

Saskatchewan Rangeland Ecosystems
Publication 6

Communities on the Clay Ecosite

Version 2

A project of the Saskatchewan Prairie Conservation Action Plan



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Canada



NOTES

- This publication describes native rangeland communities found on the Clay Ecosite in the Mixed Grassland Ecoregion of Saskatchewan. The types described probably also apply to the Clay Ecosite in the Dry Mixed Grassland, but the extent of this is not known. No classification was possible for the Aspen Parkland because of insufficient data. There are only limited areas of grassland on Clay Ecosite in Saskatchewan, because most of it has been converted to cropland.
- In each region, a reference community, typical of ungrazed to lightly grazed areas, and a series of other communities related to increasing grazing impact, are described.
- In assessing rangeland health, this information can be used to pick the community that best fits the area being assessed. The degree of alteration of that community from the reference community can be used to answer Question 1 of the Saskatchewan Rangeland Health Assessment. This may require interpretation, because the area being assessed may not exactly match any of the described types.
- Another approach is to calculate the percent similarity of the area being assessed to the reference community, as a measure of the degree of alteration due to grazing impact. This measure is similar in both concept and result to the traditional range condition scale.
- State-and-transition diagrams are used to show that there may also be transitions related to factors such as exotic invasion or fire regime. These transitions should not be confused with grazing impacts.
- More detailed discussion of the above points can be found in *Publication 1: Ecoregions and Ecosites*.

PHOTO CREDITS: Front Cover –Sceptre Heavy Clay soil profile (Darwin Anderson).

SUGGESTED CITATION

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OBTAINING PUBLICATIONS: *Saskatchewan Rangeland Ecosystems* publications are available on the Prairie Conservation Action Plan website (http://www.pcap-sk.org/?s=9.resources_literature).

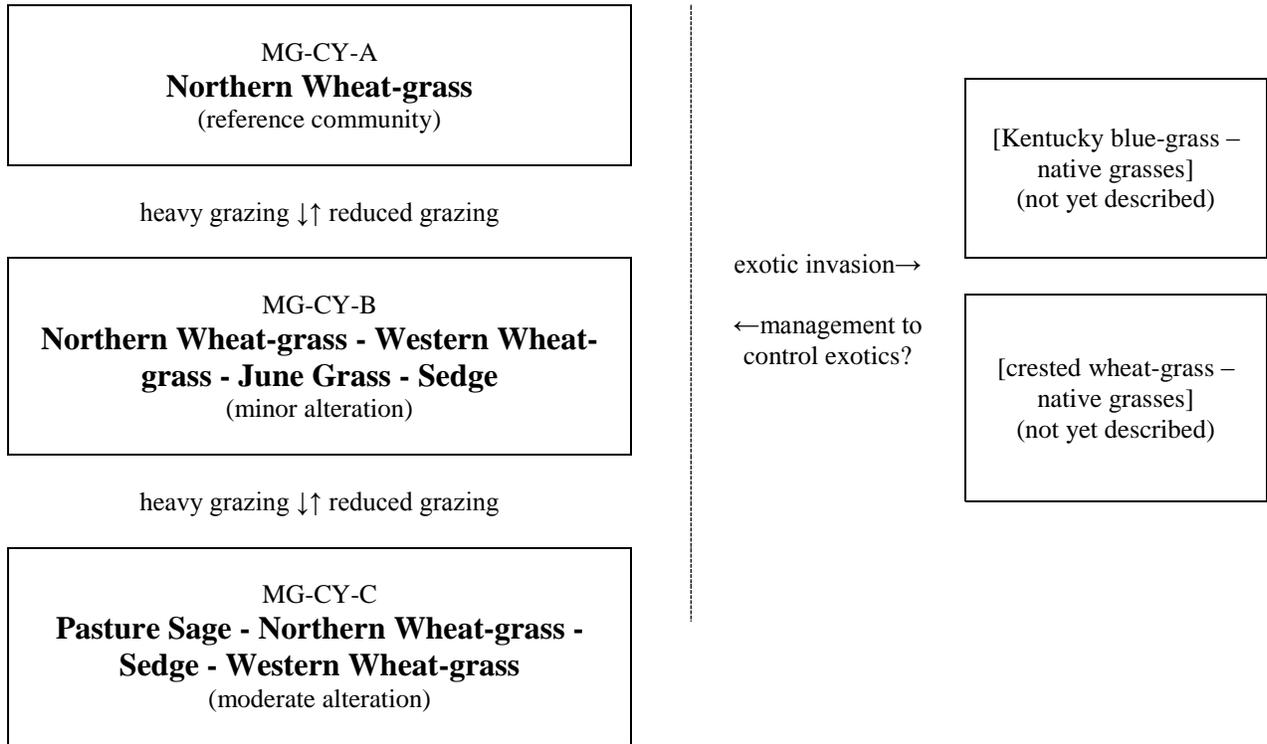


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STATE-AND-TRANSITION DIAGRAMS
Mixed Grassland: Clay Ecosite



COMMUNITY DESCRIPTIONS

MG-CY-A

Northern Wheat-grass

Mixed Grassland: Clay Ecosite

GENERAL DESCRIPTION: Mixed prairie strongly dominated by midgrasses, with lesser amounts of shortgrasses, half-shrubs, and forbs. Shrub cover usually low. **Reference community** for the Clay Ecosite in the Mixed Grassland Ecoregion. It probably also applies to the Clay Ecosite in the Dry Mixed Grassland, but the extent of this is not known.

STRUCTURE

herbaceous cover (n=13)	19% (14 - 20)	cactus cover (n=13)	0% (0 - 1)
- midgrasses	approx. 15%	clubmoss cover (n=15)	8% (0 - 25)
- shortgrasses	approx. 3%	lichen cover (n=12)	2% (1 - 3)
- half-shrubs	approx. 2%	litter cover (n=7)	18% (11 - 29)
- forbs	approx. 1%		

SPECIES COMPOSITION

	% biomass (n=15)	% foliar cover (n=6)
Major graminoids		
northern wheat-grass (<i>Elymus lanceolatus</i>)	49% (31 - 72)	19% (9 - 28)
western wheat-grass (<i>Pascopyrum smithii</i>)	8% (0 - 20)	1% (0 - 2)
needle-and-thread (<i>Hesperostipa comata</i>)	7% (0 - 22)	1% (0 - 3)
sedge (<i>Carex spp.</i>)	6% (0 - 15)	1% (1 - 3)
june grass (<i>Koeleria macrantha</i>)	6% (0 - 13)	1% (0 - 2)
green needle grass (<i>Nassella viridula</i>)	4% (0 - 13)	2% (0 - 3)
blue grama (<i>Bouteloua gracilis</i>)	2% (0 - 6)	1% (0 - 3)
western porcupine-grass (<i>Hesperostipa curtiseta</i>)	1% (0 - 0)	
Sandberg's blue-grass (<i>Poa secunda</i>)	1% (0 - 2)	1% (0 - 2)
blue-grass (<i>Poa spp.</i>)	1% (0 - 0)	

Major forbs and half-shrubs		
pasture sage (<i>Artemisia frigida</i>)	7% (1 - 17)	1% (0 - 2)
winter fat (<i>Krascheninnikovia lanata</i>)	3% (0 - 5)	1% (0 - 3)
scarlet mallow (<i>Sphaeralcea coccinea</i>)	1% (0 - 2)	
moss-phlox (<i>Phlox hoodii</i>)	1% (0 - 2)	
broomweed (<i>Gutierrezia sarothrae</i>)	1% (0 - 2)	

Minor forbs and half-shrubs	2%	2%
Minor shrubs	1%	0%

SIMILARITY TO REFERENCE COMMUNITY	ref. community
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PRODUCTION	graminoids 1100 kg/ha; forbs 150 kg/ha	
RECOMMENDED STOCKING RATE	0.72 AUM/ha	0.29 AUM/ac

MG-CY-B
Northern Wheat-grass - Western Wheat-grass - June Grass – Sedge
Mixed Grassland: Clay Ecosite

GENERAL DESCRIPTION: Mixed prairie dominated by midgrasses, with shortgrasses subdominant, and lesser amounts of half-shrubs and forbs. Shrub cover usually low. Interpreted as showing **minor alteration** from the reference community as a result of grazing impact. Probably develops from MG-CY-A by decrease of northern wheat-grass and increase of a variety of species.

STRUCTURE

herbaceous cover (n=6) 32% (18 – 51) - midgrasses approx. 15% - shortgrasses approx. 10% - half-shrubs approx. 3% - forbs approx. 3%	clubmoss cover (n=5) 8% (0 – 23)
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SPECIES COMPOSITION

% biomass (n=20)

Major short shrubs	
silver sagebrush (<i>Artemisia cana</i>)	1% (0 - 1)
rose (<i>Rosa spp.</i>)	1% (0 - 1)

Major cactus	
plains prickly-pear (<i>Opuntia polyacantha</i>)	1% (0 - 0)

Major graminoids	
northern wheat-grass (<i>Elymus lanceolatus</i>)	17% (3 - 29)
western wheat-grass (<i>Pascopyrum smithii</i>)	15% (0 - 32)
june grass (<i>Koeleria macrantha</i>)	10% (3 - 20)
sedge (<i>Carex spp.</i>)	10% (4 - 16)
needle-and-thread (<i>Hesperostipa comata</i>)	8% (0 - 17)
blue-grass (<i>Poa spp.</i>)	7% (0 - 15)
blue grama (<i>Bouteloua gracilis</i>)	7% (0 - 18)
western porcupine-grass (<i>Hesperostipa curtisetata</i>)	4% (0 - 18)
green needle grass (<i>Nassella viridula</i>)	1% (0 - 4)
crested wheat-grass (<i>Agropyron cristatum</i>)	1% (0 - 0)

Major forbs and half-shrubs	
pasture sage (<i>Artemisia frigida</i>)	8% (0 - 19)
goldenrod (<i>Solidago spp.</i>)	3% (0 - 9)
scarlet mallow (<i>Sphaeralcea coccinea</i>)	1% (0 - 1)

Minor graminoids	1%
Minor forbs and half-shrubs	5%

SIMILARITY TO REFERENCE COMMUNITY	59%
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RECOMMENDED STOCKING RATE	0.72 AUM/ha	0.29 AUM/ac
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MG-CY-C
Pasture Sage - Northern Wheat-grass - Sedge - Western Wheat-grass
Mixed Grassland: Clay Ecosite

GENERAL DESCRIPTION: Mixed prairie dominated by midgrasses, with significant amounts of shortgrasses and half-shrubs, and lesser amounts of forbs. Some cover of short shrubs. Interpreted as showing **moderate alteration** from the reference community as a result of grazing impact. Probably develops from MG-CY-B by decrease of wheat-grasses and increase of pasture sage.

STRUCTURE: insufficient data

SPECIES COMPOSITION **% biomass (n=14)**

Major short shrubs

snowberry (<i>Symphoricarpos spp.</i>)	3% (0 - 9)
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Major graminoids

northern wheat-grass (<i>Elymus lanceolatus</i>)	15% (1 - 26)
sedge (<i>Carex spp.</i>)	11% (4 - 18)
western wheat-grass (<i>Pascopyrum smithii</i>)	10% (0 - 21)
needle-and-thread (<i>Hesperostipa comata</i>)	8% (0 - 18)
june grass (<i>Koeleria macrantha</i>)	5% (0 - 11)
blue-grass (<i>Poa spp.</i>)	5% (0 - 11)
blue grama (<i>Bouteloua gracilis</i>)	3% (0 - 9)
western porcupine-grass (<i>Hesperostipa curtiseta</i>)	2% (0 - 5)
green needle grass (<i>Nassella viridula</i>)	1% (0 - 3)

Major forbs and half-shrubs

pasture sage (<i>Artemisia frigida</i>)	27% (11 - 44)
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Minor graminoids

1%

Minor forbs and half-shrubs

9%

SIMILARITY TO REFERENCE COMMUNITY

55%

PRODUCTION

insufficient data

RECOMMENDED STOCKING RATE

0.57 AUM/ha

0.23 AUM/ac