

SPG Spring Gully Land System

Rough moderately steep to steep low hills extending from Clare through Spring Gully to the Skilly Hills

Area: 41.9 km²

Annual rainfall: 550 – 650 mm average

Geology: Variably metamorphosed sandstones of the Rhynie Formation, and interbedded quartzites with limited phyllites and dolomites. Localized deposits of gritty outwash sediments occur in drainage depressions. There is only minor accumulation of secondary carbonates due to the high rainfall and permeable substrate.

Topography: The Spring Gully Land System comprises moderately steep to steep strongly dissected low hills, more or less formed around a central north - south spine, although in the south, the western edge is marked by the watershed between this System and the Kybunga plains. The land is rough, with extensive surface stone (sandstone and quartzite cover of 20% and up to 50%). There is 5 - 10% rocky outcrop on steeper slopes. Much of the land has slopes of more than 15%, and this is generally uncleared, or partly cleared. There are some undulating rises with slopes as low as 8%. Water courses generally drain outwards from the central highlands, but in the south drainage is to the east and south.

Elevation: 600 m (Mt. Oakden) to 340 m in the south

Relief: Maximum relief is 110 m

Soils: The predominant soils are sandy loams, with or without clayey subsoils, forming in weathering sandstone. Less common soils are either loamy (forming on finer grained rocks), or deeper over alluvial sediments on lower slopes.

Main soils:

- K4** Sandy loam over friable clay - common (throughout)
- L1a** Shallow stony sandy loam - common (steeper slopes)
- K3** Sandy loam over poorly structured clay - common (gentler slopes)
- K2** Loam over red clay - limited (slopes on fine grained rocks)

Minor soils:

- L1b** Loam over siltstone - (steeper rocky slopes on fine grained rock strata)
- F2** Sandy loam over dispersive brown clay - (slopes and depressions)
- F1** Sandy loam over mottled clay - (lower slopes and drainage depressions)
- B3** Loam over limestone - (valleys)

Main features: This land is mostly rough and strongly dissected. Access is difficult on steeper land due to steep slopes and rocky surfaces. The soils are generally infertile, shallow and stony, but well drained. On gentler accessible slopes, soils are generally infertile and often poorly structured. Waterlogging, erosion and acidification are hazards on this land, as is salinity to some extent. There are however areas of fertile well structured (although shallow) soils where parent rocks are dolomites or siltstones. On lower slopes and drainage depressions, soils are sandy, stony and infertile with high acidification potential. Subsoils have low permeability, causing subsurface waterlogging. Run on water from adjacent steeper slopes creates an erosion hazard in water courses.



Soil Landscape Unit summary: 7 Soil Landscape Units (SLUs) mapped in the Spring Gully Land System

SLU	% of area	Main features #
ANC AND ANE	7.0 58.4 3.7	<p>Moderately steep to very steep rocky ranges formed on sandstones and quartzites with limited interbeds of finer grained rocks and limestones/dolomites. Surface sandstone and quartzite coverage is 20-50%.</p> <p>ANC Moderately steep rises and low hills, 20-40 m high (occasionally up to 80 m) with slopes of 15-30%</p> <p>AND Steep low hills and hills, 50-110 m high with slopes of 25-50%.</p> <p>ANE Very steep dissection slopes of Spring Gully, up to 70 m high with slopes of 50-100%.</p> <p>Main soils: <u>shallow stony sandy loam</u> - L1a (E) and <u>sandy loam over friable clay</u> - K4 (C), with <u>sandy loam over poorly structured clay</u> - K3 (C), <u>loam over red clay</u> - K2 (L) and <u>loam over siltstone</u> - L1b (M). This land is rough and strongly dissected, making access very difficult. The soils are generally infertile, shallow and stony, but well drained. Opportunities for development are limited except on the gentler slopes of ANC.</p>
BDI	4.5	<p>Moderately inclined footslopes of 10-20% between higher ridges. The slopes are underlain by dolomites / limestones and siltstones. The land occurs as long narrow north - south strips, generally bisected by a central eroded water course.</p> <p>Main soils: <u>loam over limestone</u> - B3 (E), with <u>loam over red clay</u> - K2 (L) <u>loam over siltstone</u> - L1b (L) and <u>sandy loam over poorly structured clay</u> - K3 (L). These soils are well drained and fertile, but usually shallow. Erosion potential is high due to moderate slopes and runoff from adjacent steep ridges.</p>
ChD ChN	14.1 8.3	<p>Rises formed on quartzites and sandstones with up to 20% surface quartzite stones.</p> <p>ChD Undulating to gently rolling rises and low hills, 20-40 m high with slopes of 8-20%.</p> <p>ChN Similar to ChD but with sporadic saline seepages on lower slopes.</p> <p>Main soils: <u>sandy loam over poorly structured clay</u> - K3 (E) and <u>sandy loam over friable clay</u> - K4 (E), with <u>sandy loam over dispersive brown clay</u> - F2 (L) and <u>shallow stony sandy loam</u> - L1a (L). Although the terrain is accessible and mostly free of rocky outcrop, the soils are infertile and often poorly structured (K3, F2 soils). Waterlogging, erosion and acidification are hazards on this land, as is salinity to some extent.</p>
LCe	4.0	<p>Drainage depressions formed on gritty clay alluvium derived from the sandstone rises and hills. Water courses are commonly eroded, and there are isolated saline seepages. Main soils: <u>sandy loam over mottled clay</u> - F1 (V) with <u>sandy loam over dispersive brown clay</u> - F2 (L). Surface soils are sandy, stony and infertile with high acidification potential. Subsoils have low permeability, causing subsurface waterlogging. Run on water from steeper adjacent slopes creates an erosion hazard in water courses.</p>

PROPORTION codes assigned to soils within Soil Landscape Units (SLU):

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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:

- B3** Loam over limestone (Petrocalcic, Leptic Tenosol)
Medium thickness friable loam to clay loam sharply overlying a thin hard carbonate pan grading to softer limestone or calcareous siltstone.
- F1** Sandy loam over mottled clay (Eutrophic, Brown / Grey Chromosol / Sodosol)
Thick grey sandy loam with a gravelly bleached A2 layer over a brown or grey mottled clay grading to gritty alluvium extending below 100 cm.
- F2** Sandy loam over dispersive brown clay (Eutrophic, Brown Sodosol)
Medium to thick hard sandy loam to sandy clay loam abruptly overlying a brown, grey and red mottled coarsely structured dispersive heavy clay over alluvium or highly weathered rock.
- K2** Loam over red clay (Eutrophic, Red Chromosol)
Medium to thick gravelly loam over a red well structured clay grading to rock.
- K3** Sandy loam over poorly structured clay (Eutrophic, Red / Brown Chromosol)
Medium thickness grey sandy loam with a very gravelly bleached A2 layer, over a poorly structured (commonly dispersive) brown, red and yellow mottled clay grading to coarse grained quartzitic rock within 100 cm.
- K4** Sandy loam over friable clay (Eutrophic, Brown Chromosol)
Medium to thick sandy loam with a stony bleached A2 layer, over a friable brown, yellow and red sandy clay grading to sandstone within 100 cm.
- L1a** Shallow stony sandy loam (Lithic, Leptic Tenosol / Rudosol)
Medium to thick very stony sandy loam to loamy sand, often with a bleached A2 layer, directly overlying hard quartzite or sandstone.
- L1b** Loam over siltstone (Paralithic, Leptic Tenosol)
Medium to thick gravelly loam overlying fine grained rock.

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

