

WHW White Well Land System

Area: 100 km²

Landscape: Named after a property on the southern edge of the land system, the landscape consists mainly of low calc-siltstone rises surrounded by calcareous pediments and outwash plains.

Annual rainfall: 225 - 275mm average

Geology: Alluvial/colluvial Pleistocene Telford Gravel deposits occupy most of the landscape with younger Holocene alluvium in drainage lines.

Main soils: **D4** (26%) Loam over pedaric red clay (Pedaric Red Sodosol-Dermosol)
A5 (24%) Rubbly calcareous loam on clay (Supracalcic-Lithocalcic Calcarosol on clay)

Minor soils: **J1** (9%) Ironstone soil with calcareous lower subsoil (Ferric Calcic Brown Sodosol-Chromosol)
A2 (8%) Calcareous loam on rock (Paralithic Calcarosol)
A3 (7%) Deep moderately calcareous loam (Calcic Calcarosol)
D6 (5%) Ironstone gravelly sandy loam over red clay (Ferric(?) Red Chromosol)
D1 (5%) Loam over clay on rock (Shallow Calcic-Hypercalcic Red Chromosol)

Summary: The White Well Land System consists of low calc-siltstone rises surrounded by calcareous pediments and outwash plains. The main soils are red texture contrast soils with crumbly clay subsoils and rubbly gradational calcareous soils. Ironstone gravelly soils and shallow soils on rock also occur.

Soil Landscape Unit summary: White Well Land System (WHW)

| SLU | % of area | Component | Main soils | Prop# | Notes |
|-----|-----------|-------------------------|------------|-------|---|
| ADM | 1.1 | Undulating rises | L1RR D1 | D | Non-arable rocky rises formed on limestones and calc-siltstones such as Skillagoolie Dolomite with very shallow loamy soils. Undulating rises with shallow rocky soils, bare rock outcrop or shallow texture contrast loam over red clay on rock. 10-30% calcareous loam on rock. Scalded and sheet eroded. Relief is less than 30m, slopes are 3-10%. Main soils: calcareous loamy, <u>Shallow stony soils on rock - L1</u> , <u>Bare rock - RR</u> and <u>Clay loam over pedaric red clay on rock - D1</u> . |
| AEB | 0.2 | Rolling rises | L1RR | D | Non-arable rolling rocky rises formed on mostly fine-grained rocks. Soils are very shallow, not or slightly calcareous and more than 20% are petrocalcic (contain a calcrete layer). Relief is 9-30m, slopes are 10-30%. Main soils: <u>Shallow stony soils on rock - L1</u> and <u>Bare rock - RR</u> . |
| EaV | 5.6 | Gently undulating rises | A2D6 | D | Gently undulating rises formed over basement rock / saprolite within one metre of the surface. Soils are not texture contrast and are calcareous in some part of the profile. Less than 90% of soils are Calcarosols. Most soils are formed on quartzites. Less than 20% are Chromosols or Dermosols. More than 20% are Dermosols or Sodosols on kaolinised rock. Soils are mostly shallow calcareous loam over calc-siltstone, or ironstone gravelly sandy loam over red |



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| | | | | | clay, especially on lower slopes and flats; 10-30% deep rubbly calcareous loam. Moderately scalded (5-10%). Slopes are 1-3%, relief is less than 30m. Main soils: <u>Calcareous loam on rock</u> – A2 and <u>Ironstone-gravelly sandy loam over red clay</u> - D6 |
| EOGz | 3.2 | Gently undulating rises | A2A6 | D | Rises with more than 90% calcareous soils over pulverulent weathered rock. EOGz Gently undulating rises. Moderately saline and scalded. |
| EOHz | 0.6 | Undulating rises | A2A6 | D | Slopes are 1-3%, relief is less than 30m. EOHz Undulating rises. Moderately saline and scalded. |
| EOm | 1.2 | Undulating rises | A2A6 | D | Relief is less than 30m, slopes are 3-10%. EOm Undulating rises. Moderately gullied and scalded. Relief is less than 30m, slopes are 3-10%. Main soils: <u>Calcareous loam on rock</u> – A2 and <u>Gradational calcareous clay</u> - A6 . |
| EVC | 0.1 | Undulating rises | A2 | V | Undulating rises with gradational calcareous sandy loam over clay loam on weathered rock; 10-30% shallow calcareous sandy loam on rock, or bare rock. 20-30% bare rock. Relief is less than 30m, slopes are 3-10%. Main soils: <u>Calcareous loam on rock</u> – A2 and <u>Bare rock</u> - RR . |
| | | Rocky outcrops | RR | C | |
| JJV | 4.2 | Gently sloping plain | D6A3 | D | Gently sloping pediment with ironstone gravelly sandy loam over red clay, or gradational deep moderately calcareous loam. Main soils: <u>Ironstone-gravelly sandy loam over red clay</u> - D6 and <u>Deep moderately calcareous loamy sand</u> - A3 . |
| JLE | 0.6 | Creek flat | D4D1 | D | Creek flats with pedaric, texture-contrast soils with calcareous subsoils. Less than 20% of soils are gradational calcareous soils. Subsoils are moderately saline. JLE Creek flats and lower pediment slopes with loam over crumbly red clay, often on rock; 10-30% deep moderately calcareous loam over clay. JLo Creek flats and lower pediment slopes as above. Moderately gullied and scalded. JLtz Creek flats and lower pediment slopes as above. Moderately saline, severely gullied and scalded. Main soils: <u>Loam over pedaric red clay</u> - D4 and <u>Clay loam over pedaric red clay on rock</u> - D1 . |
| JLo | 3.5 | Creek flat | D4D1 | D | |
| JLtz | 7.8 | Creek flat | D4D1 | D | |
| JOV | 15.7 | Gently undulating plains | JID4 | D | Gently undulating plains with ironstone gravelly clay loam over red clay, calcareous in the subsoil. Moderately scalded (10-50%). Slopes are 1-3%, relief is less than 9m. Main soils: <u>Ironstone texture contrast soil with calcareous subsoil</u> – J1 and <u>Loam over pedaric red clay</u> - D4 . |
| JPm | 2.7 | Pediments | D4A5 | D | Pediments and plains with texture contrast soils formed on outwash sediments derived from basement rocks. Calcareous in some part of the profile. More than 20% of soils are pedaric (fine crumbly structure in subsoils). JPm Undulating pediment plains with clay loam over crumbly red clay, or deep calcareous rubbly clay loam over clay. Moderately gullied (5-10%) and scalded (10-50%). Slopes are 3-10%, relief is less than 9m. JPU Plains, moderately scalded (5-10%). JPv Gently sloping pediments. Moderately gullied and severely scalded. Subsoils are saline. Slopes are 1-3%, relief is less than 9m. Main soils: <u>Loam over pedaric red clay</u> - D4 and <u>Rubbly calcareous loam on clay</u> - A5 . |
| JPU | 2.5 | Plains | D4A5 | D | |
| JPv | 5.1 | Pediments | D4A5 | D | |



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| KaV | 3.3 | Gently undulating pediment | C3A3 | D | Gently sloping fans with soils formed on outwash sediments derived from basement rock. Soils are not texture contrast and are calcareous in some part of the profile. Most common soils are Dermosols and more than 20% are Calcarosols. Slopes are 1-3%, relief is less than 9m. Moderately scalded (10-50%). Main soils: <u>Friable gradational clay loam - C3</u> and <u>Deep moderately calcareous loamy sand - A3</u> . |
| KFGz | 1.3 | Pediment | A5 | D | Pediments and plains with calcareous gradational soils and more than 20% red pedaric texture contrast soils. KFGz Gently sloping pediment with deep rubbly calcareous clay loam on clay. Moderately saline and scalded. Slopes are 1-3%, relief is less than 9m. KFU Plains. Moderately scalded (10-50%). KFY Valley floor, moderately scalded. <i>Pediments and plains:</i> <u>Rubbly calcareous loam on clay - A5</u> on. <i>Valley floors:</i> <u>Deep moderately calcareous loamy sand - A3</u> and <u>Loam over pedaric red clay - D4</u> . |
| KFU | 3.4 | Plains | A5 | D | |
| KFY | 3.5 | Valley floor | A3D4 | D | |
| KLv | 1.7 | Pediment | A5D4 | D | Gently sloping pediments with clay loamy calcareous soils. Moderately gullied and severely scalded. Subsoils are saline. Slopes are 1-3%, relief is less than 9m. Main soils: <u>Rubbly calcareous loam on clay - A5</u> and <u>Loam over pedaric red clay - D4</u> . |
| KOB | 10.7 | Pediment | A5 | D | Pediments with calcareous soils occupying more than 80% of land. KOB Gently sloping pediments with deep rubbly calcareous loam over clay. 10-30% texture-contrast clay loam over crumbly red clay. Slopes are 1-3%, relief is less than 9m. KOU Plains with mostly non-rubbly deep calcareous soils. Moderately scalded (10-50%). Main soils: <u>Gradational calcareous clay - A6</u> and <u>Rubbly calcareous loam on clay - A5</u> . |
| KOU | 5.4 | Plains | A6A5 | D | |
| KQB | 1.9 | Pediment | A5 | V | Pediment and basement-rise complexes with mostly calcareous gradational soils. KQB Gently sloping pediments. Slopes: 1-3%, relief: less than 9m. KQu Plains and rises. Moderately gullied and severely scalded. KQV Gently sloping pediments. Moderately scalded. Slopes are 1-3%, relief is less than 9m. KQv Gently sloping pediments. Moderately gullied and severely scalded. Slopes are 1-3%, relief is less than 9m. Main soils: <u>Rubbly calcareous loam on clay - A5</u> on pediments and <u>Calcareous loam on rock - A2</u> on rises. |
| | | Shallow rises | A2 | C | |
| KQu | 1.4 | Plain | A5 | V | |
| | | Shallow rises | A2 | C | |
| KQV | 9.5 | Pediment | A5 | V | |
| | | Shallow rises | A2 | C | |
| KQv | 0.7 | Pediment | A5 | V | |
| | | Shallow rises | A2 | C | |
| Xc- | 1.1 | Lunettes | A8 | D | Lunettes with deep gypseous loam over clay loam. 10-30% calcareous loam over clay on marl in swampy hollows. Main soils: <u>Gypseous calcareous loam - A8</u> . |
| XOD | 2.1 | Swamp | A7A8 | D | Moderately saline swamps with calcareous loam over clay on marl, or deep gypseous loam over clay loam. 10-30% saline wet soils. Main soils: <u>Calcareous clay loam on marl - A7</u> and <u>Gypseous calcareous loam - A8</u> . |

PROPORTION codes assigned to Soil Landscape Unit (SLU) components:

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|---|--|---|-----------------------------------|
| D | Dominant in extent (>90% of SLU) | C | Common in extent (20–30% of SLU) |
| V | Very extensive in extent (60–90% of SLU) | L | Limited in extent (10–20% of SLU) |
| E | Extensive in extent (30–60% of SLU) | M | Minor in extent (<10% of SLU) |



Detailed soil profile descriptions:

- A2/L1** Shallow calcareous loam (Paralithic, Hypercalcic / Lithocalcic Calcarosol)(A2) OR Shallow stony loam (Calcareous, Paralithic, Leptic Tenosol)(L1)
- A3** Deep moderately calcareous (sandy) loam (Calcic Calcarosol)
Calcareous (sandy) loam topsoil grading into loamy-clay loamy subsoil without a significant CO₃ buildup in the subsoil (<20% CO₃ in subsoil). Pediment type Calcarosols.
- A5** Rubbly calcareous loamy sand on clay (Supracalcic-Lithocalcic Calcarosol on clay)
Calcareous loamy sand topsoil grading into loamy-clay loamy subsoil on a clayey substrate. Usually rubbly. Clayey substrate occurs at >60 cm and <120 cm.
- A6** Gradational calcareous clay loam (Pedal Hypercalcic-Lithocalcic Calcarosol on clayey subsoil)
Calcareous loams to clay loams grading into brown-red clay. Often rubbly.
- A7** Calcareous clay loam on marl (Marly Calcarosol)
Dark calcareous clay with a marly subsoil.
- A8** Gypseous calcareous loam (Gypseous Calcarosol)
Calcareous soil with a Gypsic horizon (>20% visual gypsum in a horizon which is at least 10 cm thick). Found on lunettes, flats, etc.
- C3** Gradational clay loam (Calcic / Hypercalcic Red Dermosol)
Loam to clay loam grading to a friable red clay with soft Class I carbonate within 50 cm, grading to alluvium within 100 cm.
- D1** Loam over red clay on rock (Hypercalcic / Calcic, Red Chromosol / Sodosol)
Medium thickness hard gravelly loam over red clay, friable and finely structured, calcareous with depth, grading to weathering basement rock within 100 cm.
- D4** Loam over red friable clay (Calcic, Pedaric, Red Sodosol)
Thin to medium thickness fine sandy loam to loam over a finely structured friable red clay, calcareous from about 50 cm, grading to fine or medium grained alluvium.
- D6** Ironstone gravelly sandy loam over red clay (Ferric(?) Red Chromosol)
Loamy texture contrast soil with some ironstone gravel and a red alkaline clayey subsoil.
- J1** Ironstone soil with calcareous lower subsoil (Ferric Calcic Brown Sodosol-Chromosol-Dermosol)
Ironstone gravelly soil with brown alkaline clayey subsoil which has a calcareous layer within the profile.
- L1** Shallow stony loam (Paralithic, Leptic Tenosol)
Shallow stony loam, often calcareous throughout or with depth, overlying weathering rock shallower than 50 cm.
- RR** Bare rock.

Further information: [DEWNR Soil and Land Program](#)

