Vegetation Rehabilitation Recommendations

**General:**
- recreate healthier ecological conditions
- re-establish more open landscape
- recreate historic balance between prairie and woodland

**Retain woodland communities:**
- along streams and ravines
- along boundaries as screening plantings
- in areas of high soil erosion hazard
- in places where woodlands occurred historically
Analysis Flowchart

Existing vegetation conditions

Grassland areas that changed the least over time

Areas that can be maintained as grasslands

Suitability level of areas selected for grassland rehabilitation

Additional criteria

Historic vegetation conditions

Final Result – Areas recommended for rehabilitation
Step 1
Identify grassland areas that changed the least over time

Input raster grids represent five periods of vegetation cover in the Platt District.

**Detailed Analysis**

**Step 1**

- Analysis extent: Platt District.
- Set cell size: 1m.
- Reclassify grids, value 1 - grassland areas of each period; value 0 remaining entries (woodland and no data).
- Use cell statistics: sum.
- Reclassify sum raster into five categories representing cover change.
Step 2
Identify areas that are feasible for grassland rehabilitation

Criteria:

C1: located within the boundary of the Platt District, but at least 20 m from the boundary (20m buffer along the boundary to be retained as screening plantings)

C2: located outside of major streams (30 meters buffers of major streams and 20 meters of ravines to be retained as woodland)

C3: located outside of road management zone (5m buffer)

C4: located outside of developed areas

C5: located outside of areas historically covered with woodland
Detailed Analysis - Step 2

Input data – vector form

- Boundary
- Water system
- Roads
- Developed areas

CREATE BUFFERS

20m of boundary
30m of streams
20m of ravines
5m of roads

RECLASSIFY

1940 tree cover

Woodland areas
Open areas

Criterion 1
Criterion 2
Criterion 3
Criterion 4
Criterion 5
Step 2 - Result Map

Platt District – Grassland rehabilitation feasibility

Legend

Grassland rehabilitation feasibility
- not feasible (0)
- feasible (1)

Evaluate

Step 3

Suitability models

**Criteria:**

**C1:** located on relatively flat ground (removal of wooded vegetation on steep slopes may cause erosion)

**C2:** located on ground that changed the least over time

**C3:** have soil type suitable for grassland rehabilitation

**C4:** for educational purposes they should be located close to trail segments

**Grassland rehabilitation suitability levels:**

- high suitability: 3
- moderate suitability: 2
- low suitability: 1
- not suitable: 0

**Possible approaches**

- **Historical preservation model**
  - Criterion 1 (slope) × 0.25
  - Criterion 2 (change) × 0.5
  - Criterion 3 (soil) × 0.15
  - Criterion 4 (trail dist.) × 0.1
  - 214 acres selected for rehabilitation

- **Ecological preservation model**
  - Criterion 1 (slope) × 0.4
  - Criterion 2 (change) × 0.2
  - Criterion 3 (soil) × 0.3
  - Criterion 4 (trail dist.) × 0.1
  - 308 acres selected for rehabilitation

- **Educational model**
  - Criterion 1 (slope) × 0.2
  - Criterion 2 (change) × 0.2
  - Criterion 3 (soil) × 0.1
  - Criterion 4 (trail dist.) × 0.5
  - 272 acres selected for rehabilitation

- **Balanced model**
  - Criterion 1 (slope) × 0.35
  - Criterion 2 (change) × 0.35
  - Criterion 3 (soil) × 0.2
  - Criterion 4 (trail dist.) × 0.1
  - 237 acres selected for rehabilitation
Detailed Analysis - Step 3

Set analysis mask – consider only areas that are feasible for grassland rehabilitation (raster created in SP2)

\[
[\text{grchng\_suit}] \times 0.35 + [\text{slope\_per\_suit}] \times 0.35 + [\text{soil\_suit}] \times 0.2 + [\text{trails\_suit}] \times 0.1
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