Appendix B Mapsheet reliability

Mapsheet	Data used in mapping	Map notes	Mapping reliability (polygonal)	Soil attribution reliability	Combined data confidence level
Natimuk	Radiometrics; aerial photos used in West Wimmera study (Baxter, Williamson & Brown 1996) & Dept of Ag. study (Maher & Martin 1990), public land has been excised in W.W. Limited sites on public land, especially Little Desert. Mapping based on degree of landscape disaggregation (e.g. Lowland/lake complexes). Radiometrics doesn't show relief or particularly buried Parilla relict beach ridges (covered by Lowan Sand). Sites include W. Wimmera and WLRA sites.	Radiometrics have been extremely useful in revision of plains (gentle and undulating). Many similarities between Maher & Martin (1990)and Baxter, Williamson & Brown (1996). The Ko/Go units can be a little mixed and reflected in radiometric signature. The Douglas Depression and Mount Arapilies have had linework altered using radiometrics for internal boundaries. Some of the hydrology units (West Wimmera wetlands) defined by Baxter, Williamson & Brown (1996) haven't been pulled out, but could still with further refinement Detail by Muller & Hocking(2002b) hasn't been used heavily due to scale, but also to match linework between this sheet and neighbouring Horsham.	4	3	7
Kaniva & Wallowa	Radiometrics and aerial photos were used in the West Wimmera study (Baxter, Williamson & Brown 1996) & Dept of Ag. study (Maher & Martin 1990) where public land has been excised across the West Wimmera Shire. Mapping based on degree of landscape disaggregation (e.g. Lowland/lake complexes). Radiometrics doesn't show relief or particularly buried Parilla relict beach ridges (covered by Lowan Sand). Sites include W. Wimmera, NWRS sites and WLRA sites. The Broughton plains area has been defined due to sodic topsoils, small light patches in Big Desert = clay.	Linework from Baxter, Williamson & Brown (1996) has been preserved through out the Telopea Downs area and most to the south. A rise west of Lillimur has been incorporated into a unit of wider expanse (radiometric signature alike). A boundary between Pg5 and Pg7 hasn't been incorporated, but may be later. Linework of the Lowan study (Williamson 1997) is complementary with the Baxter, Williamson & Brown (1996) mapping and radiometrics. There have been minor alterations to linework, however, most has been kept. Linework should link in with Goroke and Nhill.	3.5	3.5	7

Mapsheet	Data used in mapping	Map notes	Mapping reliability (polygonal)	Soil attribution reliability	Combined data confidence level
Nhill & Albacutya	Radiometrics, photos Shire of Lowan, extrapolation east of shire. Smaller units in Shire and how they were defined is unclear. Soil differences, check Propodollah area (large Parilla area). Boundary with Wimmera River - Woorinen goes to river in north. Lake systems west of river are gypaceous (part of Wimmera trench?). Boundary of sand with calcareous material, need N/S boundary (from E to W). Little investigation of Public land (Little Desert). Sites include Lowan, WLRA sites and NWRS.	Lowan (Williamson 1997)linework API correlated very well with radiometrics. The distinction between the grey clay plains and gently undulating plain was difficult to determine, especially the boundary. The main Parilla ridge running through the centre used Lowan boundary, however between Nhill and Propodollah there may be another unit (radiometric signature not characteristic of gently undulating plain). The Wimmera Trench has been subdivided using radiometrics and swamp density as a guide. Prominent sand rises here have been pulled out with major swamps/waterbodies. More gently undulating rises have been pulled out in the N-E using radiometrics. Muller & Hocking's (2002a) coarse and rise/lower sand rises are equivalent to the gently undulating rises of Parilla Sand.	4	2	6
Goroke	Radiometrics; aerial photos used in West Wimmera study (Baxter, Williamson & Brown 1996) & Dept of Ag. study (Maher & Martin 1990), public land includes Little Little Desert (south of Little Desert). N-S trending ridges and valleys (lake systems) are defined more through D of Ag and less than W Wimmera (Q. Is this Shepparton Formation or still some Woorinen?). Stranded beach ridges subdued and covered by Lowan Sand (not visible in radiometrics). Some boundaries due to minor landform changes in gently undulating to undulating landscape. Sites include W. Wimmera, NWRS sites, Topcrop sites and WLRA sites.	Abundance of existing mapping -difficulty arose in determining level of detail required. Main issue was Baxter, Williamson & Brown's Pg10 v. Pg11 v. Pg12. South of the Little Desert are the main issues. Detail hasn't been extracted, but can be if required. Radiometrics has helped refine boundaries of plains units.	4.5	3.5	8

Mapsheet	Data used in mapping	Map notes	Mapping reliability (polygonal)	Soil attribution reliability	Combined data confidence level
Rupanyup	Radiometrics and aerial photos 1:80 000 used in derivation of linework for Badawy (1984) and White et al. (1985). Landscape complex due to overlap between plains and topographically significant in upper Wimmera. Sites are from NWRS survey (Martin & Imhof 1992) as well as reference sites by Badawy (1984). TopCrop sites also exist.	Mapping - radiometrics extremely useful in highlighting changes between plains and rises/low hills/hills to the south. Prior stream and floodplain complex is well defined, however boundaries within difficult to define. Sand veneers from Grampians-sourced sediments prominent in the south-west. Tertiary rises haven't been further defined between Stawell and Glenorchy (might be later). Definition within the plain (Wimmera River floodplain) hasn't been pulled out, however at finer scales would be (e.g. Terraces, etc.). Badawy's linework on the cracking plains has been preserved. The White et al. (1985) linework is detailed in the region and has been preserved for topographically significant landforms.	3	3	6
Balmoral	Studies include West Wimmera (Baxter, Williamson & Brown 1996) and Kowree (Blackburn & Gibbons 1956). Landforms from West Wimmera align with Natimuk sheet. Public land has been included in revision. Subdued landscape, differences between texture contrast soils and heavy clays difficult to discern on radiometrics. Lake system complexes common, degree of disaggregation. Links to Tertiary surface in south and east not well understood. Sites include West Wimmera, WLRA. West Wimmera inspection sites need following up.	Linework from Baxter, Williamson & Brown (1996) has been used extensively, however, many lines have received slight shifts in accordance with radiometrics. This has been justified as all of these units are plains. Units with a strong hydrology influence have been preserved except in the N-W corner. New linework has been generated for the Brookersly to Toolondo region using radiometrics as a basis. Review against Kowree required. In the east, detail of the Rocklands-Upper Wimmera study (White et al. 1985) has been difficult to preserve. More work required here perhaps.	3	3	6
Donald	Photos - Dept of Ag. prior to 1983, Wimmera Plains includes prior stream complexes, cracking clay plains (self mulching Kalkee Clay and massive to epipedal Murtoa Clay). Radiometrics inconsistent creating issues in centre to east of sheet. Limited field work from Eastern Wimmera. Sites include Badawy (1984) Eastern Wimmera reference sites, WLRA sites. No soil pit data exists.	Mapping included prominent radiometric signatures that were defined within map previously defined by Badawy (1984). Linework of East Wimmera correlated reasonably well with radiometrics, however, given little relief over the region, API mightn't have provided detail at scale. Mapping will mosaic in with surrounding tiles well. Boundary between Mallee soils and Wimmera Plains are well defined.	2.5	3	5.5

Mapsheet	Data used in mapping	Map notes	Mapping reliability (polygonal)	Soil attribution reliability	Combined data confidence level
Warracknabeal	Radiometrics, no API existing for this sheet. Sites include Kalkee sites (Badawy 1977b), NWRS sites, TopCrop sites as well as significant E-W trending transects undertaken as part of the LRA project.	Mapping was very dependent upon radiometrics with no existing mapping. Landforms defined by Muller & Hocking (2002a) show good correlation with radiometrics. Ridges (highly likely Parilla Sand) are prominent landforms in a NW-SE trend throughout the region. The Yarriambiack is a prominent drainage network within the plain as well as the Wimmera River in the west. The boundary between the Mallee and Wimmera Plains hasn't been defined and may be a transition. Further mapping will be required and API would be extremely beneficial. With regard to mapping this area has the lowest confidence.	2	2	4
Edenhope	Overlapping surveys include West Wimmera (Baxter, Williamson & Brown 1996) and Kowree (Blackburn & Gibbons 1956). Soil sites include West Wimmera, Topcrop sites and NWRS sites. Further inspection sites from West Wimmera should be chased up.	Have used the neighbouring Balmoral sheet to guide units at the boundary, but broad units have been identified from pulling out radiometrics (broader darker areas with sandy surfaces) v. lighter radiometric signatures. Some of the larger waterbody complexes have been pulled out where many occur in close proximity. This is the major focus of these units. Where they are more sparsely scattered they are incorporated into the broader unit. Generally boundaries are reasonably obvious using the radiometrics signature differences between light and dark, or by combining waterbody complexes. However sandy rises, sandsheets, plains, etc. are more difficult to distinguish. In these instances the hydrology has been used as a guide and where minimal hydrology occurs across an area it has been assumed sandy or an elevated sandy plain.	3	3	6

Mapsheet	Data used in mapping	Map notes	Mapping reliability (polygonal)	Soil attribution reliability	Combined data confidence level
Grampians	Overlapping surveys include Rocklands (White et al. 1985) and the Grampians landsystems study by Sibley (1967). Soil sites include WLRA sites and Grampians sites. Overall the area is sparse on soil sites.	High relief of Grampians units defined with combination of DEM and radiometrics. Provides more definition than past linework. Using the White et al. (1985) linework as a base, many of minor drainage line units were amalgamated into surrounding complexes - major drainage lines were still separated out. To the western corner of the sheet the darker radiometrics signature was broadly pulled out from lighter signature areas. These were further refined by referring to the White et al (1985) study and geological changes were used as the basis for defining units. However some areas of complexity e.g. sandsheets, minor dunes, undulating plains, gilgai plains, etc. have been combined as a single complex mapping unit.	3.5	2.5	6
Horsham	Overlapping surveys include Badawy's (1997a) mapsheet report/survey, soils mapping of the Wimmera Irrigation Area by Martin et al. (1996), landform mapping by Muller & Hocking (2002a) in addition to soils mapping at Kalkee by Badawy (1977b). Recent mapping by Martin as part of this project was used for the mapsheet as was all previous work in the assembly of this linework. Soil sites are numerous (in total > 4500).	Mapping builds upon landform and soil survey from many studies and sites across the mapsheet. Radiometrics correlates extremely well with linework, only minor alterations made near mapsheet boundaries to complement linework from other studies and vice versa.	5	4	9

Mapsheet	Data used in mapping	Map notes	Mapping reliability (polygonal)	Soil attribution reliability	Combined data confidence level
Ararat Beaufort St Arnaud	Prominent linework for this region includes Rocklands (White et al. 1985) and the Grampians landsystems study by Sibley (1967). Soil sites include WLRA sites and Grampians sites. Overall the area is sparse on soil sites.	High relief of upper Wimmera landscapes units defined with combination of DEM and radiometrics. Provides more definition than past linework. Using the White et al. (1985) linework as a base, many of minor drainage line units were amalgamated into surrounding complexes - major drainage lines are still separated out. These radiometric patterns and soil variations were consistent with new regolith mapping for this area (in particular the Ararat mapsheet). However some areas of complexity included major drainage plains (Mount William Creek), minor dunes, undulating plains, Tertiary weathering surfaces v. Tertiary deposits, etc. have been major mapping issues of these mapsheets.	4	3.5	7.5

Notes: 1 = low, 2 = low -moderate, 3 = moderate, 4 = moderate-high, 5 = high

Combined data confidence level = Combined total of mapping reliability (polygonal) and soil attribution reliability divided by 2

Equal weighting has been assigned to mapping reliability (polygonal) and soil attribution in this analysis. Values have been assigned by Nathan Robinson from experience in compilation of the Wimmera Land Resource Assessment soil-landform map (2002–2005).

Soil attribution reliability should account not only for density of sites, but also quality of sites (e.g. inspection v. reference sites with chemistry and photography (soil pit)).