Project Name: Soil Studies in the Lower Namoi Valley

Project Code: EDGEROI Site ID: ed361 Observation ID: 1

Agency Name: CSIRO Division of Soils (QLD)

Site Information

Desc. By: W.T. Ward Locality: Frank O'Neill, Llano

Date Desc.: Elevation: 21/01/87 198 metres Map Ref.: Sheet No.: 8837 N 1:50000 Rainfall: No Data Northing/Long.: 6672950 AMG zone: 55 Runoff: No Data 752400 Datum: AGD66 Easting/Lat.: Drainage: No Data

Geology

ExposureType: Undisturbed soil core Conf. Sub. is Parent. Mat.: No Data Geol. Ref.: No Data Substrate Material: No Data

Land Form

 Rel/Slope Class:
 No Data
 Pattern Type:
 No Data

 Morph. Type:
 No Data
 Relief:
 No Data

 Elem. Type:
 Fan
 Slope Category:
 Level

 Slope:
 0 %
 Aspect:
 No Data

Surface Soil Condition (dry): Surface crust, Trampled

Erosion:

Soil Classification

Australian Soil Classification: Mapping Unit: N/A
N/A Principal Profile Form: Ug5.4
ASC Confidence: Great Soil Group: Grey clay

Confidence level not specified

Site Disturbance: Complete clearing. Pasture, native or improved, cultivated at some stage

Vegetation:

Surface Coarse Fragments:

Profi	le N	lorp	ho	ogy

A11 0 - 0.1 m Very dark brown (10YR2/2-Moist); Dark grey (10YR4/1-Dry); , 10YR62, 2-10% , 5-15mm, Prominent; Light medium clay; Moderate grade of structure, 20-50 mm, Angular blocky; Moderate grade of structure, 5-10 mm, Platy; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; 0-2%, fine gravelly, 2-6mm, subangular, Quartz, coarse fragments; Field pH 6.5 (pH meter); Few, very fine (0-1mm) roots;

A12 0.1 - 0.25 m Very dark brown (10YR2/2-Moist); , 10YR72, 0-2% , 0-5mm, Distinct; Light medium clay; Strong grade of structure, 20-50 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; 0-

2%, fine goardly, 2-6mm, subangular, Quartz, coarse fragments; Field pH 7.5 (pH meter); Few,

very fine (0-1mm) roots;

A13 0.25 - 0.55 m Very dark brown (10YR2/2-Moist); ; Light medium clay; Moderate grade of structure, 50-100

mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very strong consistence; 0-2%, fine gravelly, 2-6mm, subrounded, Quartz, coarse fragments; Very few (0 - 2 %), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 8.5 (pH meter); Few, very fine (0-1mm) roots; Diffuse, Smooth change to -

B21 0.55 - 1 m Brown (10YR5/3-Moist); , 10YR31, 0-2% , 15-30mm, Distinct; Medium clay; Weak grade of

structure, 50-100 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Very few (0 - 2 %), Gypseous, Fine (0 - 2 mm), Crystals; Very few (0 - 2 %), Calcareous, Medium (2 -6

mm), Nodules; Field pH 9 (pH meter);

B22 1 - 1.9 m Brown (10YR5/3-Moist); , 10YR41, 0-2% , 5-15mm, Faint; Medium clay; Moderate grade of

structure, 50-100 mm, Lenticular; Weak grade of structure, 10-20 mm, Angular blocky; Smoothped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately moist; Strong consistence; Very few (0 - 2 %), Calcareous, Coarse (6 - 20 mm), Nodules; Field

pH 9 (pH meter);

B23 1.9 - 3.05 m Brown (7.5YR4/2-Moist); ; Medium clay; Moderate grade of structure, 50-100 mm, Lenticular;

Weak grade of structure, 10-20 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very firm consistence; Very few (0 - 2 %), Calcareous, Medium (2 -6 mm), Nodules; Field pH 9 (pH

Project Name: Soil Studies in the Lower Namoi Valley Site ID: **Project Code: EDGEROI** ed361 Observation ID: 1 **Agency Name: CSIRO Division of Soils (QLD)** 3.05 - 4.05 m B24 Brown (7.5YR4/2-Moist); , 10YR41, 0-2% , 5-15mm, Faint; Medium clay; Moderate grade of structure, 50-100 mm, Lenticular; Moderate grade of structure, 10-20 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Few (2 - 10 %), Calcareous, Coarse (6 - 20 mm), Nodules; Field pH 9 (pH meter); B25 Dark reddish grey (5YR4/2-Moist); ; Light medium clay; Moderate grade of structure, 50-100 4 05 - 4 7 m mm, Lenticular; Moderate grade of structure, 10-20 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence, Very few (0 - 2 %), Calcareous, Coarse (6 - 20 mm), Nodules; Field pH 9 (pH meter); Gradual, Smooth change to -С 4.7 - 5.46 m Brown (7.5YR5/4-Moist); ; Light clay; Massive grade of structure; Sandy (grains prominent) fabric; Earthy fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very firm consistence; 0-2%, coarse gravelly, 20-60mm, subrounded. Calcarenite. coarse fragments; Very few (0 - 2 %), Calcareous, Fine (0 - 2 mm), Nodules, Field pH 9 (pH meter), Abrupt, Smooth change to -2B2 5.46 - 6.4 m Brown (7.5YR4/2-Moist); ; Medium clay; Moderate grade of structure, 20-50 mm, Lenticular; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Few cutans, <10% of ped faces or walls coated, prominent, Very few (0 - 2 %), Calcareous, Coarse (6 - 20 mm), Nodules; Field pH 9 (pH meter); Gradual, Smooth change to 2C 6.4 - 6.73 m Brown (7.5YR4/4-Moist); , 5GY61, 0-2% , 5-15mm, Prominent; Medium clay; Moderate grade of structure, 10-20 mm, Lenticular; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per

Morphological Notes

A11 Llano 2. Note platy surface. Slickenside at 1m. The core was extremely hard to cut at

30-40cm. Manganese flecks (stains) commence at about 400cm. Patches of sand occur

100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Few cutans, <10% of ped faces or walls coated; Few (2 - 10 %), Calcareous, Coarse (6 - 20 mm),

at 470cm. At 546cm a layer of gravel rests sharply on a prior clayey B2

A12 horizon. A large carbonate concretion (8cm across) occurs at 625cm. Textures below

546cm are 'with sand'.

Observation Notes

Parent Rock: alluvial sediment, mixed texture, with lime, parna on fourth fan

Nodules; Field pH 9 (pH meter);

Site Notes

The section revealed by the Llano cores when laid side by side shows three main layers. The first extends down to about 80cm and is deepest in the south. It is basically the organic-stained surface horizon and is brown and greyish brown in

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Laboratory Test Results:

Laboratory	rest Re	suits:								
Depth	pН	1:5 EC	Ex	changeable	Cations		Exchangeable	CEC	ECEC	ESP
			Ca	Mg	K	Na	Acidity			
m		dS/m				Cmol (+	+)/kg			%
0 - 0.02	7.63A	0.0074	15.26B	8.91	0.56	3.74				
0 - 0.02	7.03A	0.091A	13.200	0.91	0.50	3.74				
0.1 - 0.2	8.19A	Ο 169Δ	18.99B	11.22	0.39	6.3				
0.3 - 0.4	8.71A		18.8B	11.09	0.35	8.14				
0.7 - 0.8	8.85A		22.58B	12.62	0.85	11.68				
1.2 - 1.3		0.7219999			0.93	11.64				
2.5 - 2.6	8.74A		25.29B	13.49	0.95	13.2				
3.5 - 3.6	8.86A	0.799A	24.25B	12.31	0.92	13.46				
4.5 - 4.6	8.28A	0.68A	20.91B	9.92	0.86	13.4				
5.2 - 5.3	9.22A	0.609A	15.99B	6.92	0.61	9.53000				
						1				
5.5 - 5.6	9.33A	0.591A	15.05B	6.11	0.59	8.99				
6.5 - 6.6	9.14A	0.751A	19.58B	9.09	0.67	12.71				
Depth	CaCO3	Organic	Avail.	Total	Total					Analysis
m	%	C %	P mg/kg	P 1 %	N %	K %	Density Mg/m3	GV CS	FS %	Silt Clay
""	/0	/0	ilig/kg	/0	/0	/0	Wig/iii3		/0	
0 - 0.02	<0.1B	0.72C	4.1J							18.6 36.5
0 - 0.02	<0.1D	0.720	4.13							10.0 30.3
0.1 - 0.2	<0.1B	0.79C	<1J							23.8 43.4
0.1 - 0.2	0.1B	0.73C 0.72C	<1J							23.9 40.5
0.7 - 0.8	0.1B	0.11C	4.5J							18.9 55.3
1.2 - 1.3	1.4B	0.11C	1.7J							16.7 57.1
2.5 - 2.6	0.7B	0.07C	<1J							15.6 59.9
3.5 - 3.6	1B	0.07C	1.6J							15.5 56
4.5 - 4.6	<0.1B	0.04C	2.8J							12.8 55.6
5.2 - 5.3	1.6B	<0.01C	2.7J							7.6 33.3
5.5 - 5.6	1.3B	<0.01C	2.7J							8.6 37.5
6.5 - 6.6	2.3B	0.06C	3.6J							10.2 46.6
Danth	COLE		C=-	vimetric/Vo	.lmaatria !	Water Car	-11-	V	4	K unsat
Depth	COLE	Sat.		0.1 Bar	0.5 Bar	1 Bar		⊼ 5 Bar	sat	K unsat
m		Sal.	0.03 Bai		0.5 Bai g - m3/m		3 Dai 13		m/h	mm/h
•••				9'	.					
0 - 0.02										
0 - 0.02										
0.1 - 0.2										
0.1 0.2										

0.3 - 0.4

0.3 - 0.4 0.7 - 0.8 1.2 - 1.3 2.5 - 2.6 3.5 - 3.6 4.5 - 4.6 5.2 - 5.3 5.5 - 5.6 6.5 - 6.6

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Laboratory Analyses Completed for this profile

15A2_CA Exchangeable bases (Ca2+,Mg2+,Na+,K+) - 1M ammonium chloride at pH 7.0, pretreatment for

soluble salts

15A2_K Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts 15A2_MG Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts 15A2_NA Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts

19B1 Carbonates - manometric 3A1 EC of 1:5 soil/water extract 4A1 pH of 1:5 soil/water suspension

5A2 Chloride - 1:5 soil/water extract, automated colour

6B3 Total organic carbon - high frequency induction furnace, infrared

7B1 Water soluble nitrate - automated colour

9B1 Bicarbonate-extractable phosphorus - manual colour

P10_CF_C Clay (%) - Coventry and Fett pipette method Silt (%) - Coventry and Fett pipette method