Manukau City Soil Survey Progress Report. April 81 Soil Bur District report HV5