Major Land Resource Area 053A
Northern Dark Brown Glaciated Plains

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Ecological site keys

MLRA 53 Key Determination

I. 2005 era legacy ESDs with plant tables and reference worksheets ... Key 2 – MLRA 53X Legacy Site Description Key

II. Provisional LRU ES level developed concept descriptions. ... Key 3 – Provisional LRU level ESD Key

MLRA 53X Legacy Site Description Key

I. Site receives additional effective moisture

- A. Soil saline (EC> 4 within surface 4”) and water table > 40”
  - 1 Seasonal high water table≥ 40” from ground surface; salt tolerant plants dominate site; site regularly receives more than normal soil moisture because of run-in or stream overflow ... R053AE072MT – Saline Overflow (Sov) (Legacy) RRU 53AE
- B. Site not as above
  - 2 Seasonal high water table < 40” from ground surface ... R053AE070MT – Subirrigated (Sb) (Legacy) RRU 53AE
  - 1 Seasonal high water table ≥ 40” from ground surface; site regularly receives more than normal soil moisture because of run-in or stream overflow ... R053AE067MT – Overflow (Ov) (Legacy) RRU 53AE

II. Site does not receive additional effective moisture

- A. Soil saline or saline-sodic within surface 20” or soils with natric or relic natric horizons
  - 1 No columnar structure; site dominated by salt tolerant plants ... R053AE071MT – Saline Upland (SU) (Legacy) RRU 53AE
  - 2 Columnar structure present, abrupt root or water restrictive clay layer present within 8” of soil surface ... R053AE074MT – Claypan (Cp) (Legacy) RRU 53AE
- B. Site not as above
  - 2 Soils moderately deep, deep, or very deep (≥ 20” deep to bedrock, lithic, or paralithic root restrictive layer)
    - i. Slope < 15%
      - a. Coarse sandy loam to fine sandy loam texture within surface mineral 4” ... R053AE062MT – Sandy (Sy) (Legacy) RRU 53AE
      - b. Site not as above
        - 1) Clay content is > 32% in surface mineral 4” of mineral soil (ribbon > 2” long)
          - a) Soil 32% to 45% clay within surface mineral 4” ... R053AE061MT – Clayey (Cy) (Legacy) RRU 53AE
          - b) Soil > 45% clay within surface mineral 2” ... R053AE073MT – Dense Clay (DC) (Legacy) RRU 53AE
        - 2) Clay content is < 32% in surface mineral 4” ... R053AE060MT – Loamy (Lo) (Legacy) RRU 53AE

ii. Slope ≥15%

a. Clay content is > 32% (ribbon > 2” long) in surface mineral 4” ... R053AE065MT – Clayey Steep (Cystp) (Legacy) RRU 53AE

b. Clay content is < 32% (ribbon < 2” long) in surface mineral 4” ... R053AE058MT – Loamy Steep (Lostp) (Legacy) RRU 53AE

1 Soils shallow to very shallow (< 20” deep to bedrock, lithic, or paralithic root restrictive layer) ... R053AE078MT – Shallow Clay (Swc) (Legacy) RRU 53AE

Provisional LRU level ESD Key

A. Site Receives additional moisture either from groundwater or from surface water

1a. Site is a closed depression with run in

2a. Site receives water from groundwater discharge - typically Saline (EC ≥ 4) and/or Sodic (SAR ≥ 13) - Discharge Closed Depression (CdD) ... FX053A99X705 – Discharge Closed Depression (CdD)

2b. Site does not receive water from groundwater discharge - typically Nonsaline and Nonsodic (EC < 4 and SAR < 13) - Recharge Closed Depression (CdR) ... FX053A99X071 – Recharge Closed Depression (CdR)

1b. Site is on drainageways, floodplains, swales, or coulees

3a. Receives additional moisture from groundwater. Water table ≤ 40 inches (100cm)

4a. Seasonal high water table < 24" (60 cm) ... FX053A99X084 – Slough (Sl)

4b. Seasonal high water table 24" to 40" (60-102 cm)

5a. Soil neither saline nor sodic [EC < 4 and SAR < 13 within surface 4" (10 cm)] ... FX053A99X150 – Subirrigated (Sb)

5b. Soil Saline (EC ≥ 4) and/or Sodic (SAR ≥ 13) within surface 4" (10 cm) ... FX053A99X713 – Saline Lowland (SLL)

3b. Receives additional moisture from surface water. Water table absent or, if present, > 40 inches (100 cm)

6a. Soil Saline (EC ≥ 4) and/or Sodic (SAR ≥ 13) within surface 4" (10 cm) ... FX053A99X713 – Saline Lowland (SLL)

6b. Soil neither saline nor sodic [EC < 4 and SAR < 13 within surface 4" (10 cm)]

7a. Site is located outside of the floodplain

8a. Herbaceous species and/or sagebrush dominate site; Typically broad, U-shaped swales and coulees ... FX053A99X062 – Swale (Se)

8b. Woody species (chokecherry, serviceberry, green ash) dominate site; Typically steep, V-shaped swales & coulees ... FX053A99X756 – Woody Draw (WD)

7b. Site is located inside the floodplain

9a. Site Dominated by woody vegetation ... FX053A99X061 – Riparian Woodland (RW)

9b. Site dominated by herbaceous vegetation ... FX053A99X060 – Overflow (Ov)

B. Site does not receive additional effective moisture

1a. Soils with an abrupt root or water restrictive clay layer (evidenced by columnar structure), present within 10” (25 cm) of soil surface

2a. 0"- 4” (0-10 cm) of surface over clay layer (evidenced by columnar structure)

3a. 1" (2.5 cm) or less of surface over clay layer (evidenced by columnar structure) ... FX053A99X145 – Panspot (Pn)

3b. Greater than 1" (2.5 cm) to 4" (10cm) of surface over clay layer (evidenced by columnar structure) ... FX053A99X165 – Thin Claypan (TCp)

2b. Greater than 4" (10 cm) to 10" (25cm) of surface over clay layer (evidenced by columnar structure) ... FX053A99X006 – Claypan (Cp)

1b. Soils without a restrictive clay layer (evidenced by columnar structure) within 10" (25 cm) of the soil surface

4a. Soil saline (EC ≥ 4) and/or sodic (SAR ≥ 13) within surface 20” (50 cm) ... FX053A99X093 – Saline Upland (SU)

4b. Soil neither saline nor sodic [EC < 4 and SAR < 13 within surface 20" (50 cm)]

5a. Soils moderately deep or shallower [< 40” (100 cm) deep] to lithic, paralithic, or petrocalcic root restrictive layer

6a. Soils with a restrictive lime cemented layer within 40" (100 cm) of the soil surface - Future Site Concept Petrocalcic - use 9b Thin Breaks

6b. Soils without a restrictive lime cemented layer within 40" (100 cm) of the soil surface

7a. Clay content is > 35% in surface mineral 4” (10 cm) [ribbon > 2” long]

8a. Soils shallow or very shallow [< 20” (50 cm) deep] to bedrock, lithic, or paralithic root restrictive layer]

8b. Soils moderately deep [≥ 20" (50cm) to < 40" (100cm) deep] to bedrock, lithic, or paralithic root restrictive layer]

7b. Clay content ≤ 35% in surface mineral 4" (10 cm) [ribbon < 2” long]

9a. Soils containing BOTH a mollic epipedon and an argillic horizon - go to 16

16aa. 16a. Strongly or violently effervescent in surface mineral 5” (12 cm), lime conc. increasing with depth.

17aa. Slope < 15% ... FX053A99X030 – Limy (Ly)

17bb. Slope ≥ 15% ... FX053A99X029 – Limy Steep (LyStp)

16bb. Not strongly or violently effervescent within surface mineral 5" (12 cm)

18aa. Slope < 15% ... FX053A99X032 – Loamy (Lo)

18bb. Slope ≥ 15% ... FX053A99X040 – Loamy Steep (LoStp)

9b. Soils lacking either a mollic epipedon, an argillic horizon, or both ... FX053A99X160 – Thin Breaks (TB)

5b. Soils deep to very deep [≥ 40” (100 cm) deep] to lithic, paralithic, or petrocalcic root restrictive layer

10a. Soil skeletal within 20" (50 cm) of the surface [≥ 35% rock fragments within 20" of the surface]

11a. Soil predominantly sandy-skeletal in the surface 20 inches (50cm) ... FX053A99X021 – Sandy Gravel (SyGr)

11b. Soil predominantly loamy-skeletal in the surface 20 inches (50cm)

10b. Soil not skeletal within 20" (50 cm) of the surface [< 35% rock fragments in the surface 20”]

12a. Sandy textural family in surface mineral 4” (10 cm)

13a. Soils occur on dunes or dune fields, typically sand or loamy sand

13b. Soils not as above - Future Site Concept Sands (Sa)* - use Sandy

12b. Coarse loamy or finer textural family in surface mineral 4" (10 cm)

14a. Coarse loamy or coarse silty textural family in surface mineral 4” (10 cm)

14b. Fine loamy, fine silty or finer textural family in surface mineral 4" (10 cm)

15a. Clay content is > 35% in surface mineral 4” (10 cm) [ribbon > 2” long]

15b. Clay content ≤ 35% in surface mineral 4" (10 cm) [ribbon < 2” long]

16a. Strongly or violently effervescent in surface mineral 5” (12 cm), lime conc. increasing with depth.

17a. Slope < 15%

17b. Slope ≥ 15% ... FX053A99X029 – Limy Steep (LyStp)

16b. Not strongly or violently effervescent within surface mineral 5" (12 cm)

18a. Slope < 15% ... FX053A99X032 – Loamy (Lo)

18b. Slope ≥ 15% ... FX053A99X040 – Loamy Steep (LoStp)