



Native Plant Society of Saskatchewan

Saskatchewan Guidelines For Use Of Native Plants In Roadside Revegetation Pocket Guide



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I. Pre-Construction Site Preparation

Long before any revegetation is to be done, educate or re-educate yourself with literature relevant to the revegetation, as new information is always being developed. Read the field guide and its accompanying reference manual. Also consult any local experts, and have them contribute to or comment on the work plan. The following steps outline the ideal preparation process:

1. Weed Control

If perennial or other problematic weeds are found, it is advantageous to treat them even before construction begins. Below is a list of weed control options:

- A. Herbicide application using the correct herbicide, application rates and techniques for the problem (consult a current “Guide to Crop Protection”, distributed by the Saskatchewan Ministry of Agriculture).
- B. Mowing prior to seed set.
- C. Manual control (i.e. hand-pulling).
- D. Soil insolation (covering the area with black plastic).
- E. Soil impoverishment (introducing large amounts of organic matter into the soil which consumes excess nitrogen during decomposition, thereby depriving weeds and giving native seedlings an advantage. This is best done before seeding).
- F. Tilling the soil prior to flowering stage.

Combinations of the above may also be especially effective.

2. Topsoil Retention

Care should be taken not to damage any more roadside than necessary. However, if roadside surfaces will be damaged or destroyed as part of the construction process, topsoil in the affected areas should be conserved. If distinct types of topsoil are identified (those with a different colour or texture) it is advisable to keep them separate. If a significant amount of weeds occupied the site prior to construction, it is recommended that the soil be treated to kill remaining seeds and plant parts. If topsoil is moved for conservation, wide and shallow row-like piles of soil are preferable to deep and narrow row-like piles.

3. Erosion

If erosion is a concern, there are many pre-emptive measures that can be used effectively. Erosion control measures should only be implemented at this point if they will not interfere with future activities such as construction or seeding.

1. Straw crimping – working straw into the soil either before or after seeding using a straw crimper.
2. Including rhizomatous species in the seed mix (all of the recommended seed mixes contain at least one rhizomatous species).
3. Using permeable erosion barriers such as straw matting, coir (coconut fibre) matting, or a combination of both directly on the soil surface.
4. Spraying the surface with tactifier (a glue-like substance).

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5. Revegetating the area with methods better suited to preventing erosion, such as laying sod, native hay mulching or hydro-seeding.
6. Using various seeding techniques that prevent erosion, like cross-seeding (single passes seeded at right angles to each other) and using a higher seeding rate.

If watercourses or drainage features are present on the site, other techniques also exist.

1. Silt fencing – constructing fences out of wooden/metal stakes and geotextile fabric, placed perpendicular to any slope.
2. Straw rolls – rolling straw or coir matting and pegging it to the surface perpendicular to the slope.
3. Armouring – placing stones, gravel, concrete rubble or any coarse, heavy material on surfaces that will be exposed to water scour. Geotextile fabric also works, although not as well.

4. Determining Which Seed Mix to Use

If adjacent land contains agronomic species, use the recommended agronomic mix listed at the back of this booklet. If adjacent areas are cultivated or contain native vegetation, determine the location of the revegetation site on the soil map at the back of this book. There are four provincial soil zones that correspond to a seed mix. If site is predominantly sand or saline use the appropriate seed mix. There may be many seed mixes needed for the revegetation area depending on the size and how many unusual features are present.

II. Post-Construction Site Preparation

1. Weed Control

If there are any perennial or noxious weeds present, apply an appropriate herbicide at the recommended rate. Consult Saskatchewan Ministry of Agriculture's annually-updated "Guide to Crop Protection" for the appropriate herbicide types and application rates.

2. Soil Preparation

Return any topsoil that had previously been removed and saved. Prepare the soil so that it makes a satisfactory seedbed. The ideal seedbed should be firm enough so that a footprint is barely visible. If the soil is quite loose, packing will be required, as the seed needs a firm bed. Two passes, one perpendicular to the other, ensures even packing. If the soil has been highly compacted from heavy machinery, the soil will need to be tilled using either a discer or cultivator apparatus. If large clods of soil remain after tilling, these will have to be broken down so that the area has an overall uniform, fine texture. After tilling, the soil will then need packing.

The exception to the soil preparation mentioned above is if the seed is to be broadcast. In this case, soil should be loose prior to broadcasting, and packing should follow after seeding is complete.

3. Erosion Control

If erosion is a serious concern, wheat or barley straw (or straw from similarly innocuous cereal crops) may be crimped into the soil surface and seeded over without impacting seedling establishment. Straw crimping and laying fibre matting may also be done after seeding is complete. Refer to section III, Revegetation, for a list of equipment needed. If erosion is still a concern once the site has been seeded, follow the erosion control measures outlined in Section I.3.

III. Revegetation

If seeding native grass, do not use fertilizer. If seeding agronomic species, fertilizer may be used. Do not use crested wheatgrass (*Agropyron cristatum*), smooth brome (*Bromus inermis*), alfalfa (*Medicago sativa*) or sweet clover (*Melilotus spp.*) as substitutes for species listed in the agronomic mix.

Table 1 – Equipment list arranged by revegetation type. Additional equipment may be needed depending on site circumstances; this table is intended to provide a basic guideline.

Method	Equipment Needed
Laying Sod	Cultivator and/or discer for highly compacted soil
	A packer for loose soil
	Tractor
	Trucks and trailers to transport sod and equipment
	Water truck
	Sprayer if herbicide application needed
	Motor patrol
Broadcast Seeding	Cultivator and/or discer for highly compacted soil
	Broadcast seeder, such as a Whirlybird or drop-seeder
	Light, drum-style packer
	Tractor
	Trucks and trailers to transport seed and equipment
	Water truck
	Sprayer if herbicide application needed
	Motor patrol
Drill Seeding	Cultivator and/or discer for highly compacted soil

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	A packer for loose soil
	Light, drum-style packer if drill seeder lacking packing wheels
	Disc-drill seeder if drill seeding (seed drill with large openers to prevent seed from lodging in the tubes; acceptable models include Truax, Tye, Nesbit and John Deere Rangeland Drill)
	Trucks and trailers to transport seed and equipment
	Tractor
	Motor patrol
Spreading Native Hay Mulch	Cultivator and/or discer for highly compacted soil
	A packer for loose soil
	Bale chopper and/or blower, or similar equipment
	Straw crimper
	Trucks and trailers to transport seed and equipment
	Tractor
	Water truck
	Sprayer if herbicide application needed
	Motor patrol
Hydro-seeding	Cultivator and/or discer for highly compacted soil
	A packer for loose soil
	Hydro-seeder truck
	Trucks and trailers to transport seed and equipment
	Tractor
	Water truck
	Sprayer if herbicide application needed
	Motor patrol

IV. Post Planting Management

1. Weed Control

Continue weed control efforts if problems arise as the best time for eradication success is in the first years of weed colonization.

2. Watering

If seedlings appear heat/drought stressed, supplemental watering would greatly increase the chance of survival.

3. Seedling Establishment Survey

Within 2-4 weeks of seeding, visit the site and count the number of seedlings present in a one meter square. Do this at three or four different places on the site to get an average number of seedlings per square meter. Compare the results to the table below.

Table 2 – Establishment chart for newly-seeded areas. Establishment surveys should be done every time the site is visited for the first year or two, so that establishment can be monitored and any seedling die-off can be detected. Once good establishment has been achieved, these surveys are no longer necessary. Adapted from “Revegetating with Native Grasses”, Ducks Unlimited Canada.

Average Seedlings/m ²	Action
< 11	Re-seed
11-32	Wait until next year and re-evaluate establishment
33-54	Good establishment
> 54	Excellent establishment

4. Erosion Control

If erosion still poses a problem, implement appropriate measures as outlined in section I.3, provided that these measures do not impact the growth of grass seedlings.

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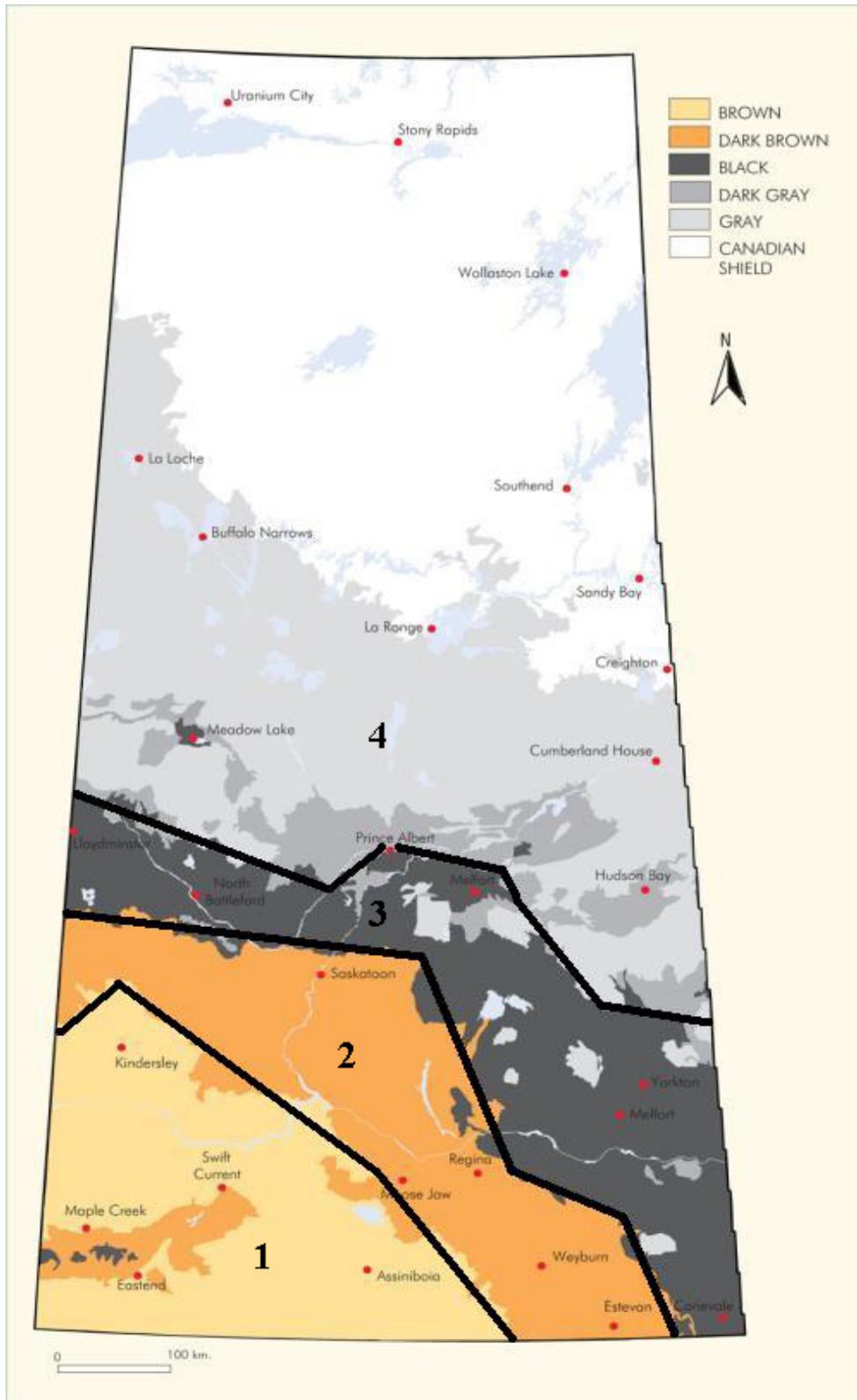


Figure 1 – Seed mix zone map. Refer to Table 3 for the corresponding seed mix for each zone. Map adapted from Figure S-2, Soil Zones of Saskatchewan from the Encyclopedia of Saskatchewan produced by the Canadian Plains Research Center.

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Table 3 – Recommended native seed mixes by seed mix zone. The zones roughly correspond to major soil zones of Saskatchewan.

Seed Mix Zone	Recommended Native Seed Mix		% of Mix
	Common Name	Latin Name	
Mixed Prairie (Zone 1)	Blue grama	<i>Bouteloua gracilis</i>	15
	Northern wheatgrass	<i>Elymus lanceolatus</i>	15
	Needle and thread	<i>Hesperostipa comata</i>	15
	June grass	<i>Koeleria macrantha</i>	10
	Western wheatgrass	<i>Pascopyrum smithii</i>	25
	Sandberg's bluegrass	<i>Poa secunda</i> ssp. <i>secunda</i>	20
Moist Mixed Prairie (Zone 2)	Blue grama	<i>Bouteloua gracilis</i>	10
	Northern wheatgrass	<i>Elymus lanceolatus</i>	20
	Plains rough fescue	<i>Festuca altaica</i>	15
	Western porcupine grass	<i>Hesperostipa curtisetata</i>	15
	June grass	<i>Koeleria macrantha</i>	10
	Western wheatgrass	<i>Pascopyrum smithii</i>	20
	Sandberg's bluegrass	<i>Poa secunda</i> ssp. <i>secunda</i>	10
Aspen Parkland (Zone 3)	Northern wheatgrass	<i>Elymus lanceolatus</i>	20
	Slender wheatgrass	<i>Elymus trachycaulus</i> ssp. <i>trachycaulus</i>	10
	Plains rough fescue	<i>Festuca altaica</i>	30
	Western porcupine grass	<i>Hesperostipa curtisetata</i>	15
	June grass	<i>Koeleria macrantha</i>	10
	Western wheatgrass	<i>Pascopyrum smithii</i>	15
Boreal Forest (Zone 4)	Nodding brome	<i>Bromus porteri</i>	15
	Streambank wheatgrass	<i>Elymus lanceolatus</i> ssp. <i>lanceolatus</i>	30
	Awned wheatgrass	<i>Elymus trachycaulus</i> ssp. <i>subsecundus</i>	15
	Plains rough fescue	<i>Festuca altaica</i>	20
	Rocky Mountain fescue	<i>Festuca saximontana</i>	10
	Fowl bluegrass	<i>Poa palustris</i>	10
Sand (Zone 1,2,3)	Prairie sandreed	<i>Calamovilfa longifolia</i>	15
	Northern wheatgrass	<i>Elymus lanceolatus</i>	15
	Slender wheatgrass	<i>Elymus trachycaulus</i> ssp. <i>trachycaulus</i>	15
	Needle and thread	<i>Hesperostipa comata</i>	20
	June grass	<i>Koeleria macrantha</i>	5

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	Indian ricegrass	Oryzopsis hymenoides	20
	Sandberg's bluegrass	Poa secunda ssp. secunda	10
Saline (Zone 1,2,3)	Saltgrass	Distichlis spicata	40
	Western wheatgrass	Pascopyrum smithii	60
	Recommended Agronomic Seed Mix		
Seed Mix Zone	<u>Common Name</u>	<u>Latin Name</u>	<u>% of Mix</u>
Adjacent Agronomic Area (Zone 1,2,3,4)	Pubescent wheatgrass	Agropyron trichophorum	40
	Dahurian wildrye	Elymus dahuricus	30
	Sheep fescue	Festuca ovina	30

Native Seed Suppliers

For the most up-to-date list, please visit the Native Plant Society of Saskatchewan's website at www.npss.sk.ca or the Alberta Native Plant Council's website at www.anpc.ab.ca

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