ALBERTA CONSERVATION INFORMATION MANAGEMENT SYSTEM

ECOLOGICAL COMMUNITY TRACKING LIST

Government of Alberta

CONSERVATION INFORMATION MANAGEMENT SYSTEM
ALBERTA

Front page: American dune grass - Indian tansy shoreline dune
(CEAB000172 Leymus mollis - Tanacetum bipinnatum ssp. huronense shoreline dune)
Photo by Ksenija Vujnovic

Documented along the north shore of Lake Athabasca, in the Kazan Upland Natural Subregion, this ecological community may also occur along the south shore, in the Athabasca Plain Subregion. It is found on slightly exposed lake beaches on low, stabilizing dunes located above the active wave zone and past a zone of dry, unvegetated sand. It is an early pioneer community with up to 60% bare sand and subject to sand movement. American dune grass is dominant, with up to 25% cover and Indian tansy is constant, but cover varies from very low (less than 2%) up to 50%.

A detailed Community Characterization Abstract for this type is provided in Appendix 3.

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ECOLOGICAL COMMUNITY TRACKING LIST

Compiled by Lorna Allen

Developing an Ecological Community Tracking and Watch List

Natural ecological communities are defined as recurring assemblages of plant species; the species occurring together because they respond similarly to a variety of site attributes (Grossman et al 1994). The species that make up the assemblage often show an affinity or association with each other (Kent and Coker 1992). To develop an initial tracking list of natural ecological community elements, publications describing vegetation in Alberta were reviewed and discussions were held with knowledgeable individuals. Community types that have been described as 'unusual', 'uncommon', 'of limited extent' or 'encountered infrequently' by vegetation experts were considered for inclusion on the Ecological Community Tracking List. Community types that have been described as 'in decline' or 'threatened' by vegetation experts were also considered for inclusion. Only natural communities were considered. The assistance of many individuals in developing this tracking is gratefully acknowledged.

Appended to the Tracking List is a "watch list". This is an initial list of communities that appear to have a restricted distribution in Alberta and for which information will be collected to ascertain trends.

Conservation Ranks

Communities are ranked on a global, national and sub-national scale of 1 to 5 in a manner similar to the system used by NatureServe for ranking species. A rank of G1 (Global 1) indicates that a community is of high conservation concern at the global scale due to rarity, endemism and / or threats, and a rank of G5 (Global 5) indicates a community that is demonstrably widespread and abundant. Similarly, a rank of N1 (National 1) or S1 (Sub-National 1) indicates that the community is of high conservation concern at the national or state / provincial level, respectively.

The two major criteria in determining a community's rank are the total number of occurrences and the total area (hectares) of the community, range-wide. Measures of geographic range, trends in status (expanding or shrinking range), trends in condition (declining condition of remaining hectares), threats and fragility are additional ranking factors that may be considered when assigning a rank. The criteria used to assign a rank to a particular community are documented using a standardised format. The purpose and process for developing conservation ranks is discussed in greater detail at the following website: http://www.natureserve.org/explorer/ranking.htm#assessment.

The SRank is provided for all communities on the tracking list and the definition for each is provided in Table 1. Some communities have been cross-walked with types that are also recognized in other jurisdictions, and for these, GRanks are also provided.

Estimating Ranks

While community ranking attempts to integrate all available information, it is usually necessary to do a preliminary ranking as most often, information is incomplete. Although these methods are standardised, applying conservation ranks to communities is nonetheless a subjective process. The amount of information available for each of the ranking factors varies for each community. Ranks are assigned based on the best available information and are refined over time. This ranking procedure provides a reasonable estimate of the community rarity, although some degree of error is inherent.

Table 1. Provincial Ecological Community Conservation Ranks

RANKS*	DEFINITION
S1	Five or fewer occurrences or very few remaining hectares
S2	Six to 20 occurrences or few remaining hectares
S3	21 to 80 occurrences. May be rare and local throughout its range or found locally, even abundantly, in a restricted range (e.g. a single county or Natural Subregion).
S4	Apparently secure Province wide, though it may be quite rare in parts of its range, especially at the periphery.
S5	Demonstrably secure Province wide, though it may be quite rare in parts of its range, especially at the periphery.
SNR	Element is not yet ranked
SU	Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA	Not Applicable —A conservation status rank is not applicable because the community is not a suitable target for conservation activities.
S#S#	Range Rank* —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
MODIFIERS	
Q	Can be added to any **global** rank to denote questionable taxonomy (e.g. G2Q = 6 to 20 known occurrences, but questions exist concerning the classification of this type). Cannot be used with provincial ranks.
?	Can be added to any rank to denote an inexact numeric rank (e.g. S1? = Believed to be 5 or less occurrences, but some doubt exists concerning status).

* ranks can be combined to indicate a range (e.g. S2S3 = May be between 6 to 80 occurrences throughout Alberta, but the exact status is uncertain). Combined ranks indicate a larger margin of error than ranks assigned a "?" qualifier

Organization of the Lists

Ecological communities on the Tracking List are organized first by the following physiognomic classes (see Appendix 1 for definitions):

Forest / Woodland	Shrub Herbaceous
Shrubland	Herbaceous
Dwarf Shrubland	Sparsely Vegetated

Aquatic ecological communities are also included on the tracking list, grouped by the following physiognomic classes (also defined in Appendix 1):

Emergent Aquatic	Submergent Aquatic
Floating-leaved Aquatic	

Within these classes the types are grouped, usually by dominant species, and then listed alphabetically by ecological community name. Naming conventions for ecological communities are detailed at the following website:
http://www.natureserve.org/explorer/classeco.htm#heirarchy

A description of each type is included, and when available, references are supplied that give more detail on the type. The SRank is given below the community name and code. When available, the GRank is also provided. Ecological communities can be divided into three main pattern types, described in Appendix 2.

Appendix 3 lists the ecological communities on the tracking list, in alphabetical order of scientific name. For each type, the Natural Region(s) it occurs in is coloured in, and a notation provided on whether it is confirmed (C), potential (P) or unlikely (U) to occur for each associated subregion. Detailed Community Characterization Abstracts (CCAs) are available for each tracking list type. An example (for the type profiled on the cover) is provided in Appendix 4.

Updates and Additional Information

Information on the ACIMS is available through the Internet at:
http://www.cd.gov.ab.ca/preserving/parks/ACIMS/flashindex.asp or by contacting:

Alberta Conservation Information Management System, Alberta Tourism, Parks and Recreation.
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We are asking for your help in the development of the ecological community tracking list and in the documentation of community characteristics and locations. Community characterization abstracts (CCAs) which provide additional detail on the tracking list ecological communities are available (see Appendix 3 for an example CCA). Comments on this list; requests for CCAs or to be put on the mailing list for updates, should be directed to:

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Forest/Woodland

Acer negundo Group

Acer negundo / Prunus virginiana
Manitoba maple / choke cherry
CEGL000628
Alberta Rank: **S1S2** Global Rank: **G3**

- only natural communities to be tracked.
- the following describes the Alberta condition for the G3 ranked CT that is described in NatureServe Explorer (http://www.natureserve.org/explorer/)
- occurs primarily in the Dry Mixedgrass Natural Region, but extends into the Central Parkland Subregion so may also occur in the Northern Fescue Subregion.
- found on landscapes with moisture levels higher than local precipitation.
- these include terraces, fans or floodplains along streams, rivers, lakes, springs or ponds (Thompson and Hansen 2002).
- also v-shaped ravines and on protected slopes that may collect snow or be flooded by occasional overland flows.
- the water table is generally near the surface in spring and after rains, but drops in dry periods
- Acer negundo dominates the tree layer.
- the tall shrub layer of Prunus virginiana of undisturbed stands may be replaced by a low shrub layer of Symphoricarpos occidentalis and Rosa with disturbance such as cattle grazing.
- Carex sprengelii is often a prominent understory species, replaced by weeds in disturbed stands.
- Often bisected by small drainages edged by species such as Glyceria striata

Betula neoalaskana Group

Betula neoalaskana - Picea glauca / Salix discolor / Equisetum arvense swamp forest community
Alaska birch - white spruce / pussy willow / common horsetail swamp forest community
CEAB000214
Alberta Rank: **S1S2** Global Rank: **GNR**

- a community found in the Central Parkland, possibly up into the Dry Mixedwood natural subregion.
- found on level, subhydric to hygric, poorly-drained sites.
- may be standing water in the spring or in wet years, but likely dries out by fall.
- seasonal water table fluctuations and horizontal seepage are probably important features of the community (Treeline Ecological Research 2009).
- tree layer composed of Betula neoalaskana (25% cover), Picea glauca (10%) (N=1).
- dominant tall shrubs are Salix discolor (10%) and Cornus stolonifera (7%).
- a diverse understory is dominated by Carex trisperma (10%), Equisetum arvense (15%) and E. pratense (10%).
- there is a bryophyte layer with about 10% cover dominated by Plagiomnium ellipticum and P. cuspidatum.

Betula neoalaskana / Ledum groenlandicum
Alaska birch / common Labrador tea
CEAB000175
Alberta Rank: **S1S2** Global Rank: **GNR**

- a peatland only documented in the Dry Mixedwood Subregion.
- may also occur in adjacent areas of the Central Parkland.
- may occur in other Boreal subregions, but information on Betula neoalaskana communities is limited.
- this is a closed Betula neoalaskana canopy with a dense Ledum groenlandicum understory (Parks Division, Alberta Tourism, Parks and Recreation 2009).
- site is hummocky with Sphagnum spp. and feather mosses, along with Vaccinium vitis-idaea, Smilacina trifolia, Rubus chamaemorus and Rubus arcticus on the hummocks.
- Salix spp. often present.
- bordered by a band of Calamagrostis canadensis wetland (Holcroft Weerstra 2003).

Forest/Woodland

Betula papyrifera Group

Betula papyrifera - Betula occidentalis / Arctostaphylos uva-ursi

white birch - water birch / common bearberry

CEAB000016

Alberta Rank: **S1** Global Rank: **GNR**

- open Betula on subxeric, moderately steep Montane slopes of south aspect
- tree cover is sparse, but individual trees may attain heights of 17 m
- ground cover is dominated by clumps of Juniperus communis, Arctostaphylos uva-ursi and Carex scirpoidea within patches of unvegetated scree
- type O16 (Corns and Achuff 1982)

Betula papyrifera / Lycopodium obscurum - Lycopodium annotinum woodland

white birch / ground-pine - stiff club-moss woodland

CEAB000224

Alberta Rank: **S2?** Global Rank: **GNR**

- a submesic Betula papyrifera woodland documented in the Lower Foothills Natural Subregion.
- typically located in an a midslope position with variable aspect and grade.
- conditions are mesic to subhygric, submesotrophic and likely associated with seepage.
- soils are exposed but there may be a high litter cover.
- stands have an open canopy of Betula papyrifera.
- the ground cover is sparse, comprised mainly of Lycopodium annotinum and / or L. obscurum, with up to 10% cover.
- Cornus canadensis is usually present
- there may be a sparse shrub layer of Sorbus scopulina.
- other common species present at least sporadically include Gymnocarpium dryopteris, Equisetum sylvaticum and patchy feathermoss cover.

Betula papyrifera / Sherpherdia canadensis

paper birch / buffaloberry

CEAB000177

Alberta Rank: **S1S2** Global Rank: **GNR**

- a Central Parkland community type documented along the Red Deer River.
- found where the bank has slumped and succeeded to back to paper birch and buffaloberry (Willoughby 2004).
- the site is mesic to subhygric, well drained and on an east facing 8% slope.
- paper birch (Betula papyrifera) is clearly dominant at 50% cover.
- aspen (Populus tremuloides) is present with low (3%) cover.
- buffaloberry (Shepherdia canadensis) is the dominant shrub at 10% cover, but other shrubs are present including red osier dogwood (Cornus stolonifera) and saskatoon (Amelanchier alnifolia), both with about 3% cover.
- herbs are not prominent, but the most common (3% cover or less) are wild sarsaparilla (Aralia nudicaulis), fairy bells (Disporum trachycaulum), smooth brome (Bromus inermis) and Sprengel's sedge (Carex sprengelii).
- a seepage area that is dominated by balsam poplar and red osier dogwood is found on the slope below this CT.

Forest/Woodland

Larix laricina Group

Larix laricina / Carex prairea
tamarack / prairie sedge
CEAB000038
Alberta Rank: **S1** Global Rank: **GNR**

- a Dry Mixedwood wetland community of constant discharge areas (likely calcareous)
- Salix candida forms a scattered, discontinuous shrub layer
- Carex prairea is the dominant species in the herb layer, but C. capillaris, C. leptalea and C. gynocrates are locally abundant (Griffiths 1999)
- This type can be separated from other more common Larix laricina types by the lack of Picea mariana or typical shrubs such as Betula pumila, or Ledum groenlandicum.
- Salix candida is a constant species, indicative of the calcaious site type.
- The high cover of Carex prairea is also diagnostic of this type. Although also present in other community types, it is not usually dominant in them.

Larix lyallii Group

Larix lyallii / Luzula hitchcockii
subalpine larch / smooth wood rush
CEAB000063
Alberta Rank: **S2?** Global Rank: **GNR**

- a closed to open canopy community found in the Rocky Mountain Region of SW Alberta, likely restricted to south of the Crowsnest Pass.
- found on mesic Upper Subalpine sites with moderate to steep slopes and north to easterly aspects.
- tree layer may include some Abies lasiocarpa and Picea engelmannii but Larix lyallii is dominant.
- canopy is closed to open (25 to 40% cover).
- Abies lasiocarpa and Larix lyallii are the dominant species in a moderatley-well developed shrub layer.
- the herb-dwarf shrub layer is well developed with smooth wood rush dominant (30 to 65%).
- bryophytes anbd lichens are generally sparse.
- type C75 (Achuff et al. 1997).

Larix lyallii / Vaccinium membranaceum / Luzula hitchcockii woodland
subalpine larch / tall bilberry / smooth wood-rush woodland
CEGL005884
Alberta Rank: **S2** Global Rank: **G2G3**

- an Upper Subalpine woodland association of slopes from moderate to steep grade.
- occasionally stands develop on the gently sloped margins of shallow hanging valleys.
- aspect is variable, but the association is typically found on north- to west-facing slopes.
- slope position may be low, middle or high.
- stands typically form on a colluvial or morainal veneer over bedrock
- litter makes up most of the ground cover in this association
- characterized by an open tree canopy in the upper stratum, with tree height of 10-15 m.
- canopy cover in this layer is typically 20-40% and is dominated by Larix lyallii.
- average canopy cover in the subcanopy varies from 5-20%, but may be as high as 40%.
- Larix lyallii and Abies lasiocarpa are the most common subcanopy species.
- shrub layer is usually sparse, with less than 30% cover in most stands.
- Vaccinium membranaceum is the most common shrub though Vaccinium myrtillus may be well-represented in some stands.
- herbaceous species are dense with cover of 70-100%.
- Luzula hitchcockii had 100% constancy in sampled stands, with cover ranging from 40-50%.
- other species with high constancy and 5-10%.include Valeriana sitchensis, Pedicularis bracteosa, Arnica X diversifolia, and Erigeron peregrinus.
- summarized from NatureServe 2004.

Forest/Woodland

Larix occidentalis Group

Larix occidentalis / Rubus parviflorus

western larch / thimbleberry

CEAB000003

Alberta Rank: **S1** Global Rank: **GNR**

- in Alberta, Larix occidentalis is usually found only as scattered trees
- stands have been described in the Crowsnest area (Wallis 1980), within the Montane Natural Subregion.
- the stands typically occur on steep north to north west facing upper slopes
- sites tend to be submesic, moderately well to well drained, moderately pervious on residuum deposits over bedrock
- Larix occidentalis competes best on moist sites and a key factor is likely moisture availability for seedling establishment (Scher 2002)
- stands tend to be dense, with tree cover about 90% and patchy shrub and herb/dwarf shrub layers
- Larix occidentalis is usually the tallest species (25m+) in the tree layer
- other species including Abies lasiocarpa, Pinus contorta and Picea engelmannii may be co-dominant or may form a second tree layer of mixed species
- the understory is sparse, with the ground heavily littered with needles and much deadfall
- Rubus parviflora is the most common shrub with patches forming where more light reaches the understory as a result of small canopy gaps
- constant species are Larix occidentalis, Rubus parviflorus, Arnica cordifolia (N=3)
- Calamagrostis rubescens is dominant in some stands, but absent in others
- orginally called Larix occidentalis / Calamagrostis rubescens in tracking lists, but changed as a result of additional stand information
- this is a mid-seral successional type
- Larix occidentalis is a long-lived succession species, usually found in even-aged stands
- maintenance of Larix occidentalis stands on the landscape is likely dependant on major disturbances such as fire

Picea engelmannii Group

Abies bifolia - Picea engelmannii / Luzula hitchcockii woodland

subalpine fir - Engelmann spruce / smooth wood-rush woodland

CEGL000317

Alberta Rank: **S1S2** Global Rank: **G5**

- a small-patch community of the upper Subalpine Natural Subregion that is likely found only south of the Crowsnest Pass in Alberta.
- occupies cold sites that catch snow and retains the snow cache late into summer.
- found on all aspects and degrees of slope where snowpack persists.
- soils are coarse-textured and non-calcareous.
- open, short-stature Abies bifolia and Picea engelmannii dominate the canopy.
- other scattered tree species such as Pinus albicaulis and Pinus contorta may be present.
- a shorter layer of regenerating Abies bifolia, 2-5 m in height, typically contributes approximately 10% cover.
- the shrub component is generally depauperate with thin patches of a variable mix of Vaccinium scoparium, Vaccinium membranaceum (dwarfed in size to less than 0.2 m), Lonicera utahensis, and Phyllodoce empetriformis.
- the forb component is strongly dominated by Luzula hitchcockii, which can occur as a dense sward (cover approaching 100%) to the near exclusion of other herbs.
- Arnica latifolia is universally the most abundant and constant forb.
- Thalictrum occidentale is also common, interspersed with other high-elevation, moist-site forbs such as Valeriana sitchensis and Ranunculus eschscholtzii.
- the above is summarized from NatureServe 2004.

Forest/Woodland

Picea engelmannii Group

Abies bifolia - Picea engelmannii / Oplopanax horridus forest

subalpine fir - Engelmann spruce / devil's-club

CEGL000322

Alberta Rank: **SNR** Global Rank: **G3**

- occurs in drainages and seeps at mid-elevation subalpine sites in mountain ranges.
- stands tend to be small (<8 ha) and are restricted to low-lying areas with high water tables most of the year.
- tree canopy is moderately dense to dense and co-dominated by Abies bifolia and Picea engelmannii or Picea glauca.
- stands that fit into this community concept would have at least 5% cover Oplopanax horridus.
- above summarized from NatureServe 2004.
- a fairly common, minor coniferous forest community in Glacier National Park, but has not been documented Alberta.
- may occur in Waterton Lakes National Park.

Abies bifolia - Picea engelmannii / Streptopus amplexifolius - Luzula hitchcockii woodland

subalpine fir - Engelmann spruce / clasping-leaved twisted-stalk - smooth wood rush woodland

CEGL005920

Alberta Rank: **S2S3** Global Rank: **G2G3**

- this is a community of mid to high-elevation slopes in the Subalpine Natural Subregion.
- it occupies moist, gentle to steep slopes at almost all aspects.
- slopes are composed of morainal or colluvial deposits over calcareous or noncalcareous bedrock.
- soils are typically well-drained to rapidly drained with a sandy loam texture.
- litter contributes the majority of ground cover in most stands, while bare soil and wood each contribute 10-25% cover.
- sites have long-persisting snowpacks and soils that are saturated for much of the growing season.
- an open tree canopy is dominated by Abies bifolia.
- some stands may have a when visible, is 2-10 m tall subcanopy, also dominated by Abies bifolia.
- tall-shrub cover is sparse; common species include Lonicera involucrata and Salix sitchensis.
- Vaccinium membranaceum is the most common short shrub, however, this species was only present in 50% of sampled stands.
- although not present in all stands, Vaccinium myrtillus and Vaccinium scoparium and/or Dryas octopetala may be abundant with 10-25% cover.
- the herbaceous layer is diverse and variable, with 1-25% cover.
- Thalictrum occidentale was present in all stands and averaged 7% cover.
- other forbs with greater than 85% constancy include Luzula hitchcockii (average cover 18%), Valeriana sitchensis (average cover 13%), and Chamerion angustifolium.
- Xerophyllum tenax may contribute up to 20% cover in stands with drier aspects.
- the above is summarized from NatureServe 2004.

Forest/Woodland

Picea engelmannii Group

Abies bifolia - Picea engelmannii / Vaccinium scoparium / Xerophyllum tenax forest

subalpine fir - Engelmann spruce / grouseberry / beargrass forest

CEGL005914

Alberta Rank: **S1** Global Rank: **G4G5**

- a forested association of dry, moderately steep to steep slopes with variable aspects.
- it is most often a mid to high slope Subalpine type found on cool sites such as wind-swept upper ridge slopes, and frost pockets.
- may also occur in horizontal strips above exposed bedrock cliffs.
- stands have been documented overlying siltstone and limestone.
- soils are typically rocky, well-drained to rapidly drained and derived from calcareous and noncalcareous sedimentary material.
- soil texture is commonly sandy loam, however, the association may occasionally develop on clay loam soil.
- ground cover is approximately 40% litter.
- the upper tree canopy is typically open, with cover of 20-30%, but may approach 60% in some stands.
- tree height in the upper stratum is usually less than 10 m, and a discernible subcanopy is often absent.
- denser stands may support trees up to 20 m tall with an apparent subcanopy of trees 5-10 m in height.
- Abies bifolia is the most common and abundant species in both the upper and lower strata.
- Vaccinium scoparium is characteristically present but cover may be less than 10%.
- Vaccinium membranaceum is common in the short-shrub layer, with average cover of approximately 5%.
- the herbaceous layer is dominated by Xerophyllum tenax, with up to 60% cover in some stands.
- Arnica cordifolia had high constancy (75%) in sampled stands and an average cover of 11%.
- summarized from Natureserve 2004.
- one plot in Waterton Lakes NP.

Abies bifolia - Picea engelmannii / Valeriana sitchensis woodland

subalpine fir - Engelmann spruce / mountain valerian woodland

CEGL005823

Alberta Rank: **S2?** Global Rank: **G2?**

- a Subalpine woodland association of moderately steep to steep slopes with northerly to westerly aspects.
- stands may be located at low, middle or high position along mountain slopes and are likely found only south of the Crowsnest Pass in Alberta.
- develops over talus and scree slopes, on pockets of soil above exposed ridges, or on colluvial deposits that overlie bedrock.
- parent material is typically derived from sedimentary siltstone, and argillite is usually present in surface soils.
- soil is usually poorly developed and is characterized as a sandy loam.
- sites are moderately well-drained to rapidly drained.
- ground cover is dominated by litter in most stands, although rock cover may be significant in stands that develop on talus and scree.
- stands within this association have one of two physiognomic characters.
- they may be composed of erect, widely spaced trees, 5-10 m tall, with an upper canopy cover of up to 30% and a sparse subcanopy.
- or they may also exhibit a shrubby, krummholz growth form, with mature trees ranging in height from 2-5 m and no discernible subcanopy.
- Abies bifolia and Picea engelmannii are the most common species in both the upper and subcanopy.
- Pinus contorta may be well-represented in stands impacted by fire within the last 50 years.
- shrub cover is sparse but Vaccinium caespitosum may be well-represented in stands positioned in frost pockets or with cold-air drainage.
- herbaceous cover ranges from 40-90%. C
- forbs with at least 10% cover include Arnica latifolia, Valeriana sitchensis, and Thalictrum occidentale.
- Pedicularis bracteosa may have high cover (near 30%) in some stands.
- summarized from Natureserve 2004.

Forest/Woodland

Picea engelmannii Group

Picea engelmannii - Abies bifolia / Dryas octopetala

Engelmann spruce - subalpine fir / white mountain avens

CEAB000017

Alberta Rank: **S2S3** Global Rank: **GNR**

- an Upper Subalpine community of steep slopes on colluvial and morainal landforms
- restricted to mesic sites at tree-line in the Front Ranges
- solifluction is common
- the tree layer is open and often stunted with a sparse to absent shrub layer
- Dryas octopetala dominates a well-developed herb/dwarf shrub layer
- type O19 (Corns and Achuff 1982, Achuff et al. 1986)

Picea engelmannii - Abies bifolia / Salix planifolia / Hylocomium splendens

Engelmann spruce - subalpine fir / flat-leaved willow / stair-step moss

CEAB000066

Alberta Rank: **S1?** Global Rank: **GNR**

- a mature, open-canopied Front Range Subalpine forest with patchy willow and a relatively continuous feathermoss carpet (Strong 1996)
- Picea engelmannii is the dominant tree species with Abies bifolia secondary but individuals of Pinus contorta are present
- there is a patchy shrub layer of willow, primarily Salix planifolia
- Elymus innovatus is the most common forb, but with low cover (<2%)
- there is a well developed moss layer, dominated by Hylocomium splendens
- this community has a multilayered stand structure and multi-aged population structure
- deadfall and standing snags abundant

Picea engelmannii - Abies bifolia / Salix vestita / Cassiope tetragona

Engelmann spruce - subalpine fir / rock willow / white mountain-heather

CEAB000018

Alberta Rank: **S2** Global Rank: **GNR**

- a Front Range permafrost community of the Subalpine
- found on moderate to steep, north-facing slopes, usually on moraine or colluvium
- the tree layer is often sparse and the surface often soliflucted
- type C24 (Corns and Achuff 1982)

Picea engelmannii / Leymus innovatus

Engelmann spruce / hairy wild rye

CEAB000019

Alberta Rank: **S2** Global Rank: **GNR**

- Front Range community of mesic to subxeric sites on south facing slopes colluvial or morainal sites in the Upper Subalpine.
- mainly found on mesic to subxeric sites in the Banff area, but also documented north into Jasper NP.
- a mature, closed forest with tree cover up to 50%.
- Engelmann spruce is the dominant tree, with lodgepole pine (Pinus contorta) present and subalpine fir usually absent.
- Engelmann spruce regen (5-15%) is the dominant shrub
- hairy wild rye is clearly dominant in the herb layer (20-85%)
- Hylocomium splendens and Pleurozium screberi are the dominant mosses, but usually with less than 10% cover each
- the dominance of Engelmann spruce in the tree layer and of hairy wild rye in the herb layer characteristic.
- distinguished from similar types by low (<25%) feathermoss cover
- type C33 (Corns and Achuff 1982, Achuff et al. 1986).

Forest/Woodland

Picea engelmannii Group

Picea engelmannii / Salix drummondiana
Engelmann spruce / Drummond's willow
CEAB000067
Alberta Rank: **S1?** Global Rank: **GNR**

- open forest on Subalpine alluvial flats, adjacent to streams (Lee et al. 1982).
- Picea engelmannii is the dominant tree.
- the shrub layer is diverse, but Salix drummondiana is clearly dominant (about 30% cover).
- Salix vestita, Shepherdia canadensis and Salix farriae may also be abundant.
- Arctostaphylos rubra, Equisetum scirpoides, Gentianella propinqua, Hedysarum alpinum , Poa alpina and Zigadenus elegans are common.

Picea engelmannii / Salix vestita
Engelmann spruce / rock willow
CEAB000068
Alberta Rank: **S2?** Global Rank: **GNR**

- open spruce on glacial valley train deposits in the Lower Subalpine (Kondla 1978)
- Picea engelmannii is the dominant tree species, forming both a tree and tall shrub layer
- there is a moderately well developed shrub layer of Salix vestita but only scattered herbs
- the ground surface is up to 40% bare, primarily of cobbles with some leaf litter and downed trees

Picea glauca Group

Picea glauca / Abietinella abietina
white spruce / fern moss
CEAB000070
Alberta Rank: **S2S3** Global Rank: **GNR**

- a community type found in the Montane and Subalpine subregions of the Rocky Mountain Natural Region.
- found on highly calcareous aeolian and fluvial landforms (Corns and Achuff 1982).
- also reported on talus and valley side slopes (Strong 1996).
- these are closed, mesic forests found on moderately well to rapidly drained north- to east-facing slopes.
- dominance of Abietinella abietina (=Thuidium abietinum) in the moss layer characteristic.
- separated from other Picea / Abietinella abietina types by having low shrub cover (usually less than 5%) and a sparse herb - dwarf shrub layer.
- pine is not usually a component of this community type.
- known from Jasper National Park in the area of the east gate (Corns and Achuff 1982).
- also reported in the Cadomin area along the west side of the valley and the associated upper bench (Strong 1996).
- may also occur in the Brule Lake area (Dowding 1929).

Forest/Woodland

Picea glauca Group

Picea glauca / Alnus incana ssp. tenuifolia - Betula neoalaskana / Equisetum pratense / Hylocomium splendens

white spruce / river alder - Alaska birch / meadow horsetail / stair-step moss

CEAB000040

Alberta Rank: **S3** Global Rank: **GNR**

- a riparian Boreal Forest community of major river valleys of NW Canada (Timoney 1996).
- essentially restricted to large silt-bearing rivers of western North America where extensive silt terraces occur.
- formed in areas where flooding and channel migration have created wide valleys.
- suitable habitat occurs in the Central Mixedwood Subregion.
- may also occur in the Dry Mixedwood or Northern Mixedwood subregions.
- develops on level mid and upper silt terraces.
- soils are silty alluvium Cumulic Regosols.
- sites are hygric and imperfectly drained.
- old-growth forest with tall trees (40-46 m) and high structural, functional and biological diversity.
- characterized by a deep accumulation of living mosses and a high cover of epiphytes; deep, multi-storied canopies; large trees, snags and logs; tip-up mound and pit micro topography.
- canopy gaps are characterized by Alnus incana ssp. tenuifolia, Betula neoalaskana, Cornus stolonifera and other shrubs.

Picea glauca / Betula pumila - Salix bebbiana / Carex eburnea

white spruce / dwarf birch - beaked willow / bristle-leaved sedge

CEAB000069

Alberta Rank: **S1?** Global Rank: **GNR**

- poorly-drained Montane wetland complex of peaty gleysols, interspersed with calcium-rich pools with a diverse flora
- surface is micro-hummocky and site is probably subject to seasonal flooding
- open Picea glauca canopy with a well-developed tall shrub layer of Betula pumila, Salix bebbiana, Picea glauca regeneration
- Potentilla fruticosa is the main species in an open low shrub layer
- Carex eburnea dominants the herb/dwarf shrub layer, with patches of Arctostaphylos uva-ursi and Juniperus horizontalis on dryer microsites (ANHIC)

Picea glauca / Cetraria islandica

white spruce / lichen

CEAB000041

Alberta Rank: **S1?** Global Rank: **GNR**

- open park-like white spruce on sand hills with a lichen mat dominated by Cetraria islandica
- a Boreal community documented at the Central Mixedwood / Northern Mixedwood boundary in Wood Buffalo National Park
- may also occur in the Athabasca Plain Natural Subregion.
- considered similar to treeline types more typically found far to the north east (Raup 1935).
- occurs on upper hill slopes with Pinus banksiana communities comming in on lower slopes.

Forest/Woodland

Picea glauca Group

Picea glauca / Equisetum scirpoides forest

white spruce / dwarf scouring-rush forest

CEAB000222

Alberta Rank: **SU** Global Rank: **GNR**

- a Picea glauca stand, documented at the bottom of a steep slope on a middle terrace along the Hay River in the Lower Boreal Highlands Natural Subregion.
- a high epiphyte cover, primarily Usnea, may indicate moist air drainage or the movement of fog along the river valley.
- Vaccinium vitis-idaea and Ledum groenlandicum are the main under storey shrubs.
- the herb layer is dominated by a thick cover of Equisetum scirpoides.

Picea glauca / Rosa acicularis / Abietinella abietina

white spruce / prickly rose / fern moss

CEAB000020

Alberta Rank: **S1** Global Rank: **GNR**

- Montane loess deposition forests on level to moderately sloping, north-facing sites.
- may occur in montane areas along major rivers from the Bow River north to the Athabasca.
- Picea glauca is the dominant tree, with 25-35% cover
- the shrub layer is well developed (20-40% cover) and dominated by Rosa at 10-20%
- Shepherdia canadensis may be present, but at less than 5% cover
- the herb/dwarf shrub layer is well developed (30-40% cover) and dominated by Leymus innovatus (10-20%) and Linnaea borealis (2-12%)
- Abietinella abietina (=Thuidium abietinum) dominates a sparse moss layer
- the presence of a shrub layer dominated by Rosa acicularis (10 to 20% cover) distinguished this community from the other white spruce types that have a moss layer dominated by Abietinella abietina.
- type C27 (Corns and Achuff 1982)

Picea glauca / Shepherdia canadensis / Abietinella abietina

white spruce / Canada buffaloberry / fern moss

CEAB000021

Alberta Rank: **S2** Global Rank: **GNR**

- Montane to Subalpine closed forests, generally on north-facing slopes of eolian and fluvial landforms.
- documented in the Rocky Mountains from Banff National Park north into Jasper.
- restricted to areas of active calcareous loess deposition: generally on north-facing slopes of eolian and fluvial landforms.
- Picea glauca is the dominant tree, with 25-30% cover
- the shrub layer is well developed (10-30% cover) and dominated by Shepherdia canadensis with cover greater than 10%
- Rosa may be present, but at less than 5% cover and Juniperus communis is frequent
- the herb/dwarf shrub layer is dominated by Leymus innovatus (5-20%) and Linnaea borealis (5-20%)
- Abietinella abietina (=Thuidium abietinum) dominates the moss layer with greater than 50% cover
- type C26 (Corns and Achuff 1982, Achuff et al. 1986)

Forest/Woodland

Picea mariana Group

Larix laricina - Picea mariana / Cornus stolonifera - Rubus idaeus

tamarack - black spruce / red-osier dogwood - wild red raspberry

CEAB000188

Alberta Rank: **S1S2** Global Rank: **GNR**

- a rich fen type that seems to be restricted to the Boreal Forest / Central Parkland fringe area.
- likely present due to calcareous groundwater (D. Downing 2004).
- sites are gently sloping (2 - 3%) north facing to level.
- moist to wet, Mesic, weakly to highly calcareous soils; may be marl bands.
- overall tree cover vaires from about 25 to 50%.
- in some stands, Picea mariana dominates (about 25% cover).
- in others, Larix laricina has the highest cover (up to 40%).
- may be a secondary tree layer of birch, (20% cover at about 7 m).
- well developed shrub layer of up to 50% cover with Cornus stolonifera usually dominant (20% to 50% cover).
- Rubus idaeus, Lonicera involucrata and Ribes americana may also have significant cover (up to 20%).
- Ribes oxyacanthoides is a constant species in the stands studies (N=3), cover up to 5%.
- the introduced Sorbus aucuparia was found in all stands, with cover of up to 20%.
- the herb layer is variable and patchy, but constant species are Carex spp., Cirsium arvensis, Galium triflorum, and Mitella nuda (N=3).
- Caltha palustris, Mentha arvensis and Poa pratensis are not present in all stands, but have significant cover (up to 20%) in some.
- the moss layer is absent to 20% + cover.
- where present, Ptilium crista-castrensis is usually the dominant feathermoss with a cover of up to 20%.
- lack of Sphagnum notable.
- mature stand (Picea mariana up to 100 + years old. Larix laricina up to 85 years old).

Picea mariana / Cladina stellaris

black spruce / star-tipped reindeer lichen

CEAB000204

Alberta Rank: **S1** Global Rank: **GNR**

- this CT is an old growth type restricted to well-drained sites not underlain by permafrost in the Boreal Subarctic Natural Subregion.
- Picea mariana is the only tree present and averages about 8 m tall, with 20% cover (n=1)
- Vaccinium vitis-idaea is present, but with low (2%) cover.
- patches of Ledum groenlandicum are present, but with relatively low cover (5%).
- the understory is strongly dominated by lichens (overall cover, 90%).
- Cladina stellaris is the dominant lichen, with Cladina rangiferina secondary.
- Flavocetraria nivalis also contributes significant cover.
- Cladina mitis is present, but not with significant cover.
- the open Picea mariana with dense cover of Cladina stellaris is characteristic.
- differs from many of the other Picea mariana CTs by the lack of Sphagnum spp. and the total understory dominance by lichens.
- few species other than lichens and Picea mariana are present and none with significant cover.
- similar to the more common Picea mariana / Ledum spp./ Cladina mitis ct.
- Cladina stellaris becomes the dominant lichen only in older stands (beginning 80 to 120 years after fire) (Snyder and Woodard. 1992).
- due to the extensive fires that are common in the region, this old growth type appears to be relatively uncommon
- Summarized from Allen, L., J. D. Johnson and K. Vujnovic. 2006.

Forest/Woodland

Picea mariana Group

Picea mariana / Cornus stolonifera / feathermoss

black spruce / red-osier dogwood / feathermoss

CEAB000189

Alberta Rank: **S1S2** Global Rank: **GNR**

- a rich fen type that seems to be restricted to the Boreal Forest / Central Parkland fringe area
- this is an unusually rich black spruce community that seem to be associated with calcareous groundwater (D. Downing 2004).
- found on gently sloping (3%), very moist to wet, rich predominantly north-facing sites.
- soils are calcareous Mesisol, mossy throughout profile, usually with bands of marl.
- may be water near the surface (one site water was found at a depth of 30 cm).
- Picea mariana is the dominant tree and averages about 50% cover.
- Larix laricina may have from 5 to 15% cover.
- scattered birch are present at low cover.
- a secondary tree layer may be present, about 6 m tall with up to 20% cover.
- Picea mariana is dominant in the subcanopy, but Larix laricina and birch are also present.
- well developed shrub layer, with Cornus stolonifera usually dominant with up to 20% cover, although Ledum groenlandicum may also have up to 20% cover.
- other constant shrub species (N=2) are Lonicera involucrata (5% cover), Salix spp. (5% cover)
- the introduced Sorbus aucuparia was found in both stands, but at low cover (1% or less).
- constant species of the patchy herb layer are Amerorchis rotundifolia, Carex spp., Equisetum scirpoidea, Glyceria sp., Linnaea borealis, Pyrola asarifolia, Rubus pubescens, Smilacina trifoliata and Viola renifolia.
- Pleurozium schreberi is the dominant feathermoss with a cover of 50% or greater.
- mature stand (Picea mariana about 80 years old).

Pinus albicaulis Group

Abies bifolia - Pinus albicaulis - Picea engelmannii / Empetrum nigrum

subalpine fir - whitebark pine - Engelmann spruce / crowberry

CEAB000050

Alberta Rank: **S2** Global Rank: **GNR**

- a high Subalpine community of upper to mid morainal and colluvial slopes.
- found on stony, mesic sites of variable aspect.
- may be restricted to acidic parent materials, north of the Bow River (Timoney 1999).
- the site may be over 40% unvegetated with cobbles and stones, some bedrock at surface.
- tree cover is 25% or greater, with a sparse shrub layer and a well developed dwarf shrub/herb layer.
- lichen and moss cover may be significant.
- Abies bifolia and Pinus albicaulis are the dominant trees although Picea engelmannii is also present.
- Vaccinium membranaceum is not always present with but can have up to 25% cover in some stands.
- Empetrum nigrum is usually prominent with up to 25% cover.
- summarized from Timoney 1999.

Forest/Woodland

Pinus albicaulis Group

Abies bifolia - Pinus albicaulis - Picea engelmannii / Vaccinium scoparium forest
subalpine fir - whitebark pine - Engelmann spruce / grouseberry forest
CEAB000124

Alberta Rank: **S2** Global Rank: **GNR**

- a widespread type characteristic of mesic subalpine sites above 1700 m (Timoney 1999).
- found on steep colluvial or morainal, slopes of variable aspect.
- sites tend to be mesic and well-drained.
- a closed, mixed mature to old-growth forest dominated by Abies bifolia, Pinus albicaulis and Picea engelmannii .
- Menziesia ferruginea may be absent in some stands, but usually forms an open to closed taller shrub layer.
- Vaccinium scoparium is dominant in the herb/dwarf shrub layer with up to 65% cover.
- appears to be the most common ct with whitebark pine dominant in Alberta, but pine blister rust is having a significant impact so added to TL 2013

Abies bifolia - Pinus albicaulis / Xerophyllum tenax
subalpine fir - whitebark pine / beargrass
CEAB000051

Alberta Rank: **S1S2** Global Rank: **GNR**

- a community of lower Subalpine sites, in Alberta known only from Waterton Lakes National Park.
- found on moderate to steep slopes with southerly and westerly aspects.
- soils are mesic to subxeric, rapidly- to well-drained.
- this association has an open tree canopy dominated by Picea engelmannii (5-10%), Abies bifolia (10-15%) and Pinus albicaulis (1-5%).
- Shepherdia canadensis (20-30%) dominates the shrub layer, but Potentilla fruticosa, Lonicera utahensis and Ribes spp. are also prominent.
- there is a well-developed dwaft shrub / herb layer with a distinctive south-western species component.
- dominent species including Xerophyllum tenax (15-40%), Thalictrum occidentale (15-30%) and Spiraea betulifolia (10%).
- summarized from Timoney 1999 and Achuff et al. 1997.

Picea engelmannii - Pinus albicaulis / Menziesia ferruginea forest
Engelmann Spruce - whitebark pine / false azalea forest
CEAB000226

Alberta Rank: **S2** Global Rank: **GNR**

- a mature forest of mesic, lower Subalpine sites on steep slopes of various aspect
- found primarily in the main ranges on morainal and colluvial landforms with well-drained Brunisolic soils.
- the closed canopy layer is dominantly Picea engelmannii and Pinus albicaulis with Abies bifolia common.
- the shrub layer is moderately dense with Menziesia ferruginea common but Ledum groenlandicum or Rhododendron albiflorum are sometimes a prominent component.
- dwarf shrubs dominate the shortest stratum.
- Vaccinium scoparium cover is variable, from sparse up to 60% cover.
- Empetrum nigrum and Vaccinium membranaceum are often present with low cover.
- the moss layer may be prominent at up to 80% cover, with Pleurozium schreberi dominant.
- summarized from Holland, W.D. and G.M. Coen. 1982 (type C12).

Forest/Woodland

Pinus albicaulis Group

Pinus albicaulis - Abies bifolia / Luzula hitchcockii - Vaccinium myrtillus
whitebark pine - subalpine fir / smooth wood rush - low bilberry
CEAB000071
Alberta Rank: **S1S2** Global Rank: **GNR**

- found on moderate to steep colluvial slopes with southerly and westerly aspects.
- this is a community of subxeric to mesic Upper Subalpine slopes
- in Alberta it may occur only in the Waterton area.
- Pinus albicaulis, Picea engelmannii, Abies bifolia dominate a usually open tree layer.
- the shrub layer is composed primarily of regenerating Pinus albicaulis (2-5%) and Abies bifolia (5-15%).
- the dwarf shrub/ her layer is dominated by Vaccinium myrtillus (15-35%) and Luzula hitchcockii (10-25%).
- Brachythecium, Racomitrium and Dicranum muehlenbeckii are the most frequent species in a generally sparse bryoid layer.
- based on type O30 (Achuff et al. 1997)
- summarized from Timoney 1999 and Achuff et al. 1997.

Pinus albicaulis - Picea engelmannii / Dryas octopetala woodland
whitebark pine - Engelmann spruce / white mountain avens woodland
CEGL005840
Alberta Rank: **S1** Global Rank: **G2G3**

- a Waterton type of exposed, subxeric Upper Subalpine sites from 2050 to 2300 m
- found on the upper portions of moderate to steep slopes thinly covered with colluvial deposits.
- slopes may be west-, northeast-, or south-facing.
- type O31 (Achuff et al. 1997)
- soils tend to be rapidly draining Orthic Regosols comprised of at least 50% small rocks.
- ground cover of rock and bare soil is relatively high (50-65%).
- this is a woodland association, codominated by an open tree canopy (<20% cover) of Pinus albicaulis, Picea engelmannii, and Abies bifolia.
- there is a tree regeneration layer of Pinus albicaulis, Picea engelmannii, Larix lyallii, and Abies bifolia with less than 20% cover.
- Juniperus communis is found in the sparse short-shrub layer
- Dryas octopetala dominates the dwarf-shrub layer with an average cover of 30%.
- the herbaceous layer (canopy cover 50%) is made up of a diversity of species of subxeric conditions.
- common species include Sedum lanceolatum, Anemone multifida, Festuca brachyphylla, and Saxifraga bronchialis.
- nonvascular species and epiphytic species make up <20% total cover.
- diagnostic of this associations is the Pinus albicaulis-codominated tree canopy with the understory dominated by the dwarf-shrub Dryas octopetala and subxeric herbaceous species Saxifraga bronchialis.
- summarized from NatureServe 2004.

Forest/Woodland

Pinus albicaulis Group

Pinus albicaulis - Pinus contorta / Juniperus communis - Leymus innovatus - Linnaea borealis woodland
whitebark pine - lodgepole pine / ground juniper - hairy wild rye - twinflower woodlanc
CEAB000073

Alberta Rank: **S2S3** Global Rank: **GNR**

- a low to high Subalpine type of subxeric, well- to rapidly-drained sites on colluvial, morainal or bedrock landforms.
- tend to be on mid slope sites of south-west aspects with significant bedrock exposure and bare mineral soil.
- may be associated with droughty sites that receive thin winter snow cover and are subject to early snowmelt.
- this is an open woodland with tree cover averaging less than 20%.
- Pinus albicaulis is always present with up to 10% cover, but Pinus contorta is often present and may have significant cover.
- Juniperus communis is always present with up to 20% cover, but Betula glandulosa, Shepherdia canadensis and Vaccinium membranaceum may be a significant component of some stands.
- Elymus innovatus is the most prominent graminoid.
- Fragaria virginiana and Linnaea borealis may be significant in the herb/dwarf shrub layer but are sometimes absent.
- Cladonia ecmocyna tends to be the most prominent Bryoid, although other mosses and lichens may be present such as Dicranum spp.
- there may be over 25% unvegetated surface; primarily bedrock and mineral soil.
- summarized from Timoney 1999.

Pinus albicaulis / Juniperus communis - Arctostaphylos uva ursi
whitebark pine / ground juniper - common bearberry
CEAB000074

Alberta Rank: **S2S3** Global Rank: **GNR**

- widespread Upper Subalpine type at the dry end of whitebark pine moisture gradient.
- found on subxeric sites of south or south-west aspect.
- typically on steep slopes with significant bedrock exposure and bare mineral soil.
- parent material: colluvial, morainal, rockland, residual.
- soils are rapidly-drained with a subxeric (xeric to mesic) moisture regime.
- associated with droughty sites that probably have thin winter snow cover and early snowmelt.
- on open tree layer averages ~25% cover.
- Pinus albicaulis is always present but Abies bifolia and Picea engelmannii may be absent to significant cover.
- shrub cover is usually greater than 7% with Juniperus communis always present and Potentilla fruticosa prominent in some stands.
- Leymus innovatus is the most common grass, and may have up to 50% cover in some stands, but is absent in others.
- the herb layer is generally sparse, but most abundant species are Achillea millefolium, Antennaria racemosa and Fragaria virginiana.

Forest/Woodland

Pinus contorta Group

Pinus contorta / Cornus stolonifera woodland

lodgepole pine / red-osier dogwood woodland

CEGL005929

Alberta Rank: **S2?** Global Rank: **G2G3**

- a relatively dry southwestern riparian woodland association of Montane and Lower Subalpine.
- restricted to flat or gently sloping alluvial terraces or benches and, less frequently, moist toeslopes. - soils tend to be well-drained silty loams or Lithic Orthic Eutric Brunisols but the mesic vegetation suggests they likely have a high water table.
- dominated by an open tree canopy of Pinus contorta (38% average cover).
- Betula papyrifera is also found within the tree layer and dominates the tree subcanopy layer.
- an uneven-aged layer of Cornus sericea is found throughout the tall- to short-shrub layer, with 10% average cover and 100% constancy (n=2).
- other shrubs that may be present include Acer glabrum, Amelanchier alnifolia, Shepherdia canadensis, and Rubus parviflorus.
- Mahonia repens is always present in the dwarf-shrub layer but has insignificant cover.
- the herbaceous layer is an array of scattered forbs and graminoids, including Pteridium aquilinum, Disporum trachycarpum and Clintonia uniflora.
- the only species in this layer with 100% constancy is Apocynum androsaemifolium.
- summarized from NatureServe 2004.

Pinus contorta / Ledum groenlandicum / Vaccinium scoparium / Pleurozium schreberi

lodgepole pine / common Labrador tea / grouseberry / Schreber's moss

CEAB000130

Alberta Rank: **S1?** Global Rank: **GNR**

- a Subalpine closed forest community
- found at relatively high elevations (up to 1850 m) on subhygric soils
- occurs at the highest elevation of Pinus contorta / Ledum groenlandicum communities (Strong 2002)
- Pinus contorta is the dominant tree, averaging 30%, with Picea engelmannii present, averaging about 8% cover
- Ledum groenlandicum is the dominant shrub, averaging about 10% cover
- Vaccinium scoparium dominates the herb/dwarf shrub layer (>30%)
- the moss layer is well developed, with Pleurozium schreberi dominant at about 30% cover
- this community is separated from other Pinus contorta / Ledum groenlandicum types by the higher cover of Picea engelmannii, the common occurrence (50% constancy) of Phyllodoce spp. and lack of Picea mariana (Strong 2002).

Forest/Woodland

Pinus contorta Group

Pinus contorta / Spiraea betulifolia forest
lodgepole pine / white meadowsweet forest
CEGL000164
Alberta Rank: **S2S3** Global Rank: **G3G4**

- a Subalpine forest association that occurs on a variety of relatively warm, dry sites from steep colluvial slopes to gentle rolling terrain.
- sites at lower elevation and latitude are typically restricted to northerly aspects or limestone substrate.
- higher elevation sites occur on a variety of aspects with the most northerly stands restricted to dry southern aspects.
- tree litter is often 4-6 cm deep and dominates ground cover.
- vegetation is dominated by an open tree canopy of Pinus contorta (41% average cover) with an insignificant tall-shrub layer.
- Spiraea betulifolia dominates the short-shrub layer with 14% average cover.
- other shrubs at less than 1 m in height are Shepherdia canadensis, Juniperus communis, and Amelanchier alnifolia.
- there is a diverse herbaceous layer is diverse, but most species average less than 5% average cover.
- common species include Campanula rotundifolia, Arnica cordifolia, Calamagrostis rubescens, and Aster conspicuus.
- summarized from NatureServe 2004.

Pinus flexilis Group

Abies bifolia - Pinus flexilis - Populus tremuloides / Thalictrum venulosum
subalpine fir - limber pine - aspen / veiny meadow rue
CEAB000052
Alberta Rank: **S2?** Global Rank: **GNR**

- a south-western Alberta Montane to lower Subalpine community found at 1800 to 1900m
- found on colluvial or morainal, northwest-facing upper slopes that are submesic and rapidly drained
- restricted in distribution but may be a transitional type (Timoney 1999).
- a closed, mixed forest with cover by layer as follows: tree >55%; shrub >5%; grass 1.5%; herb ~9%.
- Shepherdia canadensis is the dominant shrub.

Pinus flexilis - Pseudotsuga menziesii / Juniperus spp. / Arctostaphylos uva-ursi
limber pine - Douglas-fir / juniper species / common bearberry
CEAB000075
Alberta Rank: **S2** Global Rank: **GNR**

- occurs in the Montane on steep, south-facing erosional scarps.
- an open to closed forest dominated by Pinus flexilis with significant Pseudotsuga menziesii cover.
- the shrub layer is well developed, dominated by Juniperus communis.
- Juniperus scopulorum has significant cover in southern stands, but is not present in the stands along the David Thompson corridor.
- this is the community type at the most northerly extent of the range of Pinus flexilis.
- type O2 (Corns and Achuff 1982, Achuff et al. 1986).
- CEAB000076 Pinus flexilis / Arctostaphylos uva-ursi - Juniperus horizontalis is similar, but lacks the mid-level shrub component supplied by Juniperus communis and sometimes Juniperus scopulorum.

Forest/Woodland

Pinus flexilis Group

Pinus flexilis / Arctostaphylos uva ursi - Juniperus horizontalis

limber pine / common bearberry - creeping juniper

CEAB000076

Alberta Rank: **S2** Global Rank: **GNR**

- characteristic of south-west Montane sites at lower elevations (1405 m to 1450 m) (Timoney 1999).
- found on rapidly to well-drained sites of colluvial or residual parent material.
- on lower to mid slope with SW exposure and with bedrock close to the surface, often associated with ridges.
- soils are Orthic Regosols or rockland.
- cover per vegetation layer: tree 12%; shrub >30%; herb >2%; grass ~3%.
- significant bare ground of cobbles and stones, mineral soil and bedrock (~35% cover).
- most abundant species: Pinus flexilis, Arctostaphylos uva-ursi, Juniperus horizontalis, Potentilla fruticosa, Koeleria macrantha.
- Juniperus horizontalis seems to be characteristic.
- patch size is probably relatively small due to requirement for shallow bedrock.
- high frequency, low intensity fire may be important in maintaining this type and in minimizing the potential for a high intensity burn.
- white pine blister rust may be causing a decline of Pinus flexilis.

Pinus flexilis / Arctostaphylos uva-ursi woodland

limber pine / common bearberry woodland

CEGL000802

Alberta Rank: **S2** Global Rank: **G4**

- a Montane woodland association found on upper to mid portions of steep to moderate slopes and gentle interfluves.
- may be bedrock outcrops or are mantled with glacial till and thin colluvial deposits of limestone and dolomite.
- stands are located on mesic and subxeric sites, and occur on southwesterly to southeasterly aspects.
- sites are windswept and exposed to wind-scouring and snow removal.
- soils are moderate to rapidly drained Orthic Regosols.
- bare soil and rock are common but some stands can have moderate cover of downed woody debris.
- dominated by trees of generally short to stunted stature (always less than 10 m in height and often shorter).
- the canopy is open (18% average)
- Pinus flexilis comprises at least 10% of the total tree canopy cover and is often the dominant or codominant.
- Pinus contorta and Pseudotsuga menziesii are often present, Populus tremuloides can occur in some stands.
- the shrub layer is generally short or dwarf in stature, and has moderate to high cover (ranging from 20% to well over 70% cover).
- Arctostaphylos uva-ursi dominates the open dwarf-shrub layer with 34% average cover.
- common short shrubs include Juniperus communis (18% cover), Potentilla fruticosa (4% cover), and Shepherdia canadensis (2% cover).
- the herbaceous layer is variable in abundance, from 5% to close to 100% cover
- common undergrowth species include Achillea millefolium, Galium boreale, Hedysarum sulphurescens, Festuca idahoensis, and Festuca campestris.
- nonvascular species, when present, all have insignificant cover
- summarized from NatureServe 2004.
- this type may overlap with some of the other Pinus flexilis communities on the tracking list.

Forest/Woodland

Pinus flexilis Group

Pinus flexilis / Festuca campestris woodland

limber pine / mountain rough fescue woodland

CEGL000806

Alberta Rank: **S1S2** Global Rank: **G3**

- restricted in distribution to Montane sites in southwestern Alberta.
- occurs on dry and often wind-swept slopes.
- typically stands are small patches in Alberta but may be more extensive elsewhere.
- frequently associated with calcareous substrates
- sites are xeric and gravelly with textures ranging from silts to sandy loams.
- ground cover is dominated by litter, but moderate amounts of rock (15%) and soil (10%) are found.
- tree canopy structure ranges from very open (15-20% cover) to approaching 60% cover.
- Pinus flexilis is usually dominant, Pseudotsuga menziesii is usually present and may be co-dominant.
- Pinus contorta occasionally is present as a minor component.
- there may be locally high coverage of Juniperus horizontalis
- Arctostaphylos uva-ursi, Shepherdia canadensis, Juniperus communis, Artemisia frigida, and Amelanchier alnifolia are frequently present but usually with low cover.
- Festuca campestris and Festuca idahoensis dominate the herbaceous layer and may co-dominate.
- Pseudoroegneria spicata and Koeleria macrantha have high cover some stands.
- forbs comprise a minor component
- summarized from NatureServe Explorer (accessed May 2013)

Pinus flexilis / Juniperus communis woodland

limber pine / common juniper woodland

CEGL000807

Alberta Rank: **S1S2** Global Rank: **G5**

- restricted in distribution to Montane sites in southwestern Alberta.
- occurs on dry, exposed, rocky sites such as rock outcrops, ridges, slope crests, and high flat benches
- may also occur on gentle to moderately steep slopes with variable aspect.
- soils are predominantly shallow, coarse-textured, and rapidly drained with high soil-surface temperatures.
- Pinus flexilis is the main tree in an open canopy although Pinus contorta, Picea engelmannii and occasionally Pinus albicaulis may be present at higher elevations.
- Pseudotsuga menziesii may be present at lower elevations.
- a sparse low-shrub layer is characterized by Juniperus communis.
- Arctostaphylos uva-ursi also has high constancy but less total cover than Juniperus communis.
- Juniperus horizontalis may also be present.
- there is also a sparse herbaceous layer that may include Oryzopsis (Achnatherum) hymenoides, Arnica cordifolia, Eurybia conspicua (= Aster conspicuus), Campanula rotundifolia, Galium boreale, and Astragalus miser.
- the ground layer has a high proportion of unvegetated surface that is often composed of gravel and rock.
- there is overlap in concept between this association (CEGL000807) and Pinus flexilis / Arctostaphylos uva-ursi Woodland (CEGL000802).
- both associations include stands with woodland understory co-dominated by Arctostaphylos uva-ursi and Juniperus communis.
- the Alberta expressions of this type that occur on calcareous substrates differ floristically from the non-calcareous expressions in the rest of the geographic range. With further data, these may warrant recognition as a different type
- summarized from NatureServe Explorer (accessed May 2013).

Forest/Woodland

Pinus flexilis Group

Pinus flexilis scree woodland
limber pine scree woodland
CEGL000815
Alberta Rank: **S1S2** Global Rank: **G3Q**

- located on high elevation Subalpine sites where materials accumulate in areas below slopes susceptible to bedrock slope movement.
- steep south to southwest facing slopes, usually > 30 degrees.
- characterized by steep, unstable slopes and lack of soil development.
- Pinus flexilis is the main tree species, with 5 to 10% cover.
- vegetation is generally sparse (90% unvegetated) with most forb species present in or below areas stabilized by mats of Juniper spp. or Arctostaphylos uva-ursi.
- Hedysarum sulphurescens and Anemone multifida are the most common forbs; with a number of other species present in trace amounts.
- this community persists in areas of natural disturbance; failure of bedrock slopes.
- more stable areas contain more vegetation growth.
- this community may occur as islands within a non-forested scree situations (Pfister et al 1977).

Pseudotsuga menziesii - Pinus flexilis / Juniperus communis / Festuca campestris
Douglas-fir - limber pine / ground juniper / mountain rough fescue
CEAB000082
Alberta Rank: **S2** Global Rank: **GNR**

- characteristic of south-west Montane sites in southwest Alberta, may extend into the lower Subalpine (Timoney 1999)
- rapidly to well-drained sites on upper slopes and crests at moderate elevation, usually with a southerly or westerly aspect.
- found on sites with deeper soils and less wind exposure than typical of limber pine associations.
- Pinus flexilus dominates an open tree layer, although Pseudotsuga menziesii may also be prominent in this layer.
- Festuca campestris usually dominant in a well developed graminoid layer, in one stand Festuca idahoensis was also prominent.
- low to dwarf shrubs including Arctostphylos uva-ursi or Juniperus communis may also have high cover.
- separated from other Pinus flexilis dominated types by the high cover of Festuca campestris (may be called F. scabrella in older references).

Populus X jackii Group

Populus X jackii - Betula occidentalis / Salix lutea / Stipa comata
cottonwood - water birch / yellow willow / needle-and-thread
CEAB000108
Alberta Rank: **S1** Global Rank: **GNR**

- open cottonwood stands on sand flats within sand dune areas of the Dry Mixedgrass Natural Subregion (Adams et al. 1997).
- most sand flats are not treed.
- Populus X jackii is the only tree species present and has up to 85% cover.
- Prunus virginiana is the dominant shrub in a very sparse shrub tall layer.
- Symphoricarpos occidentalis is the dominant lower shrub.
- the herb layer is moderately well developed, but prone to invasive species - Cirsium arvense was prominant in all stands (N=3).

Forest/Woodland

Populus angustifolia Group

Populus angustifolia / Cornus stolonifera woodland

narrow-leaf cottonwood / red-osier dogwood woodland

CEGL002664

Alberta Rank: **S2S3** Global Rank: **G4**

- a riparian forest type found in the Dry Mixedgrass, Mixedgrass and Foothills Fescue subregions, possibly into the Montane Subregion.
- the range of Populus angustifolia in Alberta is restricted to the Oldman R. drainage at mid-elevations.
- usually associated with recent sediment deposits on flood plains along major streams and rivers (Thompson and Hansen 2002).
- typically on alluvial deposits with large amounts of cobbles and gravels and soils are usually Regasols. - Populus angustifolia dominates the canopy, although P. deltoides and P. balsamifera may be present.
- Cornus stolonifera is always present in the shrub layer but varies in cover from sparse (3%) to high (60%).
- other shrubs that may be present with significant cover are Rosa spp., Salix exigua and Symphoricarpos occidentalis.
- graminoids do not usually make up a significant component, although in some stands Agrostis stolonifera has up to 30% cover (although it may be absent).
- no forbs were significant or consistently present in the stands looked at by Thompson and Hansen (2002) (n=17).

Populus angustifolia / Symphoricarpos occidentalis woodland

narrow-leaf cottonwood / buckbrush woodland

CEAB000184

Alberta Rank: **S2S3** Global Rank: **GNR**

- a riparian community found in the Dry Mixedgrass, Mixedgrass and Foothills Fescue subregions and possibly in the Montane.
- occurs on alluvial deposits of major streams and rivers (Thompson and Hansen 2002)
- soils are usually Regasols with a deep layer of silty clay to clay overlying coarse sands or gravels
- characterized by an open to closed canopy dominated by Populus angustifolia (20 to 80% cover), although Populus deltoides may also be present
- the understory is dominated by short shrubs such as Symphoricarpos occidentalis
- Prunus virginiana has up to 30% cover in some stands.
- the herbaceous layer often includes a number of non-native species including Bromus inermis.

Populus balsamifera Group

Populus balsamifera - P. tremuloides / Alopecurus alpinus - Calamagrostis canadensis

balsam poplar - aspen / alpine foxtail - bluejoint

CEAB000077

Alberta Rank: **S1S2** Global Rank: **GNR**

- a Montane community of hygric or subhygric discharge areas, typically on mid-slope benches
- mature aspen of large diameter often the dominant tree.
- some large balsam poplar usually present, may be dominant.
- Cornus stolonifera main species in a sparse shrub layer.
- Alopecurus alpinus dominant grass with up to 80% cover
- Calamagrostis canadensis usually present with about 5% cover
- Alopecurus alpinus is always present, but may be unrecognizable later in the season in grazed stands.
- Habenaria dilatata, Valeriana dioica and Senecio foetidus are usually present, but with low cover.
- the large trees, sparse shrub layer and heavy grass cover make this community quite distinctive (Bush 1999)

Forest/Woodland

Populus balsamifera Group

Populus balsamifera / Alnus incana ssp. tenuifolia - Cornus stolonifera / Equisetum pratense

balsam poplar / river alder - red-osier dogwood / meadow horsetail

CEAB000042

Alberta Rank: **S3** Global Rank: **GNR**

- a Boreal Forest old growth community of the Peace-Athabasca Delta and Central Mixedwood subregions.
- found on silt terraces along major river valleys of NW Canada (Timoney 1996).
- may occur as a canopy gap or as a stand on older alluvial terraces.
- occasional seasonal flooding may occur but stands are generally restricted to middle and upper terraces subject to minimal disturbance (flooding or fire).
- mesic sites, soils tend to be Cumulic Regosols.
- Populus balsamifera dominates a closed tree layer.
- Alnus incana ssp. tenuifolia and Cornus stolonifera form a dense tall shrub layer.
- Rosa acicularis and Viburnum edule are the main species in the low shrub layer.
- herb / dwarf shrub layer is patchy, with Equisetum pratense dense in some areas, others dominated by Rubus pubescens or Pyrola asarifolia.
- well developed lichen community on bark.
- high cover of leaf litter (up to 90%).
- characteristic species include Viburnum edule and Rubus pubescens.
- an old growth forest with large trees and large standing snags as well as downed logs.

Populus balsamifera / Rhamnus alnifolia / Equisetum arvense

balsam poplar / alder-leaved buckthorn

CEAB000114

Alberta Rank: **S1** Global Rank: **GNR**

- a mature community found on level, wet, nutrient rich sites in the Central Mixedwood Boreal Forest
- balsam poplar forms a closed canopy with up to 80% cover
- the shrub layer is well developed
- the high cover of alder-leaved buckthorn (20% cover) is a distinguishing feature for this community type - wild red raspberry (Rubus idaeus) and northern black current (Ribes hudsoniana) each contribute up to 10% of the shrub cover
- common horsetail (Equisetum arvense) is the most prominent herb, with up to 65% cover
- a comparable community type occurs in Saskatchwan (type e1.4 in Beckingham et al. 1996)

Populus balsamifera / Viburnum opulus / Matteuccia struthiopteris

balsam poplar / high-bush cranberry / ostrich fern

CEAB000043

Alberta Rank: **S1S2** Global Rank: **GNR**

- a moist, nutrient-rich community that occurs in seepage areas on hillsides and in depressions or in riparian areas.
- on pitted moraine and glaciofluvial outwash in the Dry and Central Mixedwood Natural Subregions.
- also documented in the Central Parkland near the transition to Dry Mixedwood.
- Populus balsamifera usually dominates the tree layer, although Populus tremuloides may be common to co-dominant.
- Matteuccia struthiopteris is clearly the understory dominant.
- Viburnum opulus cover may vary from absent to up to 20% cover.
- currently treating all poplar stands with an understory dominated by Matteuccia struthiopteris as this tracking list type.
- further data may support the split of this into two types - a Populus balsamifera / Matteuccia struthiopteris type and a Populus balsamifera / Viburnum opulus / Matteuccia struthiopteris type.

Forest/Woodland

Populus balsamifera ssp. trichocarpa Group

Populus balsamifera ssp. trichocarpa - (Populus tremuloides) / Heracleum lanatum forest

black cottonwood - (aspen) / cow parsnip forest

CEGL000542

Alberta Rank: **S2** Global Rank: **G2**

- a Montane to Subalpine community found on gentle to moderately steep slopes in a variety of riparian and wetland settings.
- stands occur in draws, on low-level lakeplains, as well as on toeslopes, midslope fluvial fans, and avalanche fans.
- found on colluvial, glacio-fluvial, lacustrine, and fluvial deposits with well-drained sandy loam or clay loam soil with few rocks.
- sites usually are temporarily flooded.
- small streams, shallow channels, and dry streambeds run through some stands.
- Populus balsamifera ssp. trichocarpa is almost always dominant in the tree canopy layer (up to 60% cover and usually 10-20 m tall).
- young individuals are found throughout all understory layers.
- variable-height Populus tremuloides is found in approximately half of the stands with up to 45% cover in the tree canopy and trace to low cover in understory layers.
- Betula papyrifera is infrequently codominant in the tree canopy.
- Rubus parviflorus (with up to 50% cover), Symphoricarpos occidentalis (with up to 40% cover), Symphoricarpos albus (with up to 20% cover), and Lonicera utahensis (with up to 20% cover) each can dominate the diverse short-shrub layer.
- Ribes spp. have low constancy but can have up to 10% cover, while Spiraea betulifolia and Amelanchier alnifolia occur in the majority of stands but with low cover.
- Heracleum maximum is found in all stands with an average cover of 9%.
- other important forbs with high constancy are tall species, such as Thalictrum occidentale and Osmorhiza occidentalis, with 13% and 16% average cover, respectively.
- understory is diverse and forb-dominated
- ground cover is primarily litter and duff with some small rocks, downed wood, and bare soil.
- average moss cover is less than 5%.
- summarized from NatureServe 2004.

Populus balsamifera ssp. trichocarpa - Picea engelmannii / Cornus stolonifera forest

black cottonwood - Engelmann spruce / red-osier dogwood forest

CEGL005905

Alberta Rank: **S1S2** Global Rank: **G2G3**

- a Montane community that occurs on the bottom of large glacial troughs, on low terraces and moderate to steep slopes.
- found on glacial-fluvial and lacustrine deposits with well-drained sandy loam to clay loam soils.
- known from avalanche chutes and from a bottomland stand bordering a spring-fed stream.
- consists of a multi-aged canopy dominated by Populus balsamifera ssp. trichocarpa and Picea engelmannii with lesser amounts of Pseudotsuga menziesii and Abies lasiocarpa.
- conifer species are always present, with Picea engelmannii being most characteristic.
- Betula papyrifera may be present with up to 10% cover.
- Cornus sericea is present in all stands and sometimes dominant (up to 70% cover) with variable height and multiple ages.
- more often the diversity of shrubs renders no species clearly dominant.
- other common variable-height shrubs include Rubus parviflorus, Symphoricarpos albus, and Amelanchier alnifolia, with average cover of 5 to 25%.
- Acer glabrum and Rhamnus alnifolia are less frequently present but can have high cover.
- forb diversity is high, but most species have only trace cover.
- summarized from NatureServe 2004.

Forest/Woodland

Populus balsamifera ssp. trichocarpa Group

Populus balsamifera ssp. trichocarpa - Picea engelmannii / Equisetum arvense forest

black cottonwood - Engelmann spruce / common horsetail forest

CEGL005907

Alberta Rank: **S1S2** Global Rank: **G2?**

- a Montane river valley association found on an old river meander and on gentle west-facing slopes in bottomlands.
- occurs on silty loam soils on glacio-fluvial deposits.
- stands vary from saturated much of the year to seasonally flooded but are moderately well-drained by early autumn.
- Picea engelmannii (average cover of 23%) and Populus balsamifera ssp. trichocarpa dominate the multi-layered canopy.
- Populus balsamifera ssp. trichocarpa has 35% cover in the tree canopy, 15% in the tree subcanopy, and 3% cover of saplings and seedlings.
- in more mesic stands, Symphoricarpos albus clearly dominates the shrub layer with 60% cover.
- Cornus sericea, Symphoricarpos occidentalis, Rubus pubescens, and Crataegus douglasii are present in some stands.
- Equisetum arvense is abundant in the herbaceous layer (10% to 70% cover).
- tall forbs are conspicuous, such as Maianthemum species and Heracleum lanatum.
- litter and duff cover up to 80% of the ground.
- summarized from NatureServe 2004.

Populus balsamifera ssp. trichocarpa / Calamagrostis canadensis forest

black cottonwood - conifer / bluejoint forest

CEGL005845

Alberta Rank: **S1S2** Global Rank: **G2?**

- a Montane community found on a gently sloping fluvial fan.
- sites are temporarily flooded, but well-drained on Orthic Humic Regosol soil.
- multi-aged Populus balsamifera ssp. trichocarpa dominates this association, with 20% cover in the tree canopy and up to 10% cover in the subcanopy and young tree layers.
- Populus tremuloides is subdominant, with up to 10% cover in both canopy and reproduction layers.
- Symphoricarpos occidentalis dominates a short-shrub layer with 30% cover.
- Rosa woodsii and Spiraea betulifolia are also present.
- tall grasses dominate the herbaceous layer, although a diverse mix of both tall and ground-layer forbs are also present.
- Calamagrostis canadensis and Elymus glaucus are prominent, each with 15% cover, and Phleum pratense with 10% cover.
- Cirsium arvense, Epilobium angustifolium, Aster engelmannii, and Galium triflorum are the most abundant forbs.
- the ground cover is primarily litter and duff with 5% cover of mosses.
- summarized from NatureServe 2004.

Forest/Woodland

Populus deltoides Group

Populus deltoides / Cornus stolonifera
plains cottonwood / red-osier dogwood
CEGL000657
Alberta Rank: **S2S3** Global Rank: **G2G3**

- a riparian community found in the Dry Mixedgrass Subregion
- occurs on older alluvial bars of major streams and rivers (Thompson and Hansen 2002)
- extensive stands occur on major floodplain terraces
- soils are usually Regasols with a deep layer of silt loam to silty clay overlying coarse sands or gravels
- characterized by an open to closed canopy of plains cottonwood (up to 90% cover)
- the understory is dense and diverse
- red-osier dogwood is present in all stands, although cover is variable (3-98%)

Populus deltoides / Glycyrrhiza lepidota - Juncus balticus
plains cottonwood / wild licorice - wire rush
CEAB000163
Alberta Rank: **S2S3** Global Rank: **GNR**

- localized depressions between dunes and in sand plain areas of the Dry Mixedgrass Natural Subregion.
- Populus deltoides dominates the tree layer, although Populus tremuloides and Salix amygdaloides are often present.
- the shrub layer is sparse to absent (5% cover or less).
- Populus deltoides, Glycyrrhiza lepidota and Juncus balticus are generally present, although Juncus balticus was absent from some stands.

Populus deltoides / Symphoricarpos occidentalis woodland
plains cottonwood / buckbrush woodland
CEAB000183
Alberta Rank: **S2S3** Global Rank: **GNR**

- a riparian community found in the Dry Mixedgrass Subregion
- occurs on older alluvial bars of major streams and rivers (Thompson and Hansen 2002)
- extensive stands occur on major floodplain terraces
- soils are usually Regasols with a deep layer of silty clay to clay overlying coarse sands or gravels
- characterized by an open to closed canopy of plains cottonwood (20 to 90% cover)
- the understory is dominated by short shrubs such as buckbrush, often with a significant rose component

Forest/Woodland

Populus tremuloides Group

Populus tremuloides / Juniperus horizontalis / Carex siccata woodland

aspen / creeping juniper / hay sedge woodland

CEAB000182

Alberta Rank: **S2S3** Global Rank: **GNR**

- a Central Parkland community type of the sandy areas east and southeast of Wainwright, with small occurrences documented in the Dillberry Lake area (Meijer and Karpuk 1999).
- generally occupies the more upland areas and is often associated with grass and shrublands of the south and west facing slopes.
- found on level to gently sloping (less than 5 %) sand plains that were typically well drained (Geowest 2003).
- often a fairly open community with a well-developed understory dominated by graminoids but with a prominent Juniper component.
- Populus tremuloides is always the canopy species, but the trees are often stunted, with a gnarled and twisted appearance.
- the ground surface tends to have a relatively shallow accumulation of organic materials, with some decaying wood.
- an increase in moisture down slope favours the growth of snowberry, chokecherry and saskatoon.
- this community type is often fairly open and moderately productive for domestic livestock use (Willoughby 2004).
- heavy grazing pressure will often lead to the invasion of agronomic species such as Kentucky bluegrass and smooth brome.

Populus tremuloides / Leymus innovatus - Aster conspicuus avalanche community

aspen / hairy wild rye - showy aster avalanche community

CEAB000023

Alberta Rank: **S2** Global Rank: **GNR**

- Montane to Subalpine avalanche communities on mesic to subxeric, steep, south-facing colluvial slopes.
- found in Banff and Jasper and may also occur in the foothills and in Kananaskis.
- the trees may be stunted and shrub-like, and the stands are often open.
- Populus tremuloides is the only tree species present.
- the main shrubs are Populus tremuloides (10-20%), Rosa acicularis (3-20%), and Shepherdia canadensis (1-2%).
- Leymus innovatus dominantes the herb layer (20-50%) with lesser amounts of Aster conspicuus (5-10%) and Arctostaphylos uva-ursi(10-40%).
- Tortula ruralis usually present in small amounts in bryoid layer (less than 1%).
- type C22 (Corns and Achuff 1982).

Populus tremuloides / Menziesia ferruginea

aspen / false azalea

CEAB000022

Alberta Rank: **S1** Global Rank: **GNR**

- found on cool, steep, northeast-facing seepage slopes in the Upper Subalpine.
- noted by several researchers on the lower slopes of Mt. Whistler in Jasper NP, but no details available re composition etc (ANHIC Files).

Forest/Woodland

Populus tremuloides Group

Populus tremuloides / Rosa acicularis / Apocynum androsaemifolium forest
aspen / prickly rose / spreading dogbane forest
CEAB000170
Alberta Rank: **S1S2** Global Rank: **GNR**

- a closed, maturing aspen stand of the Peace-Athabasca Delta and Central Mixedwood natural subregions.
- also expected in some of the other Boreal Subregions.
- found on gently sloping fluvial terraces, on moderately to well drained sites on sandy substrate (Allen et al. 2002).
- aspen cover varies from 50 to 70% (n = 3).
- the shrub layer is well developed and dominated by prickly rose (10 to 35% cover).
- spreading dogbane clearly dominates the forb layer (15 to 30% cover).

Populus tremuloides / Rubus parviflorus / Aralia nudicaulis
aspen / thimbleberry / wild sarsaparilla
CEAB000044
Alberta Rank: **S2S3** Global Rank: **GNR**

- this is a community found in the western part of the Central Mixedwood, extending into the Lower Foothills.
- may also occur in adjacent areas of the very western parts of the Dry Mixedwood.
- often associated with seepage areas related to a layer of reduced permeability in the soil profile that restricts drainage and channels seepage (Alberta Energy and Natural Resources 1984).
- short duration seepage likely occurs during heavy rainfall.
- soils are mesic to subhygric moderately well to well drained Brunisolic Gray Luvisols and Eluviated Eutric Brunisols.
- this community is defined by an open to closed deciduous canopy clearly dominated by Populus tremuloides, a well-developed low shrub layer with Rubus parviflorus clearly dominant and a high cover of Aralia nudicaulis in the forb layer.
- other species such as Populus balsamifera, or more infrequently, Betula papyrifera, may be present in the tree layer.
- there may be a tall shrub understory of Alnus sp. (different researchers have reported either A. cripsa or A. tenuifolia), but it may also be essentially absent.
- Rubus parviflorus dominates the well-developed low shrub layer (up to 80% cover).
- Viburnum edule is usually present, often in significant amounts (up to 20% cover).
- Rosa acicularis and Spiraea betulifolia are also usually present.
- Alnus sp. forms a significant taller shrub layer in some stands (up to 20% cover).
- there is a high forb cover of species indicating nutrient-rich conditions, but low cover of grass or moss.
- Aralia nudicaulis is usually the dominant herb, but Epilobium angustifolium is sometimes co-dominant.
- Aster conspicuous and Lathyrus ochroleucus are usually present although with low cover.

Forest/Woodland

Populus tremuloides Group

Populus tremuloides / Rubus parviflorus forest

aspen / thimbleberry forest

CEAB000078

Alberta Rank: **S2** Global Rank: **GNR**

- a Montane community of south west Alberta that may also occur in the Foothills Parkland.
- equivalent to type C61 in Achuff et al. 1997.
- found primarily on gentle to steep slopes on various aspects, but mostly northerly.
- likely associated with seepage during some point in the growing season (Willoughby et al. 1998).
- soils are well drained, mesic to subhygric Regosols and Luvisols.
- has a closed canopy Populus tremuloides forest ((40-65% cover) with a sparse tall shrub layer but a dense low to dwarf shrub / herb layer.
- lichens and bryophytes scarce.
- Rubus parviflorus is the dominant dwarf shrub (up to 40% cover).
- A wide range of forbs are present, with Osmorhiza occidentalis, Viola canadensis, Vicia americana and Aster conspicuus being the most prominent.
- Heracleum lanatum tends to replace Rubus parviflorus on similar seepage sites north of the Crowsnest Pass (Willoughby et al. 1998).
- this CT may be equivalent to Populus tremuloides / Rubus parviflorus Forest (CEGL000602), ranked G2.

Populus tremuloides / Salix bebbiana - Corylus cornuta / Calamagrostis canadensis - Matteuccia struthiopteris

aspen / beaked willow - beaked hazelnut / bluejoint - ostrich fern

CEAB000045

Alberta Rank: **S1** Global Rank: **GNR**

- imperfectly-drained hygric riparian wet meadow in the Central Mixedwood Natural Subregion (Timoney and Robinson 1998).
- the community composition is influenced by a widely-fluctuating water table due to typical riparian processes and beaver activity.
- relatively open tree layer with a tall shrub layer of about 10% and a low shrub layer of about 17% cover.
- Calamagrostis canadensis is the dominant understory species (45% cover) with Matteuccia struthiopteris also prominent with 25% cover.

Populus tremuloides / Vaccinium myrtilloides woodland

aspen / common blueberry woodland

CEAB000209

Alberta Rank: **S2?** Global Rank: **GNR**

- an open Populus tremuloides woodland of the Peace River Parkland and Central and Dry Mixedwood Subregions.
- may also occur in the Athabasca Plain Subregion.
- associated with dry sites with coarse-textured sandy soils and poor nutrient status.
- Populus tremuloides dominates the open canopy and is usually the only tree species present.
- there is a low shrub layer with Vaccinium myrtilloides dominant.
- Arctostaphylos uva-ursi and Maianthemum canadensis are the most common species in the herb/dwarf shrub layer.
- the above information summarized from Stone et al. 2007.

Forest/Woodland

Populus tremuloides - Abies bifolia mixedwood Group

Populus tremuloides - Abies bifolia - Picea engelmannii / Streptopus amplexifolius forest

aspen - subalpine fir - Engelmann spruce / clasping-leaved twisted-stalk forest

CEGL005908

Alberta Rank: **S1S2** Global Rank: **G2G3**

- a mixed evergreen-deciduous Montane to lower Subalpine forest.
- occurs on mostly cool, moist, moderate to gentle toe-slopes and mid-slopes.
- generally occurs on north- and west-facing slopes but can also occur on south-facing slopes.
- soils are well- to somewhat poorly drained Orthic Grey Luvisols and Orthic Regosols.
- silty clay loams that are medium to dark in color and have little rock content.
- on glacio-fluvial and morainal landforms.
- litter comprises 40-75% of the ground cover.
- canopy ranges from 10-70%.
- Picea engelmannii, Populus tremuloides, Populus balsamifera ssp. trichocarpa, and Abies bifolia are the most frequent tree species.
- Pinus contorta and Betula papyrifera also occur infrequently in the overstory.
- stand age ranges from 120 to 160 years.
- shrub cover is variable, ranging between 0 and 70%, and includes Rubus parviflorus, Cornus sericea, Amelanchier alnifolia, Ribes lacustre, Lonicera utahensis, Acer glabrum and Alnus viridis ssp. sinuata.
- herbaceous cover is high, ranging from 40-90%.
- Streptopus amplexifolius is always present and usually accompanied by other species such as Senecio triangularis, Mitella pentandra, Mitella breweri, Gymnocarpium dryopteris, Angelica arguta, Athyrium filix-femina.
- dominant species include Thalictrum occidentale and Heracleum lanatum.
- nonvascular cover ranges from 5-20%.
- summarized from NatureServe 2004.

Populus x acuminata Group

Populus x acuminata / Symphoricarpos occidentails woodland

lance-leaf cottonwood / buckbrush woodland

CEAB000223

Alberta Rank: **S1S2** Global Rank: **GNR**

- a mesic deciduous woodland documented in the Dry Mixedgrass and Mixgrass subregions.
- occurs as small isolated stands on episodic flood sites in riparian zones.
- recently deposited alluvium and full sunlight is required for stand establishment.
- Populus x acuminata is the dominant tree.
- the shrub and herbaceous layers are diverse and dense.
- Common shrubs include Symphoricarpos occidentalis, Amelanchier alnifolia, Prunus virginiana, Cornus sericea, and Juniperus communis.
- dominant herbaceous plants included Bromus inermis and Poa pratensis (N=2).
- also present are Elymus piperi, Smilacina stellata, Aster laevis, Monarda fistulosa, Thalictrum venulosum, Achillea millefolium and Solidago missouriensis.
- the above is primarily summarized from Wildlands Ecological Consulting Ltd.2004.
- most bottom-land poplar types have disturbed understories making characterization of the natural community difficult.

Forest/Woodland

Pseudotsuga menziesii Group

Pseudotsuga menziesii / Angelica spp. forest

Douglas-fir / angelica spp. forest

CEGL005853

Alberta Rank: **S1S2** Global Rank: **G2?**

- found from Montane to lower Subalpine and even extending to mid subalpine habitats.
- encompasses relatively mesic to subhygric sites occurring on moderate to steep slopes with north- to east-facing aspects.
- also found on toe-slopes and foot-slopes where subsurface input may be a mitigating factor.
- soils are mostly well-drained, fine-textured and derived from glacial drift or alluvium.
- the canopy and subcanopy are Pseudotsuga menziesii-dominated with a combined cover in excess of 60%.
- Abies lasiocarpa and Picea engelmannii are represented in the seedling/sapling component.
- Pinus contorta may have relatively high cover as a seral component.
- shrub component is various but mostly dominated by a short-shrub layer in which Rubus parviflorus, Spiraea betulifolia, and Symphoricarpos albus have high constancy and share dominance.
- any of the following forbs having >3% canopy cover, singly or in any combination, is diagnostic for the type: Streptopus amplexifolius, Galium triflorum, Actaea rubra, Senecio triangularis, Angelica arguta, Angelica dawsonii, and/or Heracleum lanatum.
- summarized from NatureServe 2004.
- renamed to Pseudotsuga menziesii / Heracleum maximum Forest in the NatureServe database.

Salix amygdaloides Group

Salix amygdaloides woodland

peach-leaved willow woodland

CEGL000947

Alberta Rank: **S1S2** Global Rank: **G3**

- a riparian community found in the Dry Mixedgrass Subregion.
- occurs in as stringers in a variety of locations such as backwater areas, old meander channels and wetland margins or as clumps along water courses (Thompson and Hansen 2002).
- soils are usually Regasols or Chernozems, and the water table typically stays within 1 m of the soil surface during the growing season.
- characterized by a short-stature canopy of Salix amygdaloides (40 to 60% cover).
- Salix lutea may be absent, but reaches up to 80% cover in some stands.
- similarly, Cornus stolonifera has significant cover in some stands (up to 40%), but is absent in others. - there is usually a well-developed herbaceous understory, but variable in composition.
- species that may be significant (but absent in some stands) include: Pascopyrum smithii, Phalaris arundinacea, Poa palustris, Glycyrrhiza lepidota, as well as introduced species such as Melilotus spp.
- riparian Salix amygdaloides dominated stands are included in this CT, although various authors consider them shrublands rather than woodlands. due to the short stature of Salix amygdaloides.
- there may be at least one other Salix amygdaloides dominated CT in Alberta, found on sand plains, but it is not well documented, and is clearly a shrub type (Coenen, V. and J. Bentz 2003).

Shrubland

Alnus incana ssp. tenuifolia Group

Alnus incana ssp. tenuifolia / Matteuccia struthiopteris shrubland

river alder / ostrich fern shrubland

CEAB000211

Alberta Rank: **S2?** Global Rank: **GNR**

- a Boreal CT documented in the Lower Boreal Highlands, Athabasca Plain and Central Mixedwood subregions.
- generally associated with rich, moist riparian areas that probably have a continous supply of water from springs, creeks or runoff.
- sites are subject to intermittent flooding and fluctuating ground water levels.
- Alnus incana ssp. tenuifolia dominates a dense tall shrub layer with up to 80% cover.
- Rubus idaeus may be prominent in a second, lower shrub layer.
- Matteuccia struthiopteris is the dominant species in a lush forb layer with up to 80% cover.
- Heracleum lanatum and Calamagrostis canadensis may also be prominent.

Amelanchier alnifolia Group

Amelanchier alnifolia / Arctostaphylos uva-ursi / Oryzopsis pungens

saskatoon / common bearberry / northern rice grass

CEAB000029

Alberta Rank: **S2S3** Global Rank: **GNR**

- small, shrubby openings in level or nearly level upland pockets generally imbedded within upland forests
- found in the Dry Mixedwood Boreal Forest and Peace River Parkland subregions.
- may occur in other Boreal Subregions including the Central Mixedwood, Athabasca Plain and possibly the eastern portion of the Northern Mixedwood.
- unlikely to occur in any of the Boreal uplands or the Peace-Athabasca Delta.
- soils are submesic, very rapidly to well-drained, nutrient-poor and coarse textured.
- these openings seem to persist over time, suggesting they may be associated with soil conditions that are dryer than the surrounding forest, inhibiting tree growth.
- vegetation layers include low shrub and dwarf shrub-herb.
- in the shrub layer, Amelanchier alnifolia averages around 30% cover (15-50% n=5).
- in the herb-dwarf shrub layer, Arctostaphylos uva-ursi averages 75% cover, Oryzopsis pungens averages 23% (3-42%) and Carex spp. (upland sedges) 23 (15-30%).
- these small patches seem to be heavily used by wildlife and may be an important habitat component.
- equivalent to type DMA7 in Willoughby et al. 1997 and PPA4 in Stone et al. 2007.

Shrubland

Amelanchier alnifolia Group

Amelanchier alnifolia / Pseudoroegneria spicata shrubland

saskatoon / bluebunch wheat grass shrubland

CEGL001065

Alberta Rank: **S2S3** Global Rank: **G3G4Q**

- a community of south western Alberta in the Montane and Foothills Parkland Natural Subregions.
- occurs on colluvial and glacial deposits on moderate to steep slopes usually of primarily south and southwest aspects and also on ridgetops.
- often on spur ridges or wind-buffeted slope shoulders.
- sites tend to be on rapidly drained, moderately deep to deep, fine loam soils which often have a high percentage of rock fragments
- dominated by short shrubs and mid grasses.
- Amelanchier alnifolia is the most common shrub and has an average cover of 21%..
- others shrubs present include Acer glabrum, Prunus virginiana, Rosa woodsii, Spiraea betulifolia, Symphoricarpos albus, and Mahonia repens.
- in the higher elevation stands, occasionally Pseudotsuga menziesii, Picea engelmannii, and Betula papyrifera are present within a young tree canopy, but these have insignificant cover.
- the herbaceous layer is moderate and dominated by Pseudoroegneria spicata, with 87% constancy and 27% average cover.
- other common species include Carex geyeri, Achillea millefolium, Penstemon confertus, and Festuca idahoensis.
- nonvascular and exotic species are present with insignificant constancy and cover.
- summarized from Natureserve 2004.

Andromeda polifolia Group

Andromeda polifolia / Sarracenia purpurea / Sphagnum angustifolium

bog rosemary / pitcher-plant / peat moss

CEAB000120

Alberta Rank: **S1S2** Global Rank: **GNR**

- this community forms a narrow band around the edges of small lakes in the the southern outliner of the Kazan Uplands Natural Subregion as well as in the Athabasca Plains Natural Subregion (Allen and Johnson 2000) which is now included in the Boreal Forest Natural Region.
- bog rosemary is always significant, but cover varies from 15% to 50%.
- pitcher plant is characteristic, with cover varying from 10% to 24%.
- the peat moss species are variable, with Sphagnum angustifolium the dominant moss at 45% to 60% cover in two stands, but absent in a third, where Sphagnum fuscum was dominant at 95% cover.

Shrubland

Artemisia cana Group

Artemisia cana / Stipa viridula - Pascopyrum smithii
silver sagebrush / green needle grass - western wheat grass
CEAB000157
Alberta Rank: **S2S3** Global Rank: **GNR**

- found in the Dry Mixedgrass subregion of Alberta and into southern Saskatchewan (Lawrence and Romo 1994)
- occurs on steep (17°) slopes, primarily on southerly slopes of draws, but also on north- and east-facing slopes
- average cover of Artemisia cana ranges from 20 to 40%
- Symphoricarpos occidentalis is prominent in some stands, with cover ranging from 1-15%
- Stipa viridula is the dominant grass, with an average cover of 30%
- Pascopyrum smithii is generally co-dominant, averaging 20% cover
- Elymus lanceolatus may take over from Pascopyrum smithii as co-dominant on some sites
- Other common species include Bouteloua gracilis, Stipa comata, Calamovilfa longifolia, Artemisia frigida, Achillea millefolium, Antennaria parvifolia, Gutierrezia sarothrae, Opuntia polyacantha, Thermopsis rhombifolia and Aster ericoides.

Betula glandulosa Group

Betula glandulosa / Festuca campestris
bog birch / mountain rough fescue
CEAB000115
Alberta Rank: **S2S3** Global Rank: **GNR**

- this is a community type of the Upper Foothills Natural Subregion (Willoughby 2000)
- it occurs on mesic to subhygric, well-drained sites on fluvial and lacustrine parent materials
- occurrences are likely areas of snow accumulation, as bog birch requires the winter insulation and spring moisture
- bog birch has an average of 32% cover, fescue up to 80% cover (average 25%) and bearberry (Arctostaphylos uva-ursi) is also significant, averaging 10% cover (but may be absent).
- graceful sedge (Carex praegracilis) and alpine bistort (Polygonum alpinum) are characteristic species

Betula occidentalis Group

Betula occidentalis - Amelanchier alnifolia / Artemisia campestris - Elymus lanceolatus
water birch - saskatoon / plains wormwood - northern wheat grass
CEAB000056
Alberta Rank: **S1** Global Rank: **GNR**

- a Montane dune / swale community of areas of active sand deposition (ANHIC).
- Betula occidentalis and Amelanchier alnifolia form dense patches on dunes that are up to 2m high
- scattered Artemisia campestris and Elymus lanceolatus are the main species found between the dunes, but vegetation is sparse, with up to 90% bare sand.

Shrubland

Betula occidentalis Group

Betula occidentalis / Juniperus horizontalis

water birch / creeping juniper

CEAB000176

Alberta Rank: **S2S3** Global Rank: **GNR**

- this is a Central Parkland community typically found in low-lying, depressional sites between large, widely distributed sand dunes.
- as described in Willoughby 2004, soils are sandy, with approximately 50 % low shrub and herbaceous vegetative cover.
- soil moisture varied from mesic to subxeric.
- Betula occidentalis averages 36% cover and Juniperus horizontalis 11%.
- Spiraea betulifolia was in all stands documented (n=3) but with low average cover (3%).
- on higher moisture sites Elymus trachycaulus, Epilobium angustifolium and Schizachne purpurascens tended to dominate the understory.
- on drier sites, Carex siccata and Arctostaphylos uva-ursi dominated the understory.

Betula occidentalis grassland riparian shrubland

water birch grassland riparian shrubland

CEAB000169

Alberta Rank: **S2S3** Global Rank: **GNR**

- a Grassland community documented in the Dry Mixedgrass, Mixedgrass and Foothills Fescue subregions
- may be incidental in the Foothills Parkland Subregion.
- a low elevation community, found on alluvial terraces, stream banks, and abandoned channels along rivers and streams (Thompson and Hansen 2002).
- may also occur in moist areas such as around seeps and springs.
- soils are usually thin Regosols overlying coarse textured alluvial materials such as colluvium or cobbles.
- the water table remains at or near the surface throughout the growing season.
- the tall shrub layer is dominated by Betula occidentalis (40 to 70% cover).
- Amelanchier alnifolia, Cornus stolonifera, Prunus virginiana and Rosa spp. may also be present, but usually with low cover.
- undergrowth can be limited because of the dense shrub canopy.
- only Smilacina stellata was present in all stands, with cover varying from 1 to 20% (n=22)
- sensitive to grazing pressure
- two similar types are recognized by Natureserve [CEGL001080 Betula occidentalis shrubland] and [CEGL001161 Betula occidentalis / Cornus sericea shrubland]
- CEGL001161 always has moderate to high cover (15-90%) of Cornus sericea, and zero to low cover of Symphoricarpos albus (less than 10%). Some of the stands in Thompson and Hansen 2002 may fit in this CT.
- CEGL001080 seems to be a higher elevation type with different assoc species such as Potentilla fruticosa and Salix bebbiana.

Shrubland

Betula occidentalis Group

Betula occidentalis montane shrubland

water birch montane shrubland

CEGL001080

Alberta Rank: **S1S2** Global Rank: **G3Q**

- a community documented in the in the Foothills Parkland Subregion that likely also occurs into the Montane Subregion.
- seasonally flooded, low-level terraces along stream benches and floodplains in narrow to moderately wide valleys and hillside seeps.
- water is at or near the surface for extended periods during the growing season.
- substrates are typically alluvial and range from fairly shallow, finer-textured soils to gravel and boulders.
- vegetation is characterized by tall-shrub to small-tree canopy about 5-10 m tall dominated by Betula occidentalis with about 20% cover.
- Betula occidentalis and Salix bebbiana form a second shrub layer 2-5 m high with total cover approximately 40%.
- A wide variety of short shrubs including Amelanchier alnifolia, Cornus stolonifera and Symphoricarpos occidentalis make up a layer 0.5-1 m tall, with an overall cover of 20%.
- the dominant species in the herbaceous layer are Calamagrostis canadensis and Poa palustris, each with 20-25% cover.
- Equisetum arvense and Solidago gigantea are also well-represented.
- mesic forbs usually present in trace amounts include Maianthemum stellatum, Mentha arvensis, and Heracleum maximum.
- exotic species, such as Cirsium arvense and Taraxacum officinale, may also be present.
- diagnostic of this association is the Betula occidentalis-dominated tall-shrub layer and a variable herbaceous undergrowth that occurs on sites that are flooded for extended periods during the growing season.
- a similar type recognized by Natureserve [CEGL001161 Betula occidentalis / Cornus sericea shrubland] always has moderate to high cover (15-90%) of Cornus sericea, and zero to low cover of Symphoricarpos albus (less than 10%). Some of the stands in may fit in this CT.
- a second type recognized in Alberta is CEAB000169 Thompson and Hansen 2002 seems to be a grassland type with different assoc species such as Prunus virginiana and Rosa spp.
- CEGL001080 and CEAB000169 may end up being merged.

Betula pumila Group

Betula pumila - Ledum groenlandicum / Juncus balticus / Tomentypnum nitens - Hylocomium splendens slope fen

dwarf birch - common Labrador tea / wire rush / golden moss - stair-step moss slope fen

CEAB000210

Alberta Rank: **S1?** Global Rank: **GNR**

- a fen found on a slight slope in the Upper Foothills Natural Subregion, but may also occur in the Lower Foothills.
- there is a sparse tree layer, and well developed tall shrub, low shrub, herb/dwarf shrub and bryophyte layers.
- the tree layer has scattered, stunted Picea mariana, usually with under 5% cover
- 25% cover Betula pumila averaging about 1.2 m tall dominates the tall shrub layer.
- lower layer of diverse shrubs dominated by Ledum groenlandicum with about 25% cover and Potentilla fruticosa common at about 10% cover.
- other prominent low shrubs include Salix myrtillifolia and Salix pseudomyrsinites.
- Juncus balticus is the dominant species in the herb/dwarf shrub layer.
- Carex capillaris and Carex vaginata are also prominent.
- the main dwarf shrubs are Vaccinium vitis-idaea, Linnaea borealis and Arctostaphylos rubra.
- Aulacomnium palustre, Hylocomium splendens and Tomentypnum nitens are the most prominent mosses in a diverse bryophyte layers.

Shrubland

Chamaedaphne calyculata Group

Chamaedaphne calyculata - Kalmia polifolia / Cladina mitis
leatherleaf - northern laurel / green reindeer lichen
CEAB000122

Alberta Rank: **S1S2** Global Rank: **GNR**

- this is a community of the Athabasca Plains Natural Subregion (Allen and Johnson 2000), now included in the Boreal Forest Natural Region.
- it occurs were the water table is at or near the surface and sites are likely subject to seasonal flooding
- it generally forms a ring at the outer edge of linear seepage channels on sand or in shallow depressions in sand
- there may be an open cover of small jack pine (Pinus banksiana)
- leatherleaf is the dominant shrub, with up to 50% cover, with northern laurel consistently present at about 5% cover
- there is a well developed lichen cover, up to 50%, with green reindeer lichen and Cladonia gracilis being the two most prominent species

Crataegus chrysocarpa Group

Crataegus chrysocarpa / Heracleum lanatum - Urtica dioica - Viola canadensis
round-leaved hawthorn / cow parsnip - common nettle - western Canada violet
CEAB000058

Alberta Rank: **S1S2** Global Rank: **GNR**

- a community found primarily in the Montane Subregion of the Cypress Hills and adjacent Mixedgrass areas.
- Crataegus douglasii may also occur as a community; composition has not been documented.
- found on slopes immediately below a spring or seep.
- may also occur on alluvial terraces along streams and rivers (Thompson and Hansen 2002).
- stands on slopes tend to be in a concave spot, mid slope and have been documented various aspects, but primarily on south-facing slopes.
- the water table is close to the surface in spring and after rains, but subject to draw down during dry period
- Crataegus chrysocarpa is clearly the dominant tall shrub forming dense clumps, often with a sparse understory and high leaf litter.
- low shrubs are sparse to absent, but may include Prunus virginiana, Ribes oxyacanthoides and Symphoricarpos occidentalis.
- Heracleum lanatum and Urtica dioica are usually present and in some stands form a dense understory.
- Viola canadensis can be prominent as a second herb layer.
- heavy grazing can open up stands and allow invasion of Bromus inermis and Poa pratensis
- Crataegus chrysocarpa is a long-lived species and copses may persist on the landscape for long periods of time (Thompson and Hansen 2002).

Shrubland

Elaeagnus commutata Group

Elaeagnus commutata - Prunus virginiana / Carex siccata
silverberry - chokecherry / hay sedge
CEAB000180
Alberta Rank: **S2S3** Global Rank: **GNR**

- a community type of the Central Parkland, described in the sandy areas south and east of Wainwright (Geowest 2003).
- potentially could occur in the Northern Fescue or Dry Mixgrass subregions as well.
- found on level ground to sandy slopes with a westerly aspect, on well to rapidly drained soils.
- represents the ecotone between grasslands and forested dominated community types (Willoughby 2004)
- the higher moisture content on these sites favours the growth of shrub species.
- chokecherry (Prunus virginiana) averages 14% cover, silverberry (Elaeagnus commutata) 20%.
- hay sedge (Carex siccata) is the dominant herb, averaging 19% cover.
- constant species include June grass (Koeleria macrantha) (7%), prairie rose (Rosa arkansana) (4%), Missouri goldenrod (Solidago missouriensis) (2%), mouse eared chickweed (Cerastium arvense) (1%).
- represented by two moisture regime phases.
- the moister phase represents invasion of silverberry and chokecherry onto grassland community types.
- the drier phase is found on west facing sandy slopes.
- open patches of sand are often typical in the drier phase.

Elaeagnus commutata / Pascopyrum smithii
silverberry / western wheat grass
CEAB000102
Alberta Rank: **S3** Global Rank: **GNR**

- a small patch community of the Grassland Natural Region.
- Elaeagnus commutata forms open to closed thickets in mixedgrass.
- often associated with Symphoricarpos occidentalis and Rosa woodsii.
- a Northwest Great Plains community type that seems similar is ranked G3? (NatureServe 2003).

Shrubland

Elaeagnus commutata Group

Elaeagnus commutata riparian shrubland
silverberry riparian shrubland
CEGL001098

Alberta Rank: **SU** Global Rank: **G2Q**

- a small patch riparian community type that forms stringers on stream terraces.
- may occur in the Dry Mixed Grassland, Mixed Grassland, Foothills Fescue, Foothills Parkland, Lower Foothills and Montane Natural Subregions, but not well documented in Alberta.
- found on silty alluvial soils on glacial fluvial or lacustrine deposits.
- Elaeagnus commutata is clearly the dominant shrub, although Salix spp., Amelanchier alnifolia and Prunus virginiana are often present.
- the understory tends to be sparse, with a high litter cover.
- understory species are variable, with higher elevation Montane and Foothills stands having different species than those from lower elevations in the Grassland Natural Region.
- there are several different riverine Elaeagnus commutata community types in Alberta.
- one occurs on dry river, gravely river flats with Dryas drummondii (type D2 in Willoughby et al. 2005, in part).
- this one (CEGL001098) is also in riverine areas, but found on deeper soils.
- may eventually be split into an upper and a lower elevation type.
- there are also one or more additional Elaeagnus commutata types associated with sandy substrates, and one or more associated with moist pockets within grassland areas. These are upland rather than riparian communities.
- Thompson and Hansen (2002) describe an Elaeagnus commutata riparian community type that they consider common in the Grassland Natural Region, but it may be a broader type than this.
- Elaeagnus commutata Shrubland CEGL001098 ranked G2Q and considered "uncommon over a large range and occurs in a habitat prone to human-caused degradation" (NatureServe 2003).

Menziesia ferruginea Group

Menziesia ferruginea / Xerophyllum tenax shrubland
false azalea / bear-grass shrubland
CEGL005888

Alberta Rank: **S1S2** Global Rank: **G3G4**

- this is a mesic, subalpine association restricted to southwestern Alberta
- it is located on somewhat-steep to steep low to mid-slope on variable aspects.
- soils are well-drained to rapidly drained loamy sands that are developed on colluvial landforms, including talus.
- litter dominates the ground surface with 20-40% cover, although downed wood, exposed soil, and rock are also common.
- dominated by tall shrubs that have 20-80% cover and heights between 0.5-5 m.
- Menziesia ferruginea dominates the shrub layer with 10-55% cover and is sometimes observed extending downslope in bands.
- other common shrubs include Vaccinium membranaceum, Lonicera utahensis, and Sorbus scopulina.
- Rubus parviflorus, Acer glabrum, Amelanchier alnifolia, and Ribes lacustre may also be present.
- hort- and dwarf-shrub cover is low, with Spiraea betulifolia and Vaccinium myrtillus sometimes present.
- herbaceous cover ranges from 50-60% with heights from <0.5-1 m.
- Xerophyllum tenax (20-40% cover) and Abies lasiocarpa seedlings (10-20%) dominate this layer.
- Veratrum viride and Arnica cordifolia are also consistently common.
- Epilobium angustifolium and Thalictrum occidentale may also be present.
- summarized from NatureServe 2004.

Shrubland

Populus tremuloides Group

Populus tremuloides - Amelanchier alnifolia avalanche chute shrubland

aspen - saskatoon avalanche chute shrubland

CEGL005886

Alberta Rank: **S1S2** Global Rank: **G3?**

- a montane to lower Subalpine community found infrequently on avalanche chutes and other steep slopes in Waterton Lakes National Park.
- found on mesic, moderate to steep, south-facing midslopes.
- soils are rapidly to well-drained sandy loams, characterized as Orthic and Cumulic Regosols developed on fluvial and colluvial landforms.
- soils are generally weakly developed, strongly acidic to neutral and coarse-textured.
- litter dominates the ground surface with 40-85% cover.
- frequent avalanches maintain the shrubby structure of this deciduous shrubland.
- tall shrubs are dominant and some stands have a more pronounced short-tree layer, ranging from 1-5 m in height.
- Populus tremuloides dominates both the tall-shrub and tree layer.
- Pseudotsuga menziesii may also be present, sometimes becoming emergent over other vegetation.
- Picea engelmannii and Abies lasiocarpa are also sometimes scattered in the canopy.
- total short-shrub cover is 20-70%, and common shrubs are Amelanchier alnifolia, Acer glabrum, Spiraea betulifolia, Shepherdia canadensis, Prunus pensylvanica, Rubus parviflorus, Lonicera utahensis, Symphoricarpos albus, Mahonia repens, Paxistima myrsinites, Arctostaphylos uva-ursi and Populus tremuloides seedlings.
- total herbaceous cover ranges from 20-100% and high-constancy species include Epilobium angustifolium, Aster conspicuus, Carex geyeri, Thalictrum occidentale, and Calamagrostis rubescens.
- summarized from NatureServe 2004.

Prunus virginiana Group

Prunus virginiana / Elymus lanceolatus - Koeleria macrantha

choke cherry / northern wheat grass - June grass

CEAB000196

Alberta Rank: **S1S2** Global Rank: **GNR**

- described in the southeast corner of Alberta within the Dry Mixedgrass Subregion .
- other Prunus types may be more widespread, but this type seems to be restricted to stabilized sites in choppy sand hill areas.
- found on rapidly drained sites on strong to steep, north-facing slopes with Orthic Regosols or Regosol Brown soils.
- Prunus virginiana is dominant with an average of 14% cover, but Symphoricarpos occidentalis and Rosa woodsii are also always present (n=2).
- Elymus lanceolatus (Agropyron dasystachyum) is the dominant understory species, averaging 56% cover.
- Koeleria macrantha, Carex sp., Thermopsis rhombifolia and Psoralea lanceolata are also always present, but at much lower cover.
- summarized from Adams et al. 2005 for type DMGC6.

Shrubland

Rhamnus alnifolia Group

Rhamnus alnifolia shrubland
alder-leaved buckthorn shrubland
CEGL001132

Alberta Rank: **S1S2** Global Rank: **G3**

- a shrubland documented in the Waterton and Castle areas of SW Alberta in the Montane Subregion of the Rocky Mountain Natural Region.
- the Alberta locations appear to be a good match with the NatureServe type.
- in adjacent US states, this CT is associated with moist, low elevation mountainous valleys in seeps, along sloped spring-fed creeks, on alluvial terraces of small streams and in broad basins or fens (NatureServe online encyclopedia, ND).
- soils are typically loams and contain coarse rock fragments and often show signs of a seasonally high water table (e.g., mottling), but the association also occurs on semi-permanently saturated sites.
- a high Rhamnus alnifolia cover (40% in one Alberta stand) characterizes this association and Symphoricarpos albus and Berberis repens are also prominent (20 to 30% average cover in the Alberta stand).
- Heracleum lanatum is characteristically present.

Rhus trilobata Group

Rhus trilobata / Stipa comata
skunkbush / needle-and-thread
CEAB000185

Alberta Rank: **S2S3** Global Rank: **GNR**

- a Dry Mixedgrass community of warm, south-facing slopes of 20 - 80%
- found on floodplains as well as in areas of badlands and hoodoos
- xeric to subxeric soils that are rapidly-well to well drained and often sandy
- high unvegetated cover of mineral soil, stone and cobble.
- Rhus trilobata is dominant (30 to 60% cover) (N=3)
- Artemisia cana is not consistently present, but can have up to 20% cover
- Stipa comata is usually prominent, with up to 20% cover
- the above summarized from Wildlands Ecological Consulting Ltd. (2004)

Salix athabascensis Group

Salix athabascensis string shrubland
Athabasca willow string shrubland
CEAB000048

Alberta Rank: **SNR** Global Rank: **GNR**

- Salix athabascensis is a dominant on low hummocks and incipient strings in fens in the Wood Buffalo area in wetlands influenced by gypsum dissolution
- co-dominant associates are Myrica gale, Betula glandulosa, Campylium stellatum, and Triglochin maritima (Timoney 1997)
- known from the whooping crane nesting area in the Northwest Territories.
- may also occur in Alberta's Boreal Forest Natural Region, in the Northern Mixedwood Subregion.

Shrubland

Salix bebbiana Group

Salix bebbiana / Cornus stolonifera
beaked willow / red-osier dogwood
CEAB000167
Alberta Rank: **S3?** Global Rank: **GNR**

- a minor riparian type found thoughout the Grassland Natural Region as well as in the Central Parkland, Foothills Parkland and Montane subregions.
- it's habitat is common in the riparian areas of the Montane Subregion (Lower Foothills in Thompson and Hansen 2002, but subregion since reclassified).
- although habitat is common, few undisturbed examples remain.
- a riparian community of alluvial terraces and moist to wet soils such as near springs and seeps.
- soils are dark brown to black Chernozems (Thompson and Hansen 2002).
- the tall shrub layer is dominated by Salix bebbiana with Cornus stolonifera the dominant understory shrub.
- a low shrub layer of Rosa spp. is usually present.
- the forb layer is highly variable and varies from relatively sparse to dense graminoids or herbs.

Salix bebbiana / Rubus idaeus / Geranium richardsonii
beaked willow / wild red raspberry / wild white geranium
CEAB000014
Alberta Rank: **S2** Global Rank: **GNR**

- groves dominated by Salix bebbiana found primarily in the Foothills Parkland (Wallis 1980), although some may also occur in the Foothills Fescue Subregion.
- found on moderately to imperfectly drained sites, usually on fine-textured glaciolacustrine materials from roughly the west slopes of the Porcupine Hills north to the Madden area.
- Salix bebbiana dominates a dense tall shrub layer with up to 75% cover.
- Rubus idaeus (5-20%) is the dominant low shrub.
- significant tall herb component.
- Geranium richardsonii is often the herb with the highest cover, but the layer is diverse and Perideridia gairdneri, Anemone canadensis Osmorhiza depauperata and Delphinium glaucum may also be prominent.
- similar communities reported in the Foothill Fescue Subregion have a significant cover of Deschampsia caespitosa, but Deschampsia has not been found to be a component of the Foothills Parkland community CEAB000014.

Shrubland

Salix drummondiana Group

Salix drummondiana / Calamagrostis canadensis shrubland
Drummond's willow / bluejoint shrubland
CEGL002667
Alberta Rank: **S1** Global Rank: **G3**
- in Alberta, restricted to the Montane Subregion of the southwest, south of the Crowsnest Pass.
- in the U.S., documented from Colorado to Montana and west to Washington (NatureServe Explorer).
- associated with low gradient seasonally flooded valley floor sites on fluvial landforms.
- on relatively level sites cut by small channels and some higher terraces.
- sites are likely affected by cold air drainage.
- soils are sandy to silty clays, subhydric, very poorly drained Orthic Gleysols.
- there is a dense (70 to 90%) tall shrub cover, 2 to 3 m tall, dominated by Salix drummondiana.
- the herbaceous layer also tends to be well developed (50 to 70% cover).
- Calamagrostis canadensis dominates the herbaceous layer with up to 50% cover.
- Poa palustris had 30% cover in one stand.
- the bryophyte layer is not well developed, but Sanionia uncinata is common at the bases of shrubs and on fallen branches.
- decaying wood is usually present with about 10% cover.
- organic matter varied from present to 95% cover.
- rare and tracking list species that have been found in this ct include: Alopecurus alpinus, Barbarea orthoceras, Ranunculus uncinatus, Osmorhiza occidentalis and Physcomitrium pyriforme.
- summarized from Kestrel Research Inc. (2007).

Salix drummondiana / Scirpus microcarpus - Calamagrostis canadensis
Drummond's willow / small-fruited bulrush - bluejoint
CEAB000049
Alberta Rank: **S1** Global Rank: **GNR**
- a Central Mixedwood riparian shrubland bordering creeks (Timoney and Robinson 1998).
- may also occur in the Dry Mixedwood and west into the Foothills Natural Region.
- found on hygric, poorly drained alluvial silty Regasol.
- an early successional community of point bars.

Salix drummondiana / Thalictrum venulosum
Drummond's willow / veiny meadow rue
CEAB000084
Alberta Rank: **S1** Global Rank: **GNR**
- an Upper Subalpine community of subhygric to hygric sites bordering creeks (Achuff 1984).
- a dense shrub community (75% + cover) dominated by Salix drummondiana with Salix barrattiana also common.
- has a lush herb understory with low bryophyte cover.
- may be allied with a more common Salix - Deschampsia type.

Salix lutea Group

Salix lutea / Cornus stolonifera
yellow willow / red-osier dogwood
CEAB000168
Alberta Rank: **S3?** Global Rank: **GNR**
- a riparian community of the Grassland Natural Region
- forms dense bands on lower floodplain terraces, parallel to the channel
- soils are dark brown to black Chernozems (Thompson and Hansen 2002)
- the tall shrub layer is dominated by yellow willow, with red-osier dogwood the dominant understory shrub
- sensitive to grazing pressure

Shrubland

Salix pedicellaris Group

Salix pedicellaris / Potentilla palustris rich fen
bog willow / marsh cinquefoil rich fen
CEAB000215
Alberta Rank: **S2?** Global Rank: **GNR**

- a shrubby rich fen documented in the Dry Mixedwood, but may also occur in other Boreal Forest subregions.
- found in glacial depressions that no longer hold standing water.
- the vegetation forms on a floating organic mat that can support low shrubs, but not substantial enough for tree growth.
- Salix pedicellaris (10 to 60% cover) and Potentilla palustris ((3 to 20%) were present in all occurrences (N=6).
- Calamagrostis stricta and Carex aquatilis are prominent in some stands.
- the above summarized from Thompson, W. H. and P. L. Hansen 2003.

Sarcobatus vermiculatus Group

Sarcobatus vermiculatus / Pascopyrum smithii shrubland
greasewood / western wheat grass shrubland
CEAB000013
Alberta Rank: **S2S3** Global Rank: **GNR**

- Sarcobatus vermiculatus is geographically limited to the driest part of the brown soil zone, so this is a community type is likely restricted in Alberta to the Dry Mixedgrass Natural Subregion.
- it is found on alluvial terraces on floodplains and alluvial fans in valleys where fluvial build-up has occurred over wet, alkaline or saline soils.
- found on sites where "either overland flow or soil conditions (fine textured, poorly drained saline or alkaline) or a combination of both, provide a moisture regime that exceeds the indicent precipitation. In many situations, the fine textured soils have resulted in a perched water table." Thompson and Hansen 2002.
- often associated with fine-textured alkaline soils on alluviated or fluvial flats adjacent to water courses or at the base of badland slopes
- greasewood cover ranges from 20 to 60% (Thompson and Hansen 2002).
- western wheat grass tends to be the dominant herb (up to 98% cover), but was absent from some stands.
- greaswood is always present, although sometimes with low cover.
- can form extensive stands of scattered greasewood plants with a sparse cover of other species such as Atriplex argentea and Suaeda moquinii (Wershler and Wallis 1986).
- the herb layer is somewhat variable, with no species reported in Thompson and Hansen 2002 occuring in all stands, but western wheat grass was the most consistantly present.

Sarcobatus vermiculatus silt dune shrubland
greasewood silt dune shrubland
CEAB000015
Alberta Rank: **S1** Global Rank: **GNR**

- on minor dune complexes of silt and salts that develop on the east shore of alkali lakes in the Dry Mixedgrass Natural Subregion (ANHIC).
- Sarcobatus may have up to 50% cover
- other species present include: Chenopodium spp., Pascopyrum smithii
- these communities are vulnerable to invasion by exotic species such as Kochia scoparia, Chenopodium album, Bromus tectorum and Agropyron pectiniforme

Shrubland

Symphoricarpos albus Group

Symphoricarpos albus - Amelanchier alnifolia shrubland

snowberry - saskatoon shrubby slope

CEAB000221

Alberta Rank: **S2?** Global Rank: **GNR**

- low shrublands occasionally occur on steep south-facing slopes of incised river valleys in the Boreal Natural Region and possibly into the Peace River Parkland Subregion.
- soils are dry and unstable.
- dominant shrubs are Symphoricarpos albus and Amelanchier alnifolia, with a combined cover of up to 35% but with low stature (averaging 20 to 30 cm).
- Symphoricarpos identification should be confirmed (may be S. occidentalis).
- Arctostaphylos uva-ursi or Juniperus communis may be prominent in some stands.
- forbs are variable but Artemisia frigida is usually present, often with significant cover (10% or more).
- Arabis divaricarpa was also present in all plots (n= 4)
- main graminoids are a mix of small, dryland sedges including Carex inops C. obtusata, C. siccata and C. stenophylla, with Elymus trachycaulus prominent in some sites.
- four plots reported in Marlow 2011 (Appendix G-1) appear to correspond to this shrubland type.

Symphoricarpos occidentalis Group

Symphoricarpos occidentalis / Elymus piperi shrubland

buckbrush / giant wild rye shrubland

CEAB000187

Alberta Rank: **S2S3** Global Rank: **GNR**

- a small patch riparian plant community of the Mixedgrass Subregion
- found on level or depressional sites subjected to occasional flooding.
- requires sites with adequate moisture and good soil nutrient conditions
- Symphoricarpos occidentalis has a high percent cover.
- Elymus piperi is the most noticeable species due to its height
- the cover of both Symphoricarpos occidentalis and Elymus piperi is typically dense, restricting the growth of other plant species
- other minor species include Poa pratensis, Mentha arvense, Thalictrum venulosum, Cirsium arvense, Urtica dioica, Rosa woodsii, and Smilacina stellata.
- summarized from Wildlands Ecological Consulting Ltd. 2004.

Shrubland

Vaccinium membranaceum Group

Vaccinium membranaceum / Xerophyllum tenax shrubland
tall bilberry / bear-grass
CEGL005891

Alberta Rank: **SU** Global Rank: **G3?**

- small to large patch shrubland of mid to upper subalpine elevations in the Rocky Mountain Natural Region.
- documentation that follows come from Montana, but this community type is also reported for the Castle area and Waterton Lakes National Park in Alberta.
- found primarily on steep (to 70%), southeast- through south- to southwest-facing slopes.
- may be found on all slope positions, but commonly on upper slopes and slope shoulders.
- develops on both calcareous and noncalcareous substrates, usually red and green argillites.
- soils are moderately to well-drained with loamy textures predominating.
- litter layer is nearly continuous.
- may be an early-seral expression of burned subalpine forests.
- Vaccinium membranaceum dominates the shrub layer and averages 35% cover (10-80%).
- other shrubs of high constancy include Paxistima myrsinites, Spiraea betulifolia, and Sorbus scopulina.
- Rubus parviflorus is present in lower elevation plots and low coverage of Vaccinium scoparium (or Vaccinium myrtillus) is characteristic of higher elevation sites.
- Xerophyllum tenax almost invariably dominates the forb layer, averaging 40% cover.
- Carex geyeri and Luzula glabrata have high constancy but the forbs are otherwise variable.
- summarized from NatureServe 2004.

Dwarf Shrubland

Arctostaphylos uva-ursi Group

Arctostaphylos uva-ursi / Pseudoroegneria spicata dwarf shrubland
common bearberry / bluebunch wheat grass dwarf shrubland
CEGL005831

Alberta Rank: **S2S3** Global Rank: **G2G3**

- a minor, small-patch to linear type of southwestern Alberta
- occurs in the Montane, Lower Subalpine and Foothills Parkland Natural Subregions.
- characteristic of relatively thin-soiled, well- to rapidly drained and exposed sites, likely moderately to highly wind-impacted by downslope Chinook winds.
- patches associated with the most wind-exposed, water-shedding and well-drained positions, often upper slopes, slope shoulders or convex ridgelines.
- gentle to steep southerly exposures.
- soils are generally rapidly drained, moderately to highly rocky and derived from limestone and red and green argillites.
- the amount of litter is highly variable, from 5 to 40%.
- Arctostaphylos uva-ursi, with widely variable cover (10% to 75%), is dominant or codominant in the dwarf-shrub layer (height <50 cm).
- other consistently present dwarf shrubs are Juniperus horizontalis, Juniperus communis, Potentilla fruticosa, Rosa spp. and dwarfed Amelanchier alnifolia.
- Pseudoroegneria spicata dominates the herb layer, though its cover is also highly variable (up to 60% cover, averages about 30%).
- although other graminoids such as Festuca campestris and Festuca idahoensis may be present, their cover generally does not exceed 5%.
- the forbs layer is sparse (less than 15% cover).
- species with highest constancy include Galium boreale, Achillea millefolium, Hedysarum sulphurescens, Campanula rotundifolia, and Anemone multifida but usually with less than 5% cover.
- summarized from Natureserve 2004.

Dwarf Shrubland

Arctostaphylos uva-ursi Group

Arctostaphylos uva-ursi / Solidago multiradiata dwarf shrubland
common bearberry / alpine goldenrod dwarf shrubland
CEGL005832
Alberta Rank: **SNR** Global Rank: **G2G3**

- a small-patch community found from the highest subalpine elevations to the lower alpine on moderate to steep slopes.
- generally associated with xeric sites with a westerly to southerly exposures coupled with prevailing westerlies (removing most snow cover) and rapidly drained soils
- associated with dead and dying ridge-top Pinus albicaulis stands or krummholz patches of Abies lasiocarpa and Pinus flexilis
- a widespread Arctostaphylos uva-ursi community in Glacier National Park, but has not been documented Alberta
- may occur in Waterton Lakes National Park.
- summarized from NatureServe 2004.

Dryas integrifolia Group

Dryas integrifolia - Carex rupestris
northern white mountain avens - rock sedge
CEAB000024
Alberta Rank: **S1** Global Rank: **GNR**

- steep, east-facing slopes on Subalpine moraine with seepage.
- up to 40% unvegetated.
- type H15 (Corns and Achuff 1982).
- may be allied with a similar type known from Montana and ranked as globally rare.

Dryas octopetala Group

Dryas octopetala - Polygonum viviparum dwarf shrub herbaceous vegetation
white mountain avens - alpine bistort dwarf shrubland
CEGL001894
Alberta Rank: **S1S2** Global Rank: **G3?**

- an Alpine dwarf shrub community, known to occur in central Montana and as far north as Jasper National Park in Alberta
- found on mesic (possibly to subxeric) morainal and colluvial slopes
- sites are gently to steeply sloping of south and west aspect and solifluction is common
- information from Montana locations suggests that these communities are associated with moist sites on calcareous substrates
- Dryas octopetala forms mats of 30 to 60% cover
- Salix reticulata is common (2 to 25%) and may co-dominate the dwarf shrub layer
- the herb layer is sparse, usually less than 20% cover
- Polygonum viviparum is the dominant herb, although Astragalus alpinus may co-dominate in some stand
- Potentilla diversifolia, Silene acaulis and Luzula spicata are usually present, with low cover (.5 to 2%)
- a lichen layer dominated by Cetraria spp is present, but sparse (less than 10% cover)
- this is a subset of the Dryas octopetala - Salix nivalis - Silene acaulis (H1) type described by Corns and Achuff (1982)

Dwarf Shrubland

Juniperus horizontalis Group

Juniperus horizontalis / Calamovilfa longifolia - Carex pensylvanica ssp. heliophila
creeping juniper / sand grass - sun-loving sedge
CEAB000181
Alberta Rank: **S2S3** Global Rank: **GNR**

- a Central Parkland community type restricted to partially stabilized sand dunes
- it occurs on strongly sloping south to southwest-facing dune slopes where some active sand is present (Geowest 2004)
- Juniperus horizontalis is the dominant shrub with Calamovilfa longifolia and Carex pensylvanica ssp. heliophila the main herbs
- Sporobolus cryptandrus was present in most, but not all stands and prominent in some with a mean cover of 8% (n=3)

Phyllodoce glanduliflora Group

Phyllodoce glanduliflora / Sibbaldia procumbens dwarf shrubland
yellow heather / sibbaldia dwarf shrubland
CEGL005877
Alberta Rank: **SNR** Global Rank: **G2G3**

- an upper subalpine and alpine small patch community documented in Glacier National Park, Montana.
- may occur in Waterton Lakes National Park in Alberta, but has yet to be documented there.
- similar types have been reported for Ram Mountain and possibly in Banff and Jasper, but these need to reviewed to confirm they are part of this type.
- may appear as a dark green ericaceous border around long-persisting snowbed depressions.
- also found on exposed ridges of terraced landscapes on positions where the shrubs melt out of the snow in late June and July but the lower, less exposed positions in the landscape are still snow covered.
- occurs on gentle terrain with slopes mostly less than 15% and noted to not exceed 35%.
- there is an accumulated peat.
- little exposed rock or soil (generally less than 5%).
- litter in combination with moss and lichen cover form a nearly continuous cover.
- heath species, Phyllodoce glanduliflora, Phyllodoce empetriformis, and/or their hybrid Phyllodoce X intermedia, having at least 10% cover, are diagnostic for this community.
- the cover of these dwarf-shrubs exceeds 25% and they form a discontinuous layer about 0.15 m high.
- Salix arctica and Kalmia microphylla are the only other dwarf-shrubs of note.
- Carex nigricans is the one graminoid consistently present, though cover seldom exceeds 10%.
- other high constancy graminoids include Phleum alpinum, Luzula glabrata, and a variable combination of Juncus species, Juncus mertensianus, Juncus drummondii, and Juncus parryi.
- high-constancy forbs include Sibbaldia procumbens, Erigeron peregrinus, Packera streptanthifolia (= Senecio cymbalarioides), Hieracium gracile, Arenaria capillaris, Hypericum scouleri (= Hypericum formosum), and Veronica wormskjoldii.
- summarized from NatureServe 2004.

Dwarf Shrubland

Vaccinium spp. Group

Vaccinium (myrtillus, scoparium) / Luzula hitchcockii shrubland
low bilberry, grouseberry / smooth wood-rush
CEGL005879
Alberta Rank: **S2S3** Global Rank: **G2G3**

- a small-patch community usually occurring on moderate to steep southerly exposures with persistent snowpack.
- northerly aspects have been noted as well.
- mostly found in the Upper Subalpine on mid- to upper-slope positions as well as slope shoulders and ridges on colluvial or glacial landforms.
- soils are rapidly drained loams and loamy sands.
- stands generally have trace amounts of seedling and sapling Abies bifolia, Picea engelmannii, and Pinus albicaulis.
- cover of Vaccinium scoparium (or Vaccinium myrtillus) is generally greater than 10% ; usually greater than 20% cover.
- graminoids can be variable, but Luzula glabrata, Trisetum spicatum, Danthonia intermedia, and Carex geyeri occur with greater than 50% constancy.
- Luzula glabrata cover is usually greater than 10%.
- forb component is generally diverse, but variable.
- above summarized from NatureServe 2004.
- in Waterton Lakes National Park, this community has been observed in association with open Larix lyallii / Luzula hitchcockii stands.

Shrub Herbaceous

Artemisia cana Group

Artemisia cana - Sarcobatus vermiculatus / Stipa comata
silver sagebrush - greasewood / needle-and-thread
CEAB000155
Alberta Rank: **S1S2** Global Rank: **GNR**

- described in Alberta in the Dry Mixedgrass Subregion (Dinosaur Provincial Park) (Envirocon Ltd. and Hough, Stansbury and Assoc. Limited, 1973).
- Artemisia cana and Sarcobatus vermiculatus each have a cover of approximately 6% and Stipa comata cover is approximately 10%, but may be absent in some sites.
- occurs on steep (~26°), north-facing slopes of eroding badlands.
- has less bare soil and rock (each 15% cover) than CEAB000156 Artemisia cana / Atriplex nuttallii Shrubland.
- other prominent species include Koeleria macrantha, Agropyron spp., Bouteloua gracilis, Phlox hoodii and Anemone patens (summarized from Holcroft Weerstra 2001).

Artemisia cana / Festuca campestris - Stipa curtiseta
silver sagebrush / mountain rough fescue - western porcupine grass
CEAB000154
Alberta Rank: **S1?** Global Rank: **GNR**

- a Mixedgrass Subregion community, recorded in the Cypress Hills of Alberta.
- occurs on a moderately steep, west-facing slope
- Festuca scabrella (campestris?) and Stipa curtiseta clearly dominated the community, each with 17% cover
- silver sagebrush was at 5% cover
- the dominant forb was Selaginella densa at 8% cover
- other common species included Koeleria macrantha, Artemisia ludoviciana, Antennaria parvifolia and Thermopsis rhombifolia (Holcroft Weerstra 2001)

Shrub Herbaceous

Artemisia cana Group

Artemisia cana / Festuca idahoensis

silver sagebrush / Idaho fescue

CEAB000153

Alberta Rank: **SNR** Global Rank: **GNR**

- this community has been described along mountain streams in southwestern Montana, and at mid- to high elevations in the mountains and foothills of central and southwestern Montana, on alluvial outwash fans and terraces
- it may occur in Alberta where the ranges of silver sagebrush and Idaho fescue overlap, in the Cypress Hills area and in southwestern Alberta
- in Montana, it occurs in small areas (<2 ha) on deep, loamy, alluvial soils above 1,830 m elevation
- the shrub component, which generally does not exceed 15-23 % canopy cover, is dominated by Artemisia cana
- there is high cover (30-40%) of Festuca idahoensis
- summarized from Holcroft Weersra 2001

Artemisia cana / Pascopyrum smithii - Elymus lanceolatus

silver sagebrush / western wheat grass - northern wheat grass

CEAB000174

Alberta Rank: **S2S3** Global Rank: **GNR**

-a plant community of the Dry Mixedgrass.
- found on older alluvial terraces on both broad and narrow flood plains and coalescing alluvial fans in valleys (Adams et al. 2004).
- these are overflow (sodic/saline) range sites.
- soils are orthic regosols (orion) and moderately well drained.
- sites are level to nearly level and of variable aspect.
- exposed soil is variable, but averages about 25% with overall vegetation cover averaging 66%.
- Artemisia cana averages11% cover.
- Elymus lanceolatus(= Agropyron dasystachyum) averages 15% cover.
- Pascopyrum smithii (= Agropyron smithii) also averages 15 cover, but is not present in all stands.
- Koeleria macrantha is consistently present, but with low cover (2%).
- moss/lichen cover is variable, from 0 in one plot to 80% in the second (n=2).
- western and northern wheatgrass are well adapted to re-colonizing disturbed overflow sites because of their rhizomatous root systems.

Artemisia cana / Pascopyrum smithii - Elymus lanceolatus - Atriplex nuttallii saline flats

silver sagebrush / wheat grasses - Nuttall's atriplex saline flats

CEAB000173

Alberta Rank: **S2S3** Global Rank: **GNR**

- this community type is associated with saline lowlands in the Dry Mixedgrass Subregion of southern Alberta
- the following description is from Adams et al. 2004
- found in depressional areas and level plains with periodic ponding of water and high sodicity
- soils are poorly developed saline Regosols or alkaline Solonetz, developed on fluvial and lacustrine parent materials
- drainage is generally imperfect to moderately well drained with textures ranging from silt loam to silty clay
- Artemisia cana takes on a dwarfed stature on this type averaging only .1 m in height and with only about 4% cover
- Atriplex nuttallii averages 2% cover
- Pascopyrum smithii andElymus lanceolatus each average 2% cover
- sandberg bluegrass (Poa sandbergii) is always present, but in very low amounts
- total vegetation cover averages 26%; exposed soil averages 75%
- saline lowlands are a favored location for sage grouse strutting grounds.

Shrub Herbaceous

Artemisia cana Group

Artemisia cana / Stipa comata - Calamovilfa longifolia
silver sagebrush / needle-and-thread - sand grass
CEAB000151

Alberta Rank: **S3** Global Rank: **GNR**

- this community occurs on rapidly drained, very gentle to strong slopes and variable aspects in the Dry Mixedgrass Natural Subregion
- soils are developed on fluvial and eolian parent material
- it is an open shrubland, with Artemisia cana averaging 10.75% composition by weight (range 6-21%) or 30% or less cover
- Stipa comata is common in all occurrences and generally dominates over Calamovilfa longifolia.
- other prominent species include Bouteloua gracilis, Koeleria macrantha, Carex stenophylla, Opuntia polyacantha, Psoralea lanceolata, Heterotheca villosa, Artemisia frigida, Achillea millefolium and Rosa woodsii.
- summarized from Holcroft Weersra 2001.

Artemisia cana / Stipa comata - Pascopyrum smithii - Bouteloua gracilis
silver sagebrush / needle-and-thread - western wheat grass - blue grama
CEAB000193

Alberta Rank: **S2?** Global Rank: **GNR**

- a Dry Mixedgrass community of sites with immature soils with eroded profiles and calcium carbonates at or near the surface (Limy range sites) (Adams et al 2005).
- total vegetation cover averages 68% with an average of 13% exposed soil.
- Artemisia cana is the only shrub, usually has low cover (maximum recorded 17%) and may be absent.
- Stipa comata, Pascopyrum smithii and Bouteloua gracilis are present and prominent in all occurrences.
- Elymus lanceolatus and Koeleria macrantha are also always present, but with less than 10% cover.
- moss / lichen cover may be high (up to 74%, averaging 34%).

Artemisia cana / Stipa curtiseta - Elymus lanceolatus
silver sagebrush / western porcupine grass - northern wheat grass
CEAB000152

Alberta Rank: **S1S2** Global Rank: **GNR**

- described in the southeast corner of Alberta within the Dry Mixedgrass Subregion on moderate to nearly level slopes.
- found on Overflow range sites fed by melt water from major snowdrift areas (Adams et al. 2004) as well as productive loamy sites (Adams et al. 2005).
- occurs on well to moderately well drained or imperfectly drained, non-saline sites in the Brown soil zone.
- soils are Orthic Brown Chernozems.
- Artemisia cana cover is up to 7%, but averages 2% (n=8).
- although the cover of Artemisia cana is relatively low, the shrubs themselves are tall for the area (up to . 75 m).
- Stipa curtiseta dominates with up to 77% cover, average 44%.
- Elymus lanceolatus (Agropyron dasystachyum) has up to 20% cover in some stands, but is not always present.
- also prominent in some stands (over 10% cover), but not always present are Carex spp., Stipa comata and Koeleria macrantha.
- this community tends to be relatively small in area and patchy in distribution.

Shrub Herbaceous

Artemisia tridentata Group

Artemisia tridentata ssp. vaseyana - Amelanchier alnifolia
big sagebrush - saskatoon
CEAB000008
Alberta Rank: **S1** Global Rank: **GNR**

- a Montane community of steep, stony, south-west facing colluvial slopes with frequent rock outcrops.
- Amelanchier alnifolia is often a prominent low shrub, with Arctostaphylos uva-ursi a common dwarf shrub.
- prominent graminoids are Festuca idahoensis, Pascopyrum smithii (Agropyron smithii), Elymus lanceolatus (Agropyron dasystachyum) and Koeleria macrantha.
- Balsamorhiza sagittata is prominent in spots as is Lupinus sericeus.
- previously listed as Artemisia tridentata - Saxifraga bronchialis and Artemisia tridentata - Balsamorhiza sagittata types (Fairbarns 1986).
- lumped here because of similarities in habitat and species.

Artemisia tridentata ssp. vaseyana - Rhamnus alnifolia
big sagebrush - alder-leaved buckthorn
CEAB000010
Alberta Rank: **S1** Global Rank: **GNR**

- known only from Montane meadows adjacent to the South Castle River (Fairbarns 1986)
- Artemisia tridentata grows on gravel of old creek beds
- Rhamnus alnifolia grows in moister areas of the meadow with finer-textured soils
- these meadows are heavily disturbed
- also described as B16. Artemisia tridentata - Rhamnus alnifolia / Poa pratensis (Willoughby et al. 1998)

Potentilla fruticosa Group

Potentilla fruticosa / Festuca campestris - Danthonia intermedia
shrubby cinquefoil /mountain rough fescue - intermediate oat grass
CEAB000203
Alberta Rank: **S2S3** Global Rank: **GNR**

- restricted to the Cypress Hills portion of the Montane Subregion, Rocky Mountains Natural Region.
- found on loamy and shallow-to-gravel range sites on top of the Cypress Hills plateau at about 1400 m.
- developed on loess deposits over tertiary gravels.
- shrub layer of up to 50% cover, average 14%.
- herb layer averages about 90% cover.
- Potentilla fruticosa is the only shrub documented, averaging 14% cover.
- Festuca campestris is the dominant grass, with up to 80% cover (average 40%).
- Danthonia intermedia is a key subdominant and averages 11% cover, but has up to 50% cover in some stands and is occassionally lacking.
- tends to have low soil exposure and a low cover of moss and lichen.
- summarized from Willoughby, M.G. et al. 2005 for types I2 and I3.

Shrub Herbaceous

Sarcobatus vermiculatus Group

Sarcobatus vermiculatus / Distichlis stricta - Pascopyrum smithii
greasewood / salt grass - western wheat grass
CEAB000197
Alberta Rank: **S2** Global Rank: **GNR**

- a community of the Dry Mixedgrass Subregion, associated with sodic and saline over flow sites.
- soils are well to moderately well drained, and sites are level to very gently sloping.
- overall vegetation cover averages 56%, with an average of 37% exposed soil.
- Sarcobatus vermiculatus is always present, with an average cover of 12% (n=4).
- Distichlis stricta and Pascopyrum smithii (= Agropyron smithii) are also present in all stands.
- Distichlis stricta dominates in some stands, in others it is co-dominant with Pascopyrum smithii.
- summarized from Adams et al. 2005 for type DMGC7.

Symphoricarpos occidentalis Group

Symphoricarpos occidentalis / Elymus lanceolatus - Stipa comata
buckbrush / northern wheat grass - needle-and-thread
CEAB000200
Alberta Rank: **S2** Global Rank: **GNR**

- a small patch shrubby herbaceous community of the Mixedgrass Subregion.
- soils are well drained sandy to loamy Orthic Dark Brown Chernozems of the Lethbridge and Kessler soil series.
- usually associated with floodplains on level to gentle topography, glaciofluvial or glaciolacustrine deposits
- Symphoricarpos occidentalis may form a shrub layer of up to 20% cover, but may be absent.
- Rosa arkansana may also have significant cover (up to 12%).
- from 65 to 90% herb cover.
- bryophytes may be absent to about 3% cover.
- Elymus lanceolatus is the dominant graminoid with up to 40% cover (average 26%)
- Stipa comata averages 20% cover.
- Artemisia frigida is always present and has up to 40% cover in some stands.
- Carex stenophylla can have up to 15% cover (averages 10%).
- summarized from Adams, B.W., L. Poulin-Klein, D. Moisey and R.L. McNeil. 2004.

Shrub Herbaceous

Symphoricarpos occidentalis Group

Symphoricarpos occidentalis / Stipa comata - Calamovilfa longifolia - Carex stenophylla

buckbrush / needle-and-thread - sand grass - low sedge

CEAB000201

Alberta Rank: **S2** Global Rank: **GNR**

- a small patch, shrubby herbaceous community of the Mixedgrass Subregion found in the Lethbridge and Vulcan Plains.
- soils are well drained sands to sandy Orthic Dark Brown Chernozems.
- restricted to sites with sand parent materials adjoining stream and river channels.
- usually on moderate to strong slopes.
- aspect is variable, but often southerly.
- Symphoricarpos occidentalis forms a sparse shrub layer of up to 10% cover.
- Rosa arkansana may also have up to 10% cover, but was absent in half the plots (n=4).
- bryophytes may be absent to about 5% cover (average 1%).
- Stipa comata is the dominant graminoid with up to 34% cover (average 23%)
- Calamovilfa longifolia is also prominent, averaging 15% cover.
- Carex stenophylla consistently forms a low although sometimes sparse layer beneath the taller Stipa and Calamovilfa (2 - 16% cover).
- Bouteloua gracilis may have significant cover (up to 17%) in some stands.
- Artemisia frigida and Elymus lanceolatus are always present and may have over 10% cover in some stands.
- summarized from Adams, B.W., L. Poulin-Klein, D. Moisey and R.L. McNeil. 2004.

Herbaceous

Arenaria capillaris Group

Arenaria capillaris / Polytrichum piliferum herbaceous vegetation

linear-leaved sandwort / awned hair-cap moss herbaceous vegetation

CEGL005855

Alberta Rank: **SNR** Global Rank: **G2G3**

- an alpine and upper subalpine plant community documented in Glacier National Park in Montana, east of the Continental Divide.
- may occur in Waterton Lakes National Park in Alberta, but has yet to be documented there.
- occurs across a range of topographic positions, usually on lee-ward sites with an extended period of snow cover.
- slopes are predominantly gentle to moderately steep (7-45%) with easterly to northerly exposures.
- up to 40% mostly stabilized surface rock.
- frost churning occurs as well as frost cracks and with soil creep in the open mineral soil.
- total vascular cover varies considerably, from 25% to 80%, most of it being low-growing forbs, among which Arenaria capillaris consistently has the greatest cover and is indicative of persisting snow cover. - Sibbaldia procumbens exhibits less cover and is inconsistently present.
- other forbs with moderate to high constancy include Eriogonum flavum, Arnica rydbergii, Antennaria umbrinella, Silene parryi, Pedicularis contorta, Potentilla diversifolia, Polygonum bistortoides, Solidago multiradiata, Selaginella densa var. scopulorum (= Selaginella scopulorum), and Agoseris glauca.
- the graminoid component is relatively unimportant, with Carex phaeocephala, Luzula spicata, and Poa cusickii being consistently present (more than 60%).
- Polytrichum piliferum is highly constant and highly variable in cover in the bryophytes.
- lichens comprise a component highly variable in cover, from being unrepresented to a combined cover of 75%.
- summarized from NatureServe 2004.

Herbaceous

Aristida purpurea Group

Aristida purpurea grassland
red three-awn grassland
CEAB000207
Alberta Rank: **S1** Global Rank: **GNR**

- a small patch community of the Dry Mixedgrass Subregion.
- usually found on steep (30-40 degrees) south-facing slopes, mid-slope although also noted along ridge tops.
- associated substrate is light, sandy and stony.
- Aristida purpurea is prominent and usually dominant.
- associated species include: Stipa comata and Stipa viridula, Phlox hoodii, Artemisia frigida and Sphaeralcea coccinea.

Artemisia frigida Group

Koeleria macrantha - Artemisia frigida - Linum lewisii
June grass - pasture sagewort - wild blue flax
CEAB000026
Alberta Rank: **S2S3** Global Rank: **GNR**

- dry, Montane community of fluvial (fans and aprons), morainal (erosional scarps) and eolian (veneers) landforms
- found on moderately level to easterly or southerly, moderately sloping sites
- soils are subxeric to xeric, rapidly to well drained Orthic Regosols, Humic Regosols and Orthic Eutric Brunisols,
- they are generally coarse textured and calcareous
- unvegetated bare soil is common
- Koeleria macrantha (15-30%) is generally dominant, but the cover can vary widely depending upon summer precipitation
- Artemisia frigida, Linum lewisii, Antennaria nitida and Gaillardia aristata are characteristic
- The bryoid layer is not well developed (< 3%), with Tortula ruralis the most frequently occurring moss
- active deposition of loess may be an important factor in maintaining this community, particularly in Saskatchewan Crossing area
- role of fire is important
- type H6 (Corns and Achuff 1982, Achuff et al. 1986)

Artemisia norvegica Group

Antennaria lanata - Artemisia norvegica
woolly everlasting - mountain sagewort
CEAB000054
Alberta Rank: **S1** Global Rank: **GNR**

- a community know from Alpine and Upper Subalpine sites on moraine in the Front Ranges (Achuff 1984).
- soils are mesic to subhygric, well to imperfectly drained Brunisols and sites are often hummocky.
- a species-rich community with Antennaria lanata and Artemisia norvegica usually dominant.
- Sibbaldia procumbens, Erigeron peregrinus, Phleum alpinum, Polygonum viviparum and Veronica alpina are commonly present.

Herbaceous

Artemisia norvegica Group

Artemisia norvegica - Mertensia paniculata - Leymus innovatus
mountain sagewort - tall lungwort - hairy wild rye
CEAB000055
Alberta Rank: **S1** Global Rank: **GNR**

- a community know from Alpine and Upper Subalpine sites in the Front Ranges (Achuff 1984).
- soils are imperfectly to poorly drained Gleysols on the lower slopes of morainal and fluvial landforms.
- restricted to mesic to subhygric sites with a constant water supply.
- a species-rich community with Artemisia norvegica, Mertensia paniculata and Leymus innovatus usually dominant.
- Aconitum delphinifolium, Salix glauca, Epilolbium angustifolium, Polemonium viscosum, Erigeron peregrinus, Phleum alpinum and Polygonum viviparum are commonly present.

Bouteloua gracilis Group

Bouteloua gracilis - Distichlis stricta - Stipa comata
blue grama - salt grass - needle-and-thread
CEAB000194
Alberta Rank: **S2S3** Global Rank: **GNR**

- a community associated with badlands in the Dry Mixedgrass Natural Subregion.
- found on strong slopes of variable aspect.
- associated with mid to lower slope locations with moisture seepage and saline discharge.
- with total vegetation cover averaging 45%, this type has a relatively high cover compared to other badland plant communities.
- exposed soil averages of 48%.
- bedrock is less than 1m from surface and greater than 10% of the surface is exposed bedrock.
- Atriplex nuttallii is the only shrub, usually has low cover (maximum recorded 13%) and may be absent.
- Stipa comata is present in all occurrences, although sometimes at low cover (ranges from 1-28%, n-4).
- Bouteloua gracilis and Distichlis stricta average over 15% cover, but are sometimes absent.
- Elymus lanceolatus and Koeleria macrantha are also always present, but with less than 10% cover.
- moss / lichen cover may be high (up to 74%, averaging 34%).
- summarized from Adams et al 2005.

Calamagrostis stricta Group

Calamagrostis stricta - Triglochin maritima string fen
narrow reed grass - seaside arrowgrass string fen
CEAB000160
Alberta Rank: **S1S3** Global Rank: **GNR**

- part of a net-patterned salt marsh complex found in the Boreal Forest Natural Region (Timoney 2001)
- found in the Northern Mixedwood Subregion and may also occur in the Central Mixedwood
- ground water and runoff fed wetlands associated with Devonian Karstic rocks
- associated with saline surface water and creek or river valleys
- these patterned wetlands may develop only in areas with gradual surface water flow
- flarks (pools) are made up of diatom ponds, with strings made up of the narrow reed grass - seaside arrowgrass
- diatom ponds may be different from those described for gypsum areas (CEAB000162)

Herbaceous

Calamovilfa longifolia Group

Calamovilfa longifolia - Sporobolus cryptandrus

sand grass - sand dropseed

CEAB000178

Alberta Rank: **S2S3** Global Rank: **GNR**

- found in the Central Parkland on south to south-west facing dune slopes with active sand movement.
- an early successional community, one of the first steps in blowout stabilization.
- soils are coarse-textured, rapidly drained and conditions are xeric to subxeric.
- co-dominated by Calamovilfa longifolia and Sporobolus cryptandrus (cover greater than 15% for each) (Geowest 2003).
- Juniperus horizontalis was present in all stands (N=4), but usually with only low cover (1 to 2%).
- Carex siccata is usually prominent and Heterotheca villosa is usually present although with low cover.

Calamovilfa longifolia - Stipa comata grassland

sand grass - needle-and-thread grassland

CEGL001473

Alberta Rank: **S3** Global Rank: **G3**

- a community type documented in the Dry Mixedgrass Natural Subregion of Alberta (Adams et al. 1997).
- also known from sand areas in the central and northern Great Plains, ranging from Colorado and Nebraska, north to Wyoming and South Dakota.
- restricted in Alberta to landforms of aeolian origin, primarily dune fields.
- found in Alberta on well drained sandy to sandy loam soils; probably Orthic Regosols, possibly also Gleyed Regosols (Adams et al.1997).
- on complex terrain of variable aspect, but usually less than 15% slope.
- community seems to be best expressed on gentle upper slope to crest positions.
- open vegetation with Calamovilfa longifolia (20 to 40% cover) and Stipa comata (15 to 30% cover) clearly dominant.
- other graminoids commonly present are Bouteloua gracilis and Koeleria macrantha, but always with lower cover than Stipa comata.
- Rosa woodsii and Artemisia frigida are consistently present.
- Sedges are usually absent, but Carex stenophylla may have significant cover.
- Oryzopsis hymenoides and Sporobolus cryptandrus are given as common in the U. S. stands (Natureserve 2003), but were not noted in the Alberta ones.
- stands tend to be small and are reported to be highly susceptible to invasion by exotic brome grasses such as Bromus tectorum (Natureserve 2003).

Herbaceous

Carex albonigra Group

Carex albonigra - Myosotis alpestris herbaceous vegetation

black-and-white sedge - alpine forget-me-not herbaceous vegetation

CEGL005863

Alberta Rank: **S2S3** Global Rank: **G2G3**

- a small to large patch community of the southern Alpine.
- in Alberta, documented only in Waterton Lakes National Park.
- found at high elevations on extreme and exposed alpine environments in a highly wind-impacted environment.
- usually is dispersed across expansive rolling upland and frost rubble-mantled summits.
- topographic positions include flat mountain summits, ridges, exposed upper slopes and rolling uplands.
- occupies predominantly west- and southwest-facing surfaces, but all aspects are represented.
- can occur on steep slopes, but usually found on gentle to moderate slopes (to 40%).
- sites are windswept and xeric.
- often associated with patterned ground as lack of snow cover facilitates frost action.
- ground surface is dominated by exposed rock, mostly in excess of 60% cover, with undeveloped and well-drained soils restricted to pockets and vegetation-covered patches.
- rock types include mostly red and green argillites with lesser amounts of quartzite and arenites.
- vegetation is a very low-growing turf, scattered in small patches across an undulating landscape.
- vascular plant cover is highly variable (1 to 60%, usually less than 30).
- the most diagnostic graminoids are Carex albonigra and Carex rupestris with Carex nardina occurring sporadically; their single or combined cover seldom exceeds 5%.
- Festuca brachyphylla, Trisetum spicatum, Luzula spicata, Poa alpina, and Poa glauca also exhibit high constancy and low cover.
- Calamagrostis purpurascens is present in the lower elevation examples of the type.
- Silene acaulis is often dominant.
- other high-constancy forbs include Minuartia obtusiloba (= Arenaria obtusiloba), Smelowskia calycina, Sedum lanceolatum, Erigeron compositus, Oxytropis campestris, and Selaginella densa.
- in Alberta, known only from Waterton Lakes National Park.
- summarized from NatureServe 2004.

Carex limosa Group

Carex limosa - Menyanthes trifoliata - Cardamine pratensis

mud sedge - buck-bean - meadow bitter cress

CEAB000179

Alberta Rank: **S1S2** Global Rank: **GNR**

- documented only in the Central Mixedwood Boreal Forest (Griffiths 2003)
- appears as an opening or "lawn" within a shrubby rich fen
- found in-filled depressions on quaking ground too wet for shrubs
- dominated by Carex limosa 70%, Menyanthes trifoliata 30%, Cardamine pratensis 30%
- Galium labradoricum and Carex aquatilis also prominent (5% cover)
- surrounded by a shrub community of Betula pumila var. glandulifera and dominated by young Larix laricina to 3.5 m

Herbaceous

Carex limosa Group

Carex limosa - Scheuchzeria palustris / Sphagnum teres - S. subsecundum

mud sedge - scheuchzeria / thin-leaved peat moss

CEAB000113

Alberta Rank: **S1** Global Rank: **GNR**

- a subhydric quaking wetland of the Central Mixedwood Boreal Forest (Griffiths 2000).
- found in infilled morainal depressions with no surface drainage.
- soils are organic (hydric fibrisol).
- Carex limosa is the most abundant forb, with cover up to 85%.
- Scheuchzeria palustris is prominent, with up to 15% cover (and is an S3 species).
- the dominant peat mosses (Sphagnum teres and S. subsecundum) are an ususual combination and together have up to 75% cover.
- brown moss (Limprichtia revolvens) is also abundant, with up to 50% cover.
- there is only a sparse shrub/dwarf shrub layer.
- the herb and moss layers are well developed.

Carex limosa / Sphagnum jensenii

mud sedge / pendant branch peat moss

CEAB000031

Alberta Rank: **S1** Global Rank: **GNR**

- the Carex limosa / Sphagnum jensenii community is part of a mosaic of communities of poor patterned fens of the Swan Hills, in the Upper Foothills Natural Subregion and in the Clear Hills in the Upper Boreal Highlands Subregion.
- this community is restricted to the flarks (water-filled depressions) of poor patterned fens.
- in Alberta, most patterned fens are rich or medium rich fens.
- the following is from Vitt et al. 1975.
- these poor patterned fens are made up of alternating peat ridges (stings) and water-filled depressions (flarks).
- the Carex limosa / Sphagnum jensenii community is found in the shallower flarks and at the edges of the deeper ones.
- located on water-table divides but at least partially bordered by higher elevation uplands.
- receive some minerotrophic waters from surrounding uplands, making them weakly minerotrophic peatlands.
- Scheuchzeria palustris, Sphagnum majus and S. riparium are usually present, but may not have significant cover.
- name shortened from Carex limosa - Scheuchzeria palustris / Sphagnum majus - S. jensenii - S. riparium in 2004 based on a detailed review of Vitt et al. 1975.

Herbaceous

Carex nebrascensis Group

Carex nebrascensis community
Nebraska sedge community
CEGL001813
Alberta Rank: **S2** Global Rank: **G4**

- a small patch community found in coulees of the Mixedgrass and possibly the Dry Mixedgrass Natural subregions.
- a relatively widespread western US type that just makes it into the very southern edge of Alberta in the coulee systems associated with the Sweet Grass Hills.
- Carex nebrascensis forms extensive, essentially pure colonies along stream shores and in alkali seepage areas.
- Typha latifolia, Juncus balticus, Mentha arvensis, Epilobium palustre, Calamagrostis stricta and Eleocharis spp. may be present.
- The soils are generally saturated for much of the growing season and may be subject to compaction by livestock (Natureserve 2002).

Carex oligosperma Group

Carex oligosperma / Sphagnum subsecundum
few-fruited sedge / twisted bog moss
CEAB000121
Alberta Rank: **S1S2** Global Rank: **GNR**

- this fen community is found in the middle of linear seepage channels on sand in the Athabasca Plains Natural Subregion (Allen and Johnson 2000), now included within the Boreal Forest Natural Region.
- the channels are likely seasonally flooded, with seepage just at surface most of the growing season
- few-fruited sedge and twisted bog moss almost totally dominiate the community
- water sedge (Carex aquatilis) and marsh hook moss (Drepanocladus exannulatus) occur in the lowest and wettest portions of the fen
- bluejoint (Calamagrostis canadensis) and wool-grass (Scirpus cyperinus) may be present on drier edges
- often with an outer ring of the Chamaedaphne calyculata - Kalmia polifolia / Cladina mitis community (CEAB000122)

Carex praegracilis Group

Triglochin maritima - Carex praegracilis spring fen
seaside arrow-grass - graceful sedge spring fen
CEAB000213
Alberta Rank: **S1S2** Global Rank: **GNR**

- a spring-fed patterned fen documented in the Central Mixedwood Subregion of the Boreal Forest.
- surface is hummocky and soils are organic but saline.
- 10 to 25% open water.
- only a herbaceous layer is present, with up to 90% cover.
- Triglochin maritima and Carex praegracilis are co-dominant.
- Eleocharis acicularis may be prominent and Carex aquatilis is usually present.

Herbaceous

Carex pseudocyperus Group

Carex pseudocyperus - Calla palustris
cyperus-like sedge - water arum
CEAB000037
Alberta Rank: **S2** Global Rank: **GNR**

- reported originally form the Central Parkland and the southern fringe of the Dry Mixedwood Boreal Forest (Lewis, Dowding and Moss 1928).
- new studies have documented this community type in the Peace-Athabasca Delta and Athabasca Plain subregions as well (Allen et al. 2002).
- likely also occurs in the Central Mixedwood and may be incidental in the Kazan Uplands and Northern Mixedwood, along the Slave River.
- appears to occur only in small, relatively oligotrophic water bodies that do not dry out over the season, including beaver ponds and oxbow wetlands.
- may also occur in protected bays of larger bodies of water but likely needs a habitat with little wave action or ice scour.
- appears to be best expressed in areas of up to 1m of water.
- 40 to 80% herb cover made up of Carex pseudocyperus, C. diandra and Calla palustris.
- Calla palustris often forms floating mats at the edge of the Carex band.
- bryophytes are absent or up to 2% cover.
- aquatics, both floating and submergent, up to 5% cover but species are quite variable.
- in some locations, the community is a series of small "islets" surrounded by open water, scattered through much of the pond area.
- in others, the community forms a fairly cohesive band or polygon at the suitable water depth.

Carex retrosa Group

Carex retrorsa marsh
turned sedge marsh
CEAB000212
Alberta Rank: **S1S2** Global Rank: **GNR**

- a Boreal wetland that occurs in the Central Mixedwood and possibly into the Dry Mixedwood.
- associated with beaver ponds and possibly with ponds in meander channels.
- the marsh forms at the edges of the pond and is dominated by a mosaic of patches of Carex retrorsa (40% cover) or Calamagrostis canadensis (20% cover).
- associated species include: Carex utriculata, Cardamine pensylvanica, Veronica scutellata, Alopecurus aequalis, Mentha arvensis, and Glyceria grandis.

Carex rostrata Group

Carex rostrata marsh
beaked sedge marsh
CEAB000191
Alberta Rank: **S2** Global Rank: **GNR**

- this community is found in standing water of protected bays.
- it has been documented in the Kazan Upland and Boreal Subarctic subregions, but likely occurs in other Boreal subregions as well.
- there is long-standing confusion between Carex utriculata and C. rostrata.
- Carex utriculata is the more common species that keys out to C. rostrata in the Flora of Alberta (Moss 1983).
- this CT is dominated by C. rostrata and C. rostrata is often the only species present.
- a few other species may be present in some occurrences, but never with significant cover.
- there may be a zone of transition with C. rostrata and Equisetum fluviatile growing together, between a C. rostrata and an Equisetum fluviatile community.

Herbaceous

Danthonia californica Group

Danthonia californica - Carex brevior

California oat grass - slender-beaked sedge

CEAB000100

Alberta Rank: **S2** Global Rank: **GNR**

- a Dry Mixedgrass community from moist to subhydric sites that usually flood annually (Eastern Slopes Rangeland Seeds Ltd., 1995).
- may be associated with moist swales at the heads of small drainages (Bradley et al 2006).
- Danthonia californica is dominant with an average cover of 50%, Carex brevior is also significant (average cover 20%) (Eastern Slopes Rangeland Seeds Ltd., 1995).
- associated species may include: Artemisia ludoviciana, Stipa viridula, Agropyron smithii, Penstemon sp., Agrostis scabra and Hordeum jubatum
- Galium boreale was noted as a prominent species in some occurrences.

Danthonia unispicata Group

Danthonia unispicata - Elymus lanceolatus - Pascopyrum smithii

one-spike oat grass - northern wheat grass - western wheat grass

CEAB000101

Alberta Rank: **S2** Global Rank: **GNR**

- found in mesic depressions in the Dry Mixedgrass Subregion (Eastern Slopes Rangeland Seeds Ltd., 1995)
- sites may receive additional moisture during spring run-off
- the cover of Danthonia unispicata is variable, ranging from 25 to 50% cover in a 4 year monitoring project (Eastern Slopes Rangeland Seeds Ltd., 1995)
- variations may be tied to variations in annual precipitation
- Elymus lanceolatus and Pascopyrum smithii together average about 20% cover

Eleocharis quinqueflora Group

Eleocharis quinqueflora community

few-flowered spike-rush community

CEAB000190

Alberta Rank: **S1S2** Global Rank: **GNR**

- a wetland type transitional between fen and upland, documented in Alberta only in the Caribou Mountains in the Subarctic Subregion (Lee et al. 1981).
- Eleocharis quinqueflora is dominant, but Carex limosa is also associated with this CT.
- Betula glandulosa and Andromeda polifolia are usually present, although with low cover.
- Sphagnum warnstorfii is the dominant bryophyte, although Sanionia uncinata (Drepanocladus uncinatus) is also prominent.
- forms a "characteristically dense and tenacious mesic peat" (MacKenzie and Moran 2004).
- studies in BC found this peat throughout the soil profile, suggesting this may be a stable and long-lived CT.

Herbaceous

Elymus lanceolatus Group

Elymus lanceolatus - Antennaria parvifolia

northern wheat grass - small-leaved everlasting

CEAB000143

Alberta Rank: **S1** Global Rank: **GNR**

- a Montane type found at woodland edges and former wooded sites in the Kootenay Plains area where it is a major community type (Wallis and Wershler 1981)
- occupies mid slopes (3 - 5%) with northerly and southerly aspects on alluvial fans
- soils are well drained with submesic moisture regimes
- ground cover of each of the codominant species, Elymus lanceolatus (= Agropyron dasystachyum) and Antennaria parvifolia (nitida), generally reaches from 25 to 50%, although, in certain areas cover of Antennaria reaches 75%
- in some areas shrub species such as Rosa woodsii and Potentilla fruticosa have invaded these grasslands
- some areas are more open with bare soil and rock covering up to 45% and 25%, respectively

Elymus lanceolatus - Artemisia dracunculus - Artemisia frigida

northern wheat grass - dragonwort - pasture sagewort

CEAB000144

Alberta Rank: **S1** Global Rank: **GNR**

- occurs on nearly level, well-drained, submesic sites in the Montane Natural Subregion.
- documented from the toe edge of an alluvial fan in Kootenay Plains area (Wallis and Wershler 1981).
- Elymus lanceolatus (Agropyron dasystachyum), Artemisia dracunculus, and Artemisia frigida contribute about 26 - 50%, 16 - 25%, and 16 - 25% to the ground cover, respectively.
- Agropyron subsecundum and Koeleria macrantha are locally abundant.
- additional species include Linum lewisii, Oxytropis campestre, Astragalus striatus, Potentilla pensylvanica, Antennaria nitida, Erigeron caespitosus, Orthocarpus luteus and Poa glauca.

Elymus lanceolatus - Artemisia frigida

northern wheatgrass - pasture sagewort

CEAB000025

Alberta Rank: **S2S3** Global Rank: **GNR**

- xeric, steep, south-facing slopes in Montane
- found on colluvial, glacial and fluvial landforms on slopes subject to constant disturbance
- herb / dwarf shrub layer well developed (20 to 50% cover)
- sparse moss / lichen layer, usually less than 1%
- most abundant species are Elymus lanceolatus (5-50%), Artemisia frigida (1-10%), Koeleria micrantha 2-10% and Achillea millefolium <5%.
- up to 50% bare mineral soil.
- dominance of northern wheatgrass characteristic
- type H7 (Corns and Achuff 1982, Achuff et al. 1986).

Herbaceous

Elymus lanceolatus Group

Elymus lanceolatus - Elymus trachycaulus

northern wheat grass - slender wheat grass

CEAB000142

Alberta Rank: **S1** Global Rank: **GNR**

- a Montane community type described from a river terrace in the Kootenay Plains area (Wallis and Wershler 1981)
- soils are well drained with submesic moisture regimes
- Elymus lanceolatus (Agropyron dasystachyum) and Elymus trachycaulus (Agropyron subsecundum) codominate contributing about 50-75% to the ground cover.
- Linum lewisii (5-15%) is the only abundant forb species.
- additional species found in this community type (with very low cover) include Astragalus striatus, A. tenellus, Oxytropis sericea, Gentianella amarella, Achillea millefolium, Artemisia dracunculus, A. frigida, and Solidago decumbens.

Elymus lanceolatus - Muhlenbergia cuspidata

northern wheat grass - plains muhly

CEAB000145

Alberta Rank: **SNR** Global Rank: **GNR**

- this community type is associated with water eroded areas scattered throughout rolling topography of the Canadian mixed prairie (Coupland 1950).
- main extent in Alberta is likely in the Dry Mixedgrass Subregion.
- it is characterized by frequent bare spots, and dominated by Elymus lanceolatus (Agropyron dasystachyum) and Muhlenbergia cuspidata
- Pascopyrum (Agropyron) smithii represents only a minor component of wheat grass' cover in this community, and together with northern wheat grass makes up 35.2 % of the total basal area
- Muhlenbergia cuspidata, contributes 18.2% of the total species cover
- the principal associated grasses and sedges are, Koeleria macrantha 8.1%, Bouteloua gracilis 13.0%,, Stipa comata 1.4%, S. curtiseta 1.4%, S. viridula 1.2%, Carex eleocharis 14.9% and C. filifolia 1.4% of the total basal area
- Artemisia frigida and Phlox hoodii were the most abundant forbs, making up 8.8% and 4.9% of the total basal area
- summarized from Vujnovic and Bentz 2001

Elymus lanceolatus - Pascopyrum smithii

northern wheat grass - western wheat grass

CEAB000146

Alberta Rank: **S2?** Global Rank: **GNR**

- occurs on moderately well to well drained Solonetzic soils in the Dry Mixedgrass Subregion
- also found in the Dry Mixedwood Subregion on steep, unstable mid-slopes with southerly aspects in the Peace River and Clear River canyons (Adams 1981)
- soils in the Dry Mixedgrass are primarily Brown Solodized Solonetz and Brown Solonetz.
- soils in the Dry Mixedwood are Orthic Regosols with silty loamy texture, developed on morainal and colluvial materials.
- additional species in the Milk River region include Artemisia frigida, Bouteloua gracilis, Stipa comata, Poa pratensis and Koeleria macrantha.
- Carex spp., Koeleria macrantha, Stipa curtiseta, Artemisia frigida and Stipa viridula characterize sites in the Peace River region.
- summarized from Vujnovic and Bentz 2001.

Herbaceous

Elymus lanceolatus Group

Elymus lanceolatus - Stipa comata

northern wheat grass - needle-and-thread

CEAB000147

Alberta Rank: **S2** Global Rank: **GNR**

- a community type of the Montane, Dry Mixedgrass, Mixedgrass and possibly the Foothills Fescue subregions.
- soils tend to be well to rapidly drained.
- in the Montane, documented on one site on the toe edge of an alluvial fan.
- in the Dry Mixedgrass it is found on undulating to gently rolling areas with medium textured soils of dark-brown soil (slope 1 - 4%).
- in the Mixedgrass, it is found on thin breaks in the Milk River upland on south-facing slopes at upper elevations, and north-facing slopes on lower elevations.
- co-dominance of Elymus lanceolatus (Agropyron dasystachyum) and Stipa comata is characteristic, but there are variations in associated species.
- important species on the Montane site include Artemisia frigida, Koeleria macrantha and Elymus trachycaulus (Agropyron trachycaulum).
- in the Dry Mixedgrass, Stipa curtiseta is prominent and subdominant graminoids are Bouteloua gracilis, Koeleria macrantha, Carex filifolia, C. stenophylla and C. pensylvanica.
- summarized from Vujnovic and Bentz 2001.

Elymus trachycaulus Group

Elymus trachycaulus - Carex atherodes

slender wheat grass - awned sedge

CEAB000087

Alberta Rank: **S1** Global Rank: **GNR**

- a Peace River Parkland community found in low, moist flat areas
- Stipa curtiseta is rare or lacking
- one of three faciations of grassland recognized by Moss (1952) for the Peace River Parkland

Elymus trachycaulus - Distichlis stricta

slender wheat grass - salt grass

CEAB000148

Alberta Rank: **S1** Global Rank: **GNR**

- a small patch community of the Northern Mixedwood Subregion.
- found on eroded Solods and saline seeps on glaciolacustrine materials (Schwarz 1994, Schwarz and Wein 1997).
- sites occur on southerly aspects.
- soils are moderately fine textured and rapidly drained Dark Brown Solods and saline Regosols.
- characterized by a relatively small number of species, including Symphoricarpos occidentalis, Elymus trachycaulus, Distichlis stricta, Koeleria macrantha, Spartina gracilis, Poa juncifolia and Carex siccata.

Herbaceous

Elymus trachycaulus Group

Elymus trachycaulus - Hierochloe hirta ssp. arctica
slender wheat grass - sweet grass
CEAB000149
Alberta Rank: **SU** Global Rank: **GNR**
- a Boreal Forest community type of saline meadows (Fairbarns 1990)
- it occurs in the Dry Mixedwood Subregion, but may also occur in the Peace-Athabasca Delta, Central Mixedwood and Northern Mixedwood subregions
- it occupies the wettest and least saline end of the moisture and salinity gradients
- Elymus trachycaulus and Hierochloe odorata dominate, while Carex spp., Rosa acicularis and Symphoricarpos albus represent some of the more abundant species
- Achillea millefolium, Agrostis scabra, Antennaria parviflora, Astragalus dasyglottis, Galium boreale, Geum triflorum, Hieracium umbellatum, Lactuca pulchella, Viola adunca and some halophytic species are also present, but less abundant

Elymus trachycaulus - Koeleria macrantha
slender wheat grass - June grass
CEAB000150
Alberta Rank: **SU** Global Rank: **GNR**
- occupies level salt plains of the Northern Mixedwood Subregion (Raup 1935)
- may also occur in the Montane and Subalpine subregions.
- soils are moderately well to rapidly drained with mostly subxeric moisture regimes.
- Elymus trachycaulus (Agropyron trachycaulum) and Koeleria macrantha dominate the community.
- subdominant species include Juniperus horizontalis, Hierochloe odorata, Deschampsia caespitosa, Danthonia intermedia, Schizachne purpurascens and Agrostis scabra (Raup 1935).
- grasslands outside Wood Buffalo National Park include a number of species not mentioned in Raup (1935), such as Helictotrichon hookeri, Carex pensylvanica, Bromus inermis, Artemisia frigida, Stipa curtiseta, Muhlenbergia richardsonis, Festuca scabrella, and Carex obtusata.

Elymus trachycaulus - Stipa spp.
slender wheat grass - needle grass species
CEAB000086
Alberta Rank: **S1** Global Rank: **GNR**
- found on imperfectly drained sites of level to slightly undulating, solonetzic soils in the Peace River Parkland
- Carex species include: C. siccata (foenea), C. obtusata, C. xerantica and C. eleocharis (Wilkinson 1981)
- equivalent to Moss (1952) Agropyron trachycaulum - Stipa curtiseta type.
- an upland type, with few remnants due to extensive cultivation in the region
- Danthonia intermedia types in the British Columbia Peace River parkland area are all cultivated (Pojar 1982)

Herbaceous

Festuca altaica Group

Festuca altaica - Deschampsia caespitosa
northern rough fescue - tufted hair grass
CEAB000116
Alberta Rank: **S1** Global Rank: **GNR**

- a lower Subalpine community type that may also occur in the Upper Foothills
- usually found on north-facing elevated alluvial terraces (Lane 2001)
- often associated with deep soils on shallow lower slope positions
- northern rough fescue is the dominant grass averaging 37% cover and tufted hair grass is also significant, averaging 24% cover
- monkshood (Aconitum delphinifolium), small-flowered penstemon (Penstemon procerus) and tall lungwort (Mertensia paniculata) are characteristic species.
- Carex spp. may also be a significant component (average cover 16%).
- tend to be patch communities on specific site types.
- low snow depth or cold air drainage may favour grasslands and inhibit shrub invasion

Festuca altaica - Leymus innovatus
northern rough fescue - hairy wild rye
CEAB000061
Alberta Rank: **S1** Global Rank: **GNR**

- a Subalpine grassland found on lower south-facing slopes, toe slopes and elevated bottomlands (Bork 1991).
- sites tend to be well to moderately well drained and subxeric to mesic on deep well developed Luvisols or Brunisols.
- this is a grassland dominated by Festuca altaica (usually 40 to 60% cover), although Leymus innovatus is dominant (30% cover) in some stands.
- Carex spp. (up to 20% cover), Danthonia californica (up to 12% cover) and Elymus trachycaulus (up to 9%) may be prominent components of some stands.
- forbs such as Fragaria virginiana, Aconitum delphinifolium and Solidago multiradiata are usually present but with low cover.
- a dwarf shrub layer of Arctostaphylos uva-ursi (up to 10% cover) is usually present.
- tend to be patch communities on specific site types.
- often down-slope from dry pine stands but above the valley bottom communities.
- preliminary information suggests that this is the main F. altaica grassland type in Alberta.

Festuca campestris Group

Danthonia parryi - Festuca idahoensis - Festuca campestris
Parry oat grass - Idaho fescue - mountain rough fescue
CEAB000059
Alberta Rank: **SU** Global Rank: **GNR**

- generally found on subxeric to submesic, rapidly well drained sites with a southerly aspect in the Montane (Willoughby et al. 1998).
- either Danthonia parryi or Festuca idahoensis are dominant.
- Festuca campestris is usually prominent, but with lesser cover than the dominant grasses.
- dry pockets within this community may have extensive Juniperus communis and Arctostaphylos uva-ursi cover.

Herbaceous

Festuca campestris Group

Festuca campestris - Deschampsia caespitosa

mountain rough fescue - tufted hair grass

CEAB000117

Alberta Rank: **S1** Global Rank: **GNR**

- an Upper Foothills community type of moist, rich sites.
- usually found on moderately well-drained, subhygric, rich sites on fluvial and glaciofluvial landforms (Willoughby 2000).
- Festuca campestris is the dominant grass averaging 23% cover and Deschampsia caespitosa is also significant, averaging 17% cover
- long-bracted sedge (Carex athrostchya), monkshood (Acontium delphinifolium) and tall lungwort (Mertensia paniculata) are characteristic species

Festuca campestris - Leymus innovatus

mountain rough fescue - hairy wild rye

CEAB000118

Alberta Rank: **S2S3** Global Rank: **GNR**

- documented in the Subalpine and Upper Foothills natural subregions (Willoughby 2000).
- may also occur in the Montane Subregion.
- lower elevation occurrences of this community (i.e. Foothills and possibly Montane sites) may be restricted in distribution from roughly the Water Valley corridor north to Nordegg.
- higher elevation occurrences have been documented as far south as the east slopes of Mt. Livingstone but this CT is eventually replaced to the north by Leymus innovatus dominated grasslands.
- this community is usually found on lower slopes that are south-facing and mesic to submesic.
- may also occur on some level sites.
- associated with well- to rapidly-drained sites that are drier than those on which other Festuca campestris CTs tend to occur in the foothills and subalpine.
- slope occurrences are usually associated with lower positions where there is some snow accumulation, but not deep snow accumulation.
- Potentilla fruticosa is the dominant shrub, but forms a very open layer, averaging 3 to 4% cover.
- Festuca campestris clearly dominates the herb layer.
- Leymus innovatus is usually a prominent component with up to 57% cover, but may be absent on some sites.

Festuca campestris - Pseudoroegneria spicata grassland

mountain rough fescue - bluebunch wheat grass grassland

CEGL001629

Alberta Rank: **S1S2** Global Rank: **G4**

- found on subxeric to mesic Foothills Parkland, Subalpine and Montane sites (elevation range: 1430 - 1867 m).
- occurs primarily on gentle to steep slopes with mostly southerly aspects (Vujnovic and Bentz 2001) but may be found on steep slopes of all aspects (NatureServe 2004).
- soils are loamy and moderately deep, well to very rapidly drained, with subxeric to mesic moisture regimes and submesotrophic to mesotrophic nutrient regimes.
- Pseudoroegneria spicata and Festuca campestris dominate with 8.8% and 14.9% cover, respectively.
- other common species include Festuca idahoensis (7.4%), Koeleria macrantha (4.1%), Danthonia parryi (3.9%), Galium boreale (3.4%), Aster conspicuous (3.6%), Lupinus sericeus (2.8%), Fragaria virginiana (2.5%), Monarda fistulosa (2%), Geranium viscosissimum (2%) and Anemone multifida (1%).
- common shrub species include Amelanchier alnifolia (6.1%), Rosa acicularis (5.5%) and Spiraea betulifolia (3.1%).
- the dominance of Festuca campestris and prominent of Pseudoroegneria spicata separate this from other similar types.
- summarized from Vujnovic and Bentz 2001 and NatureServe 2004.

Herbaceous

Festuca campestris Group

Festuca campestris - Stipa curtiseta

mountain rough fescue - western porcupine grass

CEAB000202

Alberta Rank: **S2S3** Global Rank: **GNR**

- restricted to the Cypress Hills portion of the Montane Subregion, Rocky Mountains Natural Region.
- found on the drier thin break and gravel range sites on the upper slopes of the Cypress Hills on strong slopes of southerly aspect.
- soils are well drained Orthic Black and Orthic Dark Brown Chernozems.
- varies from 0 to 17% exposed soil, average 6% (N=10).
- a sparse shrub layer of up to 15% cover of Rosa woodsii and sometimes Elaeagnus commutata is usually present, but may be absent.
- the herb layer averages about 80% cover.
- only Festuca campestris and Stipa curtiseta are reported for all occurrences documented to date (N=10).
- Festuca campestris is prominent and generally dominant, averaging around 20% cover.
- Stipa curtiseta is prominent with up to 20% cover (average 10%).
- upland sedges (Carex spp.) have up to 30% cover in some stands, absent in others.
- there may be a sparse bryophyte layer with up to 10% cover (average 3%) (n=10).
- summarized from Willoughby, M.G. et al. 2005.

Festuca hallii Group

Festuca hallii - Calamovilfa longifolia

plains rough fescue - sand grass

CEAB000033

Alberta Rank: **S1** Global Rank: **GNR**

- a Central Parkland and Northern Fescue Grassland ecological community.
- found on undulating sandy soils of glaciolacustrine and glaciofluvial deposits, typically reworked by wind.
- sites tend to be rapidly to well drained, subxeric and drought prone.
- found predominantly on sandy Chernozems with some Regosols (Dark Brown Chernozems).
- this CT includes a herb layer of 75% or greater cover and a shrub layer with less than 25% cover.
- Festuca hallii and Calamovilfa longifolia are roughly co-dominant although F. hallii has greater cover in some stands.
- Stipa viridula and Poa cusickii had significant cover in some stands, but were absent in others.
- Rosa spp. are consistently present with up to 5% cover and Juniperus horizontalis with up to 10% cover.
- Thermopsis rhombifolia, Artemisia frigida and Koeleria macrantha are found consistently within this community type.
- due to the sandy nature of the habitat, blowouts dominated by lichens and junipers may be present.
- this community tends to be uncommon and small in area and patchy in distribution (summarized from Weerstra and Holcroft Weerstra 1998).

Herbaceous

Festuca hallii Group

Festuca hallii - Carex spp. / Arctostaphylos uva-ursi

plains rough fescue - upland sedge / bearberry

CEAB000034

Alberta Rank: **S1** Global Rank: **GNR**

- found on shallow soils of hill tops and steep south to south west facing coulee slopes in the Central Parkland and Northern Fescue Grassland.
- xeric to mesic sites, frequently sandy.
- there are three vegetation strata: the herb, dwarf shrub and shrub layers.
- Festuca hallii and Arctostaphylos uva-ursi are constant species and the most abundant species.
- shrub cover is low and tends to include Juniperus horizontalis and Amelanchier alnifolia.
- some stands have a high enough cover of Arctostaphylos uva-ursi (>25%) to be considered dwarf shrublands.
- low upland sedges make up the majority of the Carex species (e.g. Carex obtusata).
- occurrences of this community tend to be small in area and patchy in distribution (summarized from Weerstra and Holcroft Weerstra 1998).
- a similar community may be present in the Montane Natural Subregion.

Festuca hallii - Koeleria macrantha - Elymus lanceolatus

plains rough fescue - June grass - northern wheat grass

CEAB000198

Alberta Rank: **S1S2** Global Rank: **GNR**

- a community of the Mixedgrass Subregion.
- restricted to shallow-to-gravel and gravel range sites in the Cypress Hills Upland.
- most common at upper elevations on level terraces with fluvial veneer.
- soils are well-drained Orthic Dark Brown Chernozems of the Marmaduke soil series.
- sites are cooler, moister and with a shorter frost-free period than other areas in the Mixedgrass Subregion.
- a herbaceous type with from 60 to 80% cover including a sparse bryophyte layer.
- Festuca hallii is clearly dominant, with Koeleria macrantha and Elymus lanceolatus prominent components.
- the following species are reported for all occurrences documented to date (N=2): Festuca hallii, Koeleria macrantha, Elymus lanceolatus (= Agropyron dasystachyum), Carex obtusata, Stipa comata, Poa juncifolia, Vicia americana, Astragalus dasyglottis, Artemisia frigida.
- summarized from Adams, B.W., L. Poulin-Klein, D. Moisey and R.L. McNeil. 2004.

Herbaceous

Festuca hallii Group

Festuca hallii - Koeleria macrantha / Juniperus horizontalis / forbs

plains rough fescue - June grass / juniper / forbs

CEAB000035

Alberta Rank: **S2** Global Rank: **GNR**

- subxeric, steep, south and south west facing coulee slopes in the Central Parkland and Northern Fescue Grassland.
- soils are Orthic Regosols, generally derived from glaciolacustrine parent materials.
- soil texture tends to be clay over silty clay loam to clay.
- this CT includes a herb layer of 75% or greater cover and a shrub layer with less than 25% cover.
- Festuca hallii, Koeleria macrantha and Juniperus horizontalis are the most abundant species and are always present.
- other graminoids that may have up to 5% cover include Stipa curtiseta, Stipa viridula and Elymus lanceolatus (= Agropyron dasystachyum).
- Thermopsis rhombifolia, Eriogonum flavum, Erigeron caespitosus and Hedysarum alpinum are often present and can have significant cover.
- depending on the position on the landscape and historical land use, this CT can be relatively small in area or cover large tracts of land.
- it can be patchy in distribution or continuous on undulating terrain (summarized from Weerstra and Holcroft Weerstra 1998).

Festuca hallii - Muhlenbergia cuspidata

plains rough fescue - plains muhly

CEAB000199

Alberta Rank: **S1S2** Global Rank: **GNR**

- a Grassland community of the Mixedgrass Subregion, restricted to the Cypress Hills Upland.
- sites are cooler, moister and with a shorter frost-free period than other areas in the Mixedgrass Subregion.
- on thin breaks overlain with glacial till but with bedrock near surface.
- most common at upper elevations on steep, north-facing slopes although also found on other aspects.
- soils are Orthic Dark Brown Chernozems of the Wisdom and Tothill soil series and of variable drainage.
- Symphoricarpos occidentalis may form a shrub layer or up to 10% cover, but may be absent.
- Festuca hallii is always present and usually the dominant graminoid, averaging around 20% cover, but may have very low cover in some stands.
- Muhlenbergia cuspidata and upland sedges (Carex spp.) each average around 10% cover.
- the bryoid layer averages 20% cover.
- varies from 6 t0 30% exposed soil, average 18% (N=3).
- summarized from Adams, B.W., L. Poulin-Klein, D. Moisey and R.L. McNeil. 2004.

Herbaceous

Festuca hallii Group

Festuca hallii - Stipa curtiseta grassland

plains rough fescue - western porcupine grass grassland

CEAB000030

Alberta Rank: **S2S3** Global Rank: **GNR**

- a community of the Central Parkland and Northern Fescue Grassland.
- found on level to undulating topography and hummocky terrain, on mesic to submesic sites with moderately well-drained soils.
- usually on south- and west-facing slopes on crests of knolls, upper slopes, mid-slopes or lower slopes, depending on the moisture level.
- soils are generally Black and Dark Brown Chernozems derived from lacustrine, morainal or alluvial parent materials.
- can be associated with Solonetzic soils.
- a stable climax type of drier sites or grazing- modified Festuca hallii sites; light grazing may sometimes contribute to the development of this community type.
- on slopes, it is often positioned above the Festuca hallii type.
- Festuca hallii and Stipa curtiseta are roughly co-dominate but Festuca hallii is generally the most abundant species.
- these two species plus Koeleria macrantha are found consistently within this community type.
- the herb layer is dense with little to no unvegetated surface.
- shrub cover is low or absent and may include prairie rose.
- the above information is summarized from Weerstra and Holcroft Weerstra 1998 for the Festuca hallii - Stipa curtiseta community.
- two additional communities, Stipa curtiseta - Festuca hallii and Festuca hallii - Stipa curtiseta - Carex spp. also outlined in Weerstra and Holcroft Weerstra 1998 are not detailed but may be subtypes of this CT.

Festuca hallii - Stipa viridula

plains rough fescue - green needle grass

CEAB000032

Alberta Rank: **S1** Global Rank: **GNR**

- found in the Northern Fescue Grassland and possibly the Central Parkland.
- occurs on steep south- and southwest-facing upper to lower escarpment slopes.
- associated with submesic to subxeric soil moisture regimes and moderately well-drained soils.
- soils are silty loams, derived from morainal veneer over bedrock, and consist of Gleyed Dark Brown Chernozems.
- Festuca hallii is the most abundant species, followed by Stipa viridula.
- Artemisia ludoviciana was the most common forb..
- other graminoid species may be present, including Elymus lanceolatus and Bouteloua gracilis.
- forb species may include Geum triflorum, Heterotheca villosa, Thermopsis rhombifolia, Comandra umbellata, Senecio canus, Opuntia polyacantha, Lithospermum incisum, Astragalus crassicarpus and A. tenellus.
- shrubs are generally absent.
- mineral soil cover is low at 5%.
- this community tends to be uncommon; small in area and patchy in distribution (summarized from Weerstra and Holcroft Weerstra 1998).

Herbaceous

Festuca hallii Group

Festuca hallii grassland

plains rough fescue grassland

CEAB000104

Alberta Rank: **S1** Global Rank: **GNR**

- found on level terrain and lower slopes of undulating topography, inclined upland and hummocky areas on mesic sites in the Central Parkland and Northern Fescue Grassland.
- aspect variable: north-facing in southern part of range, south-facing in northern part of range.
- found on Black and Dark Brown Chernozemic soils of loam or clay loam texture under modal conditions.
- this CT has a dense herb layer and may also have a sparse shrub layer.
- shrub cover is absent or low (less than 25%) and the herb layer covers the remainder.
- Festuca hallii is clearly the dominant species and in most stands is the only species with significant cover.
- Stipa curtiseta is always present, but at distinctly lower cover.
- these are the only two species that are found consistently within this CT, although other graminoids or forbs may be present with low cover.
- shrubs if present may include common wild rose and/or prairie rose.
- the characteristic deep accumulation of litter due to the resistance of plains rough fescue to decomposition results in no or very little bare ground.
- depending on the position on the landscape and historical land use, this CT can be relatively small in area or cover large tracts of land.
- it can be patchy, e.g., on knob and kettle topography, or continuous on undulating terrain (summarized from Weerstra and Holcroft Weerstra 1998).

Festuca idahoensis Group

Festuca idahoensis - Elymus lanceolatus - Stipa comata grassland

Idaho fescue - northern wheat grass - needle-and-thread grassland

CEGL001621

Alberta Rank: **S3** Global Rank: **G4**

- a Foothills Fescue Subregion community, known in Alberta only from the Milk River Ridge (Adams 2002).
- it is found on crests, upper and mid-slopes of morainal landforms.
- slopes are mostly gentle to moderate but it does also occur on strong slopes.
- it is found on various aspects; on all but steep north-facing slopes.
- soils are black chernozems.
- there is a dense herbaceous layer (averaging 85%) and a sparse lichen and moss layer (average 10%) with only minor bare soil less than 3%.
- shrubs tend to be scattered as individuals or in patches.
- western snowberry, prairie and wood rose are the most abundant shrubs, usually found in scattered patches.
- minor amounts of silverberry, pincherry and saskatoon occur as localized patches and there are scattered individuals of silver sage.
- silvery lupine, golden bean, fringed sage and tufted white aster are the principle forbs.
- grasses and forbs particularly diverse.
- adequate litter cover essential to maintaining the community.
- Idaho fescue cover decreases with grazing pressure.
- may eventually be split into different communities, but ours is currently nested within the concept of the global type called Festuca idahoensis - Pascopyrum smithii.
- Pascopyrum smithii seems to be the dominant wheatgrass to the south, with Elymus lanceolatus becoming prevalent in the north.

Herbaceous

Festuca idahoensis Group

Festuca idahoensis - Pseudoroegneria spicata grassland

Idaho fescue - bluebunch wheat grass grassland

CEGL001624

Alberta Rank: **S1S2** Global Rank: **G4**

- a montane to lower subalpine, mesic to subxeric herbaceous association.
- found on mostly flat to sometimes steep toeslopes, low slopes, and midslopes at various aspects on fluvial fans, alluvial terraces, or colluvial landforms.
- soils range from loamy sand to silt or sandy loam that are moderately well-drained to rapidly drained.
- litter often comprises 40% or more of the ground surface, however, moss, small rock, and bare soil are also common.
- herbaceous species are diverse with overall cover ranging from 60-95% and heights less than 0.5 m.
- Festuca idahoensis, ranging from 5-25% cover, and Pseudoroegneria spicata (10-30% cover) dominate.
- other high-constancy forbs and grasses (1-15% cover) include Achillea millefolium, Koeleria macrantha, Gaillardia aristata, Antennaria rosea, Selaginella densa, Eriogonum flavum, Lupinus sericeus, Galium boreale, and Agoseris glauca.
- Hedysarum sulphurescens, Sedum lanceolatum, Danthonia californica, Monarda fistulosa, Stipa viridula, Bromus inermis, Fragaria virginiana, Geranium viscosissimum, and Oxytropis splendens may have high cover in certain areas.
- shrubs such as Juniperus communis, Potentilla fruticosa and Spiraea betulifolia are sometimes present, but cover averages less than 5%.
- nonvascular cover ranges from 5-30%.
- summarized from NatureServe 2004.

Glyceria striata Group

Glyceria striata community

fowl manna grass community

CEAB000105

Alberta Rank: **SU** Global Rank: **GNR**

- found along slightly alkaline seepage springs in the Grassland Natural Region (Wallis 1977).
- only documented in the Dry Mixedgrass, but may also occur in the Northern Fescue and Central Parkland Subregions.
- a type with little documentation, more information is needed to evaluate its status.

Juncus drummondii Group

Juncus drummondii - Carex saxatilis - Ranunculus eschscholtzii

Drummond's rush - rocky-ground sedge - mountain buttercup

CEAB000062

Alberta Rank: **S1?** Global Rank: **GNR**

- mesic upper subpalpine to alpine meadow in the Rocky Mountain Natural Region.
- may be associated with late-persisting snow beds.
- characterized by a dense herb layer of Juncus drummondii (50-75%), Carex saxatilis (25-50%) and Ranunculus (25-50%).
- associated Ranunculus listed by Kondla as R. nivalis, but more likely to be R.eschscholtzii.
- other species present include Carex haydeniana, Equisetum arvense, Poa alpina and Salix glauca (Kondla 1978).

Herbaceous

Juncus filiformis Group

Juncus filiformis / Sphagnum spp.

thread rush / peat moss

CEAB000119

Alberta Rank: **S1S2** Global Rank: **GNR**

- this is an Upper Foothills community that is found in basins in forests and as small patches in Picea mariana peatlands.
- it occurs in depressional sites with a moderately mounded topography and water at or near the surface.
- the dwarf shrub/herb is well developed, with from 50 to 90% cover.
- Juncus filiformis is the dominant graminoid with from 20 to 50% cover, although Carex spp. may co-dominate.
- Carex aquatilis (up to 40% cover) and Carex deweyana (up to 20% cover) may be prominent in some stands (Wallis and Wershler 2001).
- the bryoid layer is well developed and dominated by Sphagnum sp. (50% cover) but Campylium stellatum may have up to 15% cover.
- the shrub layer may be absent, or there may be a sparse layer (up to 10% cover) of Ledum groenlandicum and Vaccinum myrtilloides.

Juncus parryi Group

Juncus parryi / Sibbaldia procumbens snowbed community

Parry's rush / sibbaldia snowbed community

CEGL005871

Alberta Rank: **S1S2** Global Rank: **G3G4**

- a small-patch community is characteristic of snowbed positions from the upper subalpine to well into the alpine.
- occurs predominantly on gently rolling glaciated terrain, often associated with depressions.
- may also occur on moderate to steep east- to south-facing slopes in snow deposition areas
- soils are moderately well-drained to well-drained and derived from a wide variety of sedimentary parent materials, predominantly siltstone.
- the ground surface is mostly rock-free with an average of about 4% exposed soil.
- litter cover varies widely, from 10 to 85%, with a modal value around 45 to 50%.
- lichen and bryophyte cover is highly variable, ranging from nil to 85%.
- vascular plant cover varies widely from approaching a scarce vegetation to more than 80%.
- there are typically no shrubs.
- this is a mini-tussock grassland with Juncus parryi and Juncus drummondii providing the most cover.
- other graminoids of high constancy but low cover include Carex paysonis and Danthonia intermedia.
- Sibbaldia procumbens is consistently present with cover in excess of 10%.
- other forbs of high constancy include Arenaria capillaris, Antennaria alpina, Hieracium gracile, and Erigeron peregrinus.
- with the exception Arenaria capillaris, their coverages seldom exceed 5%.
- summarized from NatureServe 2004.

Herbaceous

Lupinus nootkatensis Group

Lupinus nootkatensis meadow

Nootka lupine meadow

CEAB000064

Alberta Rank: **S2?** Global Rank: **GNR**

- may be restricted to lower Alpine, upper Subalpine areas from north of Grande Cache south to the Tonquin.
- a small to medium sized patch community that seems to be only in the Main Ranges.
- most occurrences are on steep upper to mid slopes on colluvium.
- aspect is various, but often south to southeast.
- associated with mesic to subhrygric draws and seepage areas.
- often found in patches between krummholtz that may be areas of moderate snow catchment.
- 80% or greater herb cover averages about 60 to 70 cm tall.
- a lush tall herb meadow dominated by Lupinus nootkatensis, Valeriana sitchensis and Anemone occidentalis.
- those plus Arnica latifolia were present in all plots (N=5).
- Thalictrum venulosum, Trollius albiflorus or Artemisia norvegica are prominent in some stands but absent in others.
- often adjacent to krummholtz dominated by dense Abies bifolia with little understory.

Muhlenbergia asperifolia Group

Muhlenbergia asperifolia - Scirpus nevadensis - Distichlis stricta

scratch grass - Nevada bulrush - salt grass

CEAB000158

Alberta Rank: **S1S2** Global Rank: **GNR**

- a hypersaline dry meadow of the Grassland and Parkland natural regions (Wallis 1990).
- documented in the Dry Mixedgrass, may also occur in the Northern Fescue and Central Parkland Subregions.
- usually associated with saline sandy soils subject to disturbance
- Muhlenbergia asperifolia is occasionally dominant, but more typically the community is made of a mix of Muhlenbergia asperifolia, Scirpus nevadensis and Distichlis stricta.

Pascopyrum smithii Group

Carex stenophylla - Pascopyrum smithii slope grassland

low sedge - western wheat grass slope grassland

CEAB000132

Alberta Rank: **S1** Global Rank: **GNR**

- documented in the Dry Mixedwood on steep slopes (25 - 50%) with southerly aspects, on very rapidly drained soils with subxeric moisture regimes.
- may also occur on slopes in the Peace River Parkland Natural Subregion.
- this CT is often sparsely vegetated (ca. 30% vegetation cover) dominated by Pascopyrum smithii (7.6%) and Carex spp. (4.6%).
- other species include Amelanchier alnifolia, Symphoricarpos albus, Koeleria macrantha, Stipa curtiseta, and S. comata.
- summarized from the boreal component of type 47 in Vujnovic and Bentz 2001.
- a community with similar species occurs in the Dry Mixedgrass Subregion (CEAB000195 Pascopyrum smithii - Carex stenophylla).

Herbaceous

Pascopyrum smithii Group

Distichlis stricta - Pascopyrum smithii

salt grass - western wheat grass

CEAB000133

Alberta Rank: **S2** Global Rank: **GNR**

- occurs in the Grassland and Parkland natural regions of eastern Alberta (Wallis 1990) summarized in Vujnovic and Bentz (2001).
- associated with saline soils and usually found at the drier edge of saline wetlands.
- transitional between the driest portion of the halophytic communities and the adjacent semi-halophytic communities.
- Distichlis stricta and Pascopyrum smithii dominate the community
- there are numerous associated upland species including Aster ericoides and Grindelia squarrosa.
- the Spartina gracilis - Pascopyrum smithii community may be an open sandy site variant of the Distichlis stricta - Pascopyrum smithii community (Wallis 1990).

Koeleria macrantha - Pascopyrum smithii

June grass - western wheat grass

CEAB000134

Alberta Rank: **S1S2** Global Rank: **GNR**

- occurs on drier upland and exposed sites in the Peace River Parkland Subregion
- also found in the Central Parkland Subregion on level areas and lower slopes with xeric Brown and Black Solonetzic soils
- Koeleria macrantha, Agropyron albicans and Pascopyrum smithii are the dominant grasses in the Peace River Parkland, accompanied by other grass and forb species such as Agrostis humilis, Poa interior, Stipa columbiana, S. curtiseta, Leymus innovatus, Elymus trachycaulus, and A. albicans.
- in the Central Parkland, Koeleria macrantha (59%), Pascopyrum smithii (46%) Selaginella densa (59%), Carex eleocharis (35%), Poa secunda (15%), Grindelia squarrosa (15%) and Distichlis stricta (8%) are the most abundant species
- summarized from Vujnovic and Bentz 2001

Pascopyrum smithii - Artemisia frigida - Opuntia polycantha grassland

western wheat grass - pasture sagewort - prickly-pear grassland

CEAB000192

Alberta Rank: **S2S3** Global Rank: **GNR**

- a Dry Mixedgrass community of fine-textured lacustrine clay soils found on nearly level to gently sloping sites of southerly aspect.
- most occurrences have been cultivated as the soils have superior moisture-holding capacity (Adams et al. 2005).
- Stipas are largely absent possibly because they are not adapted to the swelling and shrinking properties of clay soils.
- total vegetation cover averages 60% but some sites have up to 80% exposed soil.
- Pascopyrum smithii is the only species present in all occurrences, but Artemisia frigida, Opuntia polyacantha, Koeleria macrantha and Poa sandbergii are all usually present and may be prominent (all are over 10% cover in some stands).

Herbaceous

Pascopyrum smithii Group

Pascopyrum smithii - Artemisia ludoviciana
western wheat grass - prairie sagewort
CEAB000135
Alberta Rank: **S1S2** Global Rank: **GNR**

- a community type of sand plains in the Dry Mixedgrass Subregion.
- it occupies depressions and gentle slopes (2-9%) with variable aspects (Adams et al. 1997).
- soils are Orthic Regosols developed on morainal materials and include imperfectly to well drained sandy soils, well to rapidly drained loamy sands and well drained sandy loams.
- overall cover averages 60%.
- Pascopyrum (Agropyron) smithii and Artemisia ludoviciana dominate with 42% and 9% ground cover, respectively.
- other notable species include Carex stenophylla (6%), Poa pratensis (4%), Grindelia squarrosa and Chenopodium pratericola (last two with very low covers).

Pascopyrum smithii - Artemisia tilesii - Artemisia frigida
western wheat grass - Herriot's sagewort - pasture sagewort
CEAB000136
Alberta Rank: **S1** Global Rank: **GNR**

- occupies slump sites on colluvial and morainal materials on steep slopes (mid-slope position) in the Peace River area (Adams 1981).
- these slopes are found both in the Dry Mixedwood and Peace River Parkland subregions.
- sites tend to be unstable and are likely xeric.
- information is lacking on overall cover, but exposed bedrock is likely a significant component.
- characterized by the dominance of Pascopyrum smithii, Artemisia tilesii, and Artemisia frigida.
- occurs just upslope of areas occupied by the Elymus lanceolatus (=Agropyron dasystachyum) - Pascopyrum smithii (=Agropyron smithii) - Carex spp. - Koeleria macrantha community type.
- on the upper (less steep) slope it is often bordered by a Pascopyrum smithii - Stipa viridula - Carex spp. - Vicia americana community
- these steep slopes are rarely used for grazing by either cattle or wildlife.

Pascopyrum smithii - Bouteloua gracilis grassland
western wheat grass - blue grama grassland
CEAB000138
Alberta Rank: **S2?** Global Rank: **GNR**

- a Dry Mixedgrass community of well drained Brown Solonetz and Brown Solodized Solonetz soils.
- found occasionally on Orthic Brown Chernozems with loam and clay loam textures developed on gently inclined and undulating moraine.
- Coupland (1961) suggests it is restricted to south of the Cypress Hills, at the edge of the glacial ice sheet where surficial deposits are thin, resulting in widespread Solonetzic soils modified by underlying Cretaceous shales.
- identified by low vegetative cover and low diversity dominated by species that are both drought and salinity tolerent.
- Pascopyrum smithii and Bouteloua gracilis are generally co-dominant and Stipa spp. are not usually significant in this type.
- Poa secunda significant component of some stands.
- Pascopyrum smithii (28% composition), Poa sandbergii (13%), Koeleria macrantha (7%), Stipa comata (4%), Bouteloua gracilis (4%), and Selaginella densa (30%) dominate in the Milk River plots.
- At Writing-on-Stone, the plot ascribed to this type had 17% cover of Bouteloua gracilis.
- there may be up to 40% bare mineral soil.
- associated with eroded sites termed solonetzic "blow-outs".
- summarized from Vujnovic and Bentz 2001.

Herbaceous

Pascopyrum smithii Group

Pascopyrum smithii - Carex stenophylla

western wheat grass - low sedge

CEAB000195

Alberta Rank: **S2S3** Global Rank: **GNR**

- documented primarily in the Suffield area in the Dry Mixedgrass Natural Subregion.
- found in micro swales and overflow positions associated with the Foremost soil series, but may occur elsewhere.
- sites are level to gently sloping and moderately well to well drained.
- likely associated with sites with favourable internal drainage and rooting conditions.
- total vegetation cover is usually over 70%, but can be less than 5%.
- Pascopyrum smithii and Carex stenophylla are co-dominant.
- Stipa viridula is prominent in some stands, with up to 70% cover.
- there are few forbs, with only Artemisia ludoviciana and Chenopodium pratericola ever reaching over 10% cover.
- exposed soil averages around 10%, but can be as high as 80%.
- summarized from Adams et al. 2005 for types DMGA40 and DMGA41.
- a community with similar species occurs as a slope type in the Peace River Parkland and Dry Mixedwood subregions (CEAB000132 Carex stenophylla - Pascopyrum smithii).

Pascopyrum smithii - Hordeum jubatum

western wheat grass - foxtail barley

CEAB000139

Alberta Rank: **S1** Global Rank: **GNR**

- a saline wetland community type documented in Alberta only in the Northern Fescue Subregion (Wallis 1990)
- possibly also occurs in the Central Parkland.
- represents the driest vegetation sequence along a moisture gradient of temporarily flooded wetlands.
- Pascopyrum smithii is dominant, although Hordeum jubatum supplies substantial cover.
- other species may be present but contribute little cover.
- found adjacent to a Distichlis stricta community type, which occupies somewhat wetter soils.

Pseudoroegneria spicata Group

Pseudoroegneria spicata - Carex obtusata

bluebunch wheat grass - blunt sedge

CEAB000131

Alberta Rank: **S1** Global Rank: **GNR**

- occupies middle and upper slopes with mostly southerly aspects (slope range: 4 - 48%) within the Montane and Subalpine subregions (elevation range 606 m -1618 m) in southwestern Alberta (Willoughby et al. 1998)
- soils are very rapidly to well-drained, with mostly subxeric moisture regimes and submesotrophic to mesotrophic nutrient regimes
- Amelanchier alnifolia (4.2%) and Symphoricarpos occidentalis (6.2%) are characteristic shrubs
- the dominant grass and sedge species, Agropyron spicatum, Carex obtusata, Koeleria macrantha and Festuca campestris, make up 11.6%, 19.8%, 5.4%, and 4.2% of the canopy cover, respectively
- other significant species include Arctostaphylos uva-ursi, Rosa arkansana and Artemisia frigida

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Herbaceous

Pseudoroegneria spicata Group

Pseudoroegneria spicata - Leymus innovatus - Aster conspicuus

bluebunch wheat grass - hairy wild rye - showy aster

CEAB000081

Alberta Rank: **S1** Global Rank: **GNR**

- occupies small areas on dry, southwest facing slopes, with rapidly drained soils, within the Montane Subregion and possibly into the lower Subalpine
- soils are predominantly Orthic Regosols with xeric moisture regimes, developed on colluvial and glacial landforms
- shrub cover is low, with Juniperus communis and Rosa acicularis occurring sporadically
- Pseudoroegneria spicata (15 - 30% cover), Leymus innovatus (10 - 30%) and Koeleria cristata (3 - 10%) dominate the community
- common forbs include Aster conspicuous (3 - 5% cover), Oxytropis splendens (<8%), Antennaria nitida/rosea (<2%) and Cerastium arvense (<2%)
- this successionally mature community is limited in extent to slopes above Hillsdale meadow in Banff (type H19 Corns and Achuff 1982)

Pseudoroegneria spicata grassland

bluebunch wheat grass grassland

CEAB000079

Alberta Rank: **S1** Global Rank: **GNR**

- described for the Waterton Lakes National Park by Achuff et al. (1997) (Type H42)
- associated with subxeric to mesic, moderately sloping, easterly and southerly oriented sites, in the lower Subalpine Subregion
- soils are well drained Brunisols and Regosols developed on fluvial, colluvial and morainal landforms.
- Pseudoroegneria spicata dominates this successionally mature community (30 - 40% cover)
- other main grasses include Bromus marginatus, Phleum pratense and Poa palustris
- main forbs include Achillea millefolium, Fragaria virginiana, Galium boreale and Penstemon confertus
- other common species are Aster conspicuous, Campanula rotundifolia, Epilobium angustifolium, Hedysarum sulphurescens, Lathyrus ochroleucus and Thalictrum occidentale

Puccinellia nuttalliana Group

Atriplex subspicata - Puccinellia nuttalliana - Triglochin palustris string fen

spearscale saltbrush - Nuttall's salt-meadow grass - slender arrow grass string fen

CEAB000161

Alberta Rank: **S1S3** Global Rank: **GNR**

- part of a net-patterned salt marsh complex found in the Boreal Forest Natural Region (Timoney 2001)
- found in the Northern Mixedwood Subregion and may also occur in the Central Mixedwood
- ground water and runoff fed wetlands associated with Devonian Karstic rocks
- associated with saline surface water and creek or river valleys
- these patterned wetlands may develop only in areas with gradual surface water flow
- flarks (pools) are made up of diatom ponds, with strings made up of spearscale saltbrush - Nuttall's salt-meadow grass - slender arrow grass
- diatom ponds may be different from those described for gypsum areas (CEAB000162)

Herbaceous

Puccinellia nuttalliana Group

Puccinellia nuttalliana community

Nuttall's salt-meadow grass community

CEGL001799

Alberta Rank: **S3?** Global Rank: **G3?**

- found in the following subregions: Dry Mixedgrass, Northern Fescue, Central Parkland, Peace River Parkland (Stone et al. 2007, Thomson and Hansen 2002, Wallis 1990) .
- possibly occurs in the Northern Mixedwood Subregion, in the salt plains area of Wood Buffalo National Park (Raup1935).
- usually associated with saline or alkaline alluvial deposits adjacent to pond or lake margins and in seepage areas.
- the water table tends to be at or just below the surface.
- soils are usually a fine sandy loam to heavy clay and may be Brown Chernozems over alluvium.
- they tend to be alkaline with high concentrations of soluble salts.
- Puccinellia nuttalliana is clearly dominant, with Distichlis stricta prominent in some stands but absent in others.
- few other species are found in this community, but may include Hordeum jubatum, Scirpus paludosus, Salicornia rubra or Triglochin maritima.
- see also NatureServe Explorer: An online encyclopedia of life [web application] http://www.natureserve.org/explorer.

Rumex venosus Group

Rumex venosus sand dune community

wild begonia sand dune community

CEAB000165

Alberta Rank: **S2S3** Global Rank: **GNR**

- a Dry Mixedgrass community of sandy areas.
- found in areas of active sand accumulation, typically on the leeward side of active sand dunes.
- tends to be on mid to upper slopes with a northerly aspect.
- Rumex venosus is clearly dominant, at about 40% cover, with open sand averaging 55% cover (Coenen and Bentz 2003).

Schizachyrium scoparium Group

Schizachyrium scoparium - Calamovilfa longifolia

little bluestem - sand grass

CEAB000109

Alberta Rank: **S2** Global Rank: **GNR**

- found in the Foothills Parkland and Central Parkland and Foothills Fescue Subregions.
- expected to occur in other Grassland subregions as well.
- this community is characterized by the dominance of Schizachyrium scoparium with Calamovilfa longifolia prominent to co-dominant.
- documented along the major glacial spillway east of the Porcupine Hills (Jaques, D.R. 9179) and elsewhere on south-facing coarse-textured slopes along rivers and coulees (High Range Ecological Consultants 2008).
- Schizachyrium scoparium, Calamovilfa longifolia, Bouteloua gracilis, Koeleria macrantha and Artemisia frigida are constant species.

Herbaceous

Schizachyrium scoparium Group

Schizachyrium scoparium - Festuca campestris

little bluestem - mountain rough fescue

CEAB000002

Alberta Rank: **S1?** Global Rank: **GNR**

- on subirrigated channel deposits in the Mixedgrass and Foothills Fescue Natural Subregions
- possibly equivalent to the S. scoparium - Poa interior type of Wallis (1980), a community type based on very preliminary information
- Bouteloua gracilis, Koeleria macrantha, Artemisia frigida and Liatris punctata are constant species
- Pascopyrum smithii (Agropyron smithii), Festuca campestris (scabrella), Stipa comata indicate a wetter type (Jaques 1979).

Stipa columbiana Group

Stipa columbiana - Lupinus sericeus herbaceous vegetation

Columbia needle grass - silky perennial lupine herbaceous vegetation

CEGL005860

Alberta Rank: **S2S3** Global Rank: **G2G3**

- a montane, mesic to subxeric, herbaceous association.
- occurs on a variety of sites, including on flat to somewhat steep slopes from the basin floor to high slopes at various aspects.
- soil texture ranges from moderately well-drained to rapidly drained silt loam or clay.
- found on fluvial, morainal, and sometimes eolian landforms such as alluvial terraces, benches, fluvial fans, and ground moraines.
- litter and small rock dominate the ground surface.
- Stipa columbiana is dominant with up to 90% cover.
- Lupinus sericeus (5-15% cover) and Koeleria macrantha (10-20%) are prominent components.
- overall herbaceous cover ranges from 90-100% with moderate species diversity.
- moderate- to high-constancy species with average cover ranging from 1-5% include Galium boreale, Achillea millefolium, Festuca idahoensis, Gaillardia aristata, Arnica sororia, Antennaria parvifolia, Zigadenus elegans, Anemone multifida, Castilleja lutescens, Lithospermum ruderale, and Potentilla gracilis
- shrubs may be present such as Potentilla fruticosa, Actostaphylos uva-ursi, and Rosa acicularis.
- nonvascular cover averages 5%.
- summarized from NatureServe 2004.

Stipa comata Group

Stipa comata - Festuca idahoensis - F. saximontana grassland

needle-and-thread - Idaho fescue - Rocky Mountain fescue grassland

CEAB000111

Alberta Rank: **S1** Global Rank: **GNR**

- a Dry Mixedgrass community found on the east-facing slope of a volcanic extrusion
- dominant species include Stipa comata, Festuca saximontana and F. idahoensis
- other species include: Bouteloua gracilis, Poa sp., Allium textile, Koeleria macrantha , Geum triflorum, Carex filifolia, Vicia americana and Besseya wyomingensis.

Herbaceous

Stipa curtiseta Group

Carex spp. - Stipa curtiseta - Danthonia intermedia grassland

upland sedge - western porcupine grass - intermediate oat grass grassland

CEAB000208

Alberta Rank: **S1?** Global Rank: **GNR**

- an open upland grassland found in the Peace River Parkland.
- may also occur in adjacent Dry Mixedwood Boreal.
- found on mesic, well-drained, level to slightly undulating sites on solonetzic uplands, slope crests or terraces, draws and benches of river slopes.
- a sparse shrub layer of Rosa acicularis and Amelanchier alnifolia is usually present.
- upland sedges (Carex spp.) and Stipa curtiseta are co-dominant and Danthonia intermedia is often a prominent component.
- herbs were present in all plots (N=2) were: Comandra pallida, Achillea millefolium, Galium boreale, and Aster laevis.
- most sites likely largely converted to crops.
- the above is summarized from Stone et al. 2007.

Stipa curtiseta - S. viridula - Carex spp.

western porcupine grass - green needle grass - sedges

CEAB000089

Alberta Rank: **S2S3** Global Rank: **GNR**

- confirmed in the Peace River Parkland Subregion, Parkland Region, but may also occur on similar slopes in the adjacent portion of the Dry Mixedwood Subregion of the Boreal Forest Natural Region.
- restricted to valley sites, generally on upper slopes and crests.
- in areas where the valley widens out, may extend from upper breaks to the alluvial terrace (Adams 1981).
- mainly found on south west, south and south east facing, submesic, gentle to moderate (5 to 45%) slopes.
- a slope grassland with little to no exposed soil
- usually dominated by Stipa curtiseta although S. viridula and upland sedges (Carex spp.) are prominent to co-dominant in some stands.
- shrubs such as Amelanchier alnifolia or Symphoricarpos occidentalis may be present, but usually with low cover.
- forbs such as Anemone patens and Artemisia frigida can have significant cover.

Stipa richardsonii Group

Stipa richardsonii - Koeleria macrantha - Antennaria parvifolia

Richardson needlegrass - June grass - small-leaved everlasting

CEAB000028

Alberta Rank: **S2S3** Global Rank: **GNR**

- a Front Range Montane community
- found in forest openings and at forest edges on dry, steep slopes of south aspects
- type H13 (Corns and Achuff 1982, Achuff et al. 1986)
- type A5. Selaginella densa / Stipa richardsonii (Willoughby et. al 1998)

Herbaceous

Xerophyllum tenax Group

Xerophyllum tenax herbaceous vegetation

bear-grass herbaceous vegetation

CEGL005859

Alberta Rank: **S1S2** Global Rank: **GNR**

- occurs in Montane Alpine and Subalpine subregions, but only in southwestern Alberta.
- almost always associated with moderate to steep slopes with warm exposures (predominantly southeast- to west-facing aspects).
- stands are often associated with the upper slopes of ridgeline and slope shoulders, positions among the earliest to lose snow at a given altitude.
- parent material is quite variable, ranging from glacial drift to colluvium derived from calcareous and noncalcareous rock types.
- soils are often quite well-drained with a significant rock component of 50% or more.
- ground surface is usually 90% or more litter.
- this association presents a distinctive aspect with what can initially appear to be a monoculture of Xerophyllum tenax (greater than 70% average cover).
- shrubs never comprise more than 10% cover and only Vaccinium membranaceum attains greater than 50% constancy.
- Abies bifolia, may occur sparsely scattered in the tall-shrub layer.
- Carex geyeri is the most common graminoid, though its cover seldom exceeds 5%.
- herbs are diverse, but other than Xerophyllum, few have more than 50% constancy and rarely have over 10% cover in total.
- the species most commonly found in this association include Erigeron peregrinus, Valeriana sitchensis, Veratrum viride, Erythronium grandiflorum, Thalictrum occidentale, and Epilobium angustifolium.
- often occurs in areas that have experienced fire in the past.
- summarized from NatureServe 2004.

Sparsely Vegetated

Artemisia cana Group

Artemisia cana - Atriplex nuttallii badland slopes

silver sagebrush -Nuttall's atriplex badland slopes

CEAB000156

Alberta Rank: **S2S3** Global Rank: **GNR**

- a species-poor community, occurring on steep eroding and stabilised badland slopes of various aspects in the Dry Mixedgrass Subregion (Holcroft Weerstra 2001)
- gravel or cobbles makes up 75% of the cover
- Artemisia cana has only sparse cover (up to 15%) but is the dominant species
- Atriplex nuttallii is also prominent, but often with 5% cover or less
- other species present may include Eriogonum flavum, Pascopyrum smithii, Gutierrezia sarothrae, Eurotia lanata and Iva axillaris.

Sparsely Vegetated

Artemisia longifolia Group

Artemisia longifolia - Calamovilfa longifolia badland community

long-leaved sagewort - sand grass badland community

CEGL001521

Alberta Rank: **S1S2** Global Rank: **G3G4**

- A sparse plant community associated with badlands in the Dry Mixedgrass Subregion.
- a distinctive minor association occurring as small patches on steep, erosive and barren slopes or on colluvium at slope bases.
- develops on soft, dark and erosive marine shales.
- possibly associated with the Bearpaw formations in Alberta.
- plant cover rarely exceeds 20%.
- Artemisia longifolia is the dominant species, with Thermopsis rhombifolia prominent.
- Calamovilfa longifolia is the dominant graminoid.
- the above summarized from NatureServe Explorer with some Alberta-specific additions.

Artemisia longifolia - Chrysothamnus nauseosus

long-leaved sagewort - rabbitbrush

CEAB000097

Alberta Rank: **S1** Global Rank: **GNR**

- a community found on badland slopes in the Dry Mixedgrass Subregion, generally only south of the S. Saskchewan River.
- vegetation is scattered on unconsolidated bedrock, usually sandstones or shales.
- up to 90% unvegetated.
- constant species include Artemisia longifolia, Chrysothamnus nauseosus, Thermopsis rhombifolia (n=5).
- Gaura coccinea, Eriogonum flavum, Stephanomeria runcinata were associated with this type in the Manyberry Badland occurrences (n=2 Smith 1993).
- Atriplex nuttallii was associated in the Onefour occurrences (n=3 Bradley et al 2006).
- wind and water erosion may be a significant factors in maintaining the open nature of the vegetation.

Artemisia longifolia bare shale community

long-leaved sagewort - bare shale community

CEAB000219

Alberta Rank: **S1S2** Global Rank: **GNR**

- a badland community of bedrock shales in the Dry Mixedgrass, possibly also in badlands along the Red Deer RIver in the Northern Fescue.
- open soft shale bedrock is up to 95% unvegetated, with vegetation cover as low as 5%.
- Artemisia longifolia is the characteristic and most prominent species in this CT, but often with low cover.
- other species usually present include Iva axillaris and Atriplex suckleyi.
- Hordeum jubatum may also be present in small, scattered patches.
- also documented in Saskatchewan (Thorpe 2007).

Sparsely Vegetated

Athyrium alpestre var americanum Group

Athyrium alpestre var. americanum - Cryptogramma acrostichoides
alpine spleenwort - parsley fern
CEGL005900
Alberta Rank: **SNR** Global Rank: **G2G3**

- a subalpine and alpine forb-dominated association found in northwestern Montana, in Glacier National Park.
- may occur in Waterton Lakes National Park in Alberta, but has yet to be documented there.
- found in boulder-fields, but is often obscured by the size of the boulders (ranging from a couple of decimeters to more than 5 meters).
- fine soil substrate collects between the rocks, allowing vascular plants growth.
- generally occurs on steep (greater than 55%) slopes with southerly exposures,
- boulder slopes may generate a unique microclimate allowing plants typical of mesic to hygric sites to predominate.
- rock cover is 75% or greater and litter is generally less than 5%.
- soil pockets are small and compriseless than 5% of the surface.
- vascular plant diversity is low, and cover ranges between 5% and 25% across the slope.
, with many of the sites qualifying as sparse vegetation.
- Athyrium alpestre var americanum and Cryptogramma acrostichoides are dominant and together may comprise 75% or more cover in the patch.
- Penstemon ellipticus, is highly constant
- Carex phaeocephala, Juncus parryi, and Epilobium anagallidifolium (= Epilobium alpinum) are also highly constant
- the most abundant bryophytes are Polytrichum piliferum and Bryum spp.
- summarized from NatureServe 2004.

Erigeron radicatus Group

Erigeron radicatus - Phlox hoodii - Eriogonum flavum
dwarf fleabane - moss phlox - yellow umbrella-plant
CEAB000103
Alberta Rank: **S1** Global Rank: **GNR**

- forms a distinct band at the edge of rocky outcrops and on knolls of hills.
- a community of the Dry Mixedgrass Natural Subregion.

Eurotia lanata Group

Eurotia lanata / Schedonnardus paniculatus ephemeral drainage
winter-fat / tumble grass ephemeral drainage
CEAB000220
Alberta Rank: **SNR** Global Rank: **GNR**

- a sparsley vegetated badland community documented in the Dry Mixedgrass Subregion.
- Schedonnardus paniculatus is the dominant species although Eurotia lanata forms a prominent but sparse low shrub layer.
- other species typically present are Opuntia polyacantha, Artemisia frigida and the cyanobacteria Nostoc (possibly N. commune).
- vegetation cover may be patchy, with some open areas and some with high Schedonnardus paniculatus cover.

Sparsely Vegetated

Hudsonia tomentosa Group

Hudsonia tomentosa sand flats
sand heather sand flats
CEAB000225
Alberta Rank: **S2?** Global Rank: **GNR**

- a sparsely vegetated dwarf shrubland restricted to extensive sand dune and sand plain areas of eolian origin.
- sand dune areas with Hudsonia tomentosa are scattered through NE Alberta, up to the N. shore of Lake Athabasca.
- areas with extensive enough Hudsonia tomentosa to be considered a community (minimum size 0.05 ha) have been documented in the Athabasca Dunes, in the Athabasca Plain Natural Subregion of the Boreal Forest Natural Region (Allen et al. 2003a).
- may also occur in other sand dune areas in the Central and Dry Mixedwood subregions.
- a similar CT is also known to occur in SK, in their Athabasca Sand Dune ecodistrict (McLaughlan et al. 2010).
- the best-developed occurrences are found upwind of the main dune area in the Athabasca Dunes, where some stabilization is starting to occur.
- dominated by Hudsonia tomentosa, often with a lichen crust dominated by Placynthiella uliginosa.
- there are usually scattered other species with low cover such as Bromus inermis ssp. pumpellianus, Festuca rubra, Koeleria macrantha, Pascopyrum smithii, Stellaria arenicola, Tanacetum bipinnatum ssp. huronense.

Juniperus horizontalis Group

Juniperus horizontalis / (Koeleria macrantha) / Cladina mitis
creeping juniper / (June grass) / green reindeer lichen
CEAB000088
Alberta Rank: **S1S2** Global Rank: **GNR**

- stabilized blowouts in Central Parkland sand dunes
- Cladina mitis can contribute up to 20% of the cover (Fehr 1984)
- Koeleria macrantha is not always a significant component of the community

Sparsely Vegetated

Juniperus horizontalis Group

Juniperus horizontalis / Carex pensylvanica - Eriogonum flavum badland community
creeping juniper / sun-loving sedge - yellow umbrella-plant badland community
CEAB000007

Alberta Rank: **S1S2** Global Rank: **GNR**

- this community has been documented in the Dry Mixedgrass Subregion in badlands that are made up of bedrock exposures of marine shales of the Bearpaw formation.
- it occurs on badland pediments that have formed mid-slope, below the crest of slope and above benches and valley bottoms (Smith 1993).
- slopes are strong to moderate and of variable aspects.
- the shales erode rapidly into particles varying from gravel size to fine silt.
- the slopes themselves are generally prone to erosion due to soft materials and lack of vegetation.
- the Juniper mats form below steeper slopes where they catch the material from both from wind and water erosion and build into small dunes, up to 2m high.
- there are two strata, a shrub layer of up to 25% cover, dominated by Juniperus horizontalis (creeping juniper).
- the herb layer has 1 to 10% made up of a low cover of species such as Eriogonum flavum (yellow umbrella-plant),Thermopsis rhombifolia (golden bean) and Solidago missouriensis (low goldenrod) within the Juniper mat and scattered Eriogonum flavum in the otherwise bare ground outside the mats.
- 20 to 90% bare ground of eroded shales occurs between Juniper mats.
- a few other species are found in or at the edge of the mat, with Carex pensylvanica, Thermopsis rhombifolia and Solidago missouriensis usually present.
- essentially a mosaic of Juniper mats on dunes of up to 2m in height, interspersed with swales with little vegetation but scattered Eriogonum flavum and Carex pensylvanica characteristic.
- where slope and bedrock conditions are suitable, this community can form fairly extensive patches.

Leymus mollis Group

Leymus mollis - Tanacetum bipinnatum ssp. huronense shoreline dune
American dune grass - Indian tansy shoreline dune
CEAB000172

Alberta Rank: **S1** Global Rank: **GNR**

- a plant community of the Kazan Upland Natural Subregion.
- may also occur on the south shore of Lake Athabasca, in the Athabasca Plain Subregion.
- known in Alberta only from the north shore of Lake Athabasca on slightly exposed lake beaches (Allen et al. 2003).
- occurs on low, stabilizing dunes located above the active wave zone and past a zone of dry, unvegetated sand.
- an early pioneer community with up to 60% bare sand and subject to sand movement.
- American dune grass is dominant, with up to 25% cover.
- Indian tansy is constant, but cover varies from very low (less than 2%) up to 50%.
- likely sensitive to changes in disturbance regime.

Sparsely Vegetated

Oryzopsis hymenoides Group

Oryzopsis hymenoides - Leymus canadensis
Indian rice grass - Canada wild rye
CEAB000107
Alberta Rank: **S2?** Global Rank: **GNR**

- a sparsley vegetated community of sand blowouts / active sand dunes in the Dry Mixedgrass Natural Subregion (Wallis 1977).
- a small patch community, restricted to areas of active wind erosion.
- the vegetation is dominated by Oryzopsis hymenoides and Leymus canadensis.
- Rumex venosus is also often present.
- prone to invasion by non-native species such as Russian thistle (Salsola kali), ridge-seeded spurge (Euphorbia glyptosperma) and sweet clover (Melilotus sp.).

Pascopyrum smithii Group

Pascopyrum smithii - Atriplex nuttallii
western wheat grass - atriplex
CEAB000137
Alberta Rank: **S1** Global Rank: **GNR**

- occurs on badland landforms, on moderate northeast facing coulee slopes in the Dry Mixedgrass Subregion
- documented only in the Manyberries badlands (Smith 1993)
- soils of the general area are Brown Solonetz with loam textures derived from moderately calcareous till, overlaying shales and sandstones
- this community is characterized by having 75% to 80% bare ground
- Pascopyrum smithii and Atriplex nuttallii are co dominant
- Koeleria macrantha and Artemisia frigida are also abundant on one site sampled (n=2)
- other characteristic species include Phlox hoodii, Gutierrezia sarothrae, Gaura coccinea, Grindelia squarrosa, Haplopappus nuttallii, Chrysothamnus nauseosus, Oenothera caespitosa, Erigeron caespitosus
- Carex filifolia is locally abundant in sandier patches
- appears to provide significant habitat for short horned lizard

Pascopyrum smithii - Pyrrocoma uniflora
western wheat grass - one-flowered ironplant
CEAB000140
Alberta Rank: **S1** Global Rank: **GNR**

- a Montane plant community found in slight depressions at Whirlpool Point in the Kootenay Plains area (Wallis and Wershler 1981)
- found in areas with a high water table
- vegetation cover is low, with considerable bare ground (80% mineral soil)
- scattered forbs include Cerastium arvense, Anemone multifida, Astragalus agrestis, Achillea millefolium, Senecio canus, Taraxacum officinale and Aster sibiricus

Sparsely Vegetated

Penstemon ellipticus Group

Penstemon ellipticus talus barren
creeping beardtongue talus barren
CEAB000065
Alberta Rank: **S1?** Global Rank: **GNR**

- an Alpine community found on unstable scree in locations slightly protected from wind (Griffiths 1982).
- the rubbly talus scree occurs on steep mountain faces.
- bare rock rubble and blocks predominate and there is no continuous vegetation cover.
- a diversity of species with low cover occur in scattered patches.
- the main species associated with unstable scree include Penstemon ellipticus, Artemisia michauxiana, Agropyron scribneri, Festuca baffinensis, Saussurea densa.

Populus angustifolia Group

Populus angustifolia / recent alluvial
narrow-leaf cottonwood / recent alluvial
CEAB000166
Alberta Rank: **S2S3** Global Rank: **GNR**

- a riparian community found in the Dry Mixedgrass, Mixedgrass and Foothills Fescue subregions and possibly in the Montane.
- occurs on flood plains along major streams and rivers (Thompson and Hansen 2002)
- typically on alluvial deposits with large amounts of cobbles and gravels
- soils are usually Regasols.
- requires moist, unvegetated, newly deposited alluvium that is exposed to full sunlight.
- this ct develops on sites that have surface saturation for a long enough period to allow germination and seedling establishment.
- characterized by seedlings or saplings of Populus angustifolia, sometimes with a significant amount of Salix exigua.
- graminoids are dominant in the understory, including species such as Agrostis stolonifera and Phleum pratense.
- the forb layer is highly variable, but Equisetum arvense is often a significant component.

Populus deltoides Group

Populus deltoides / recent alluvial
plains cottonwood / recent alluvial
CEAB000164
Alberta Rank: **S1S3** Global Rank: **GNR**

- a riparian community found in the Dry Mixedgrass Subregion.
- occurs on recent alluvial bars of streams and rivers (Thompson and Hansen 2002).
- soils are usually deep Regasols with a layer of silty clay to clay overlying coarse sands or gravels.
- forms extensive stands on major floodplain terraces.
- characterized seedlings or saplings of Populus deltoides, sometimes with a significant amount of Salix exigua.
- other cottonwoods (P. angustifolia or P. balsamifera) may be present, but Populus deltoides is dominant.
- the understory is diverse, with species such as Pascopyrum smithii and Scirpus pungens averaging over 50% cover, but absent from some stands.

Sparsely Vegetated

Puccinellia nuttalliana Group

Puccinellia nuttalliana - Suaeda calceoliformis - Spergularia marina barren

Nuttall's salt-meadow grass - western sea-blite - salt-marsh sand spurry barren

CEAB000046

Alberta Rank: **S2** Global Rank: **GNR**

- a community associated with hyper-saline salt springs, and documented in the Central Mixedwood (Timoney and Robinson 1991)
- springs flowing out of glaciofluvial meltwater deposits form barrens with high salt concentrations
- soils are sandy Orthic Regosols with a xeric moisture regime resulting in droughty conditions
- vegetation is in sparse patches of herbs and grasses
- herb patches about .1 m tall cover about 3%, grass patches about .3 m tall cover about 4%
- Puccinellia nuttalliana, Suaeda calceoliformis and Spergularia marina are the most common species

Salicornia rubra Group

Salicornia rubra emergent marsh

samphire emergent marsh

CEGL001999

Alberta Rank: **S2** Global Rank: **G2G3**

- a hyper saline marsh of the Grassland, Parkland and Boreal natural regions in Alberta where mineral accumulation occurs as a result of evaporative drying.
- occurs over a broad geographic range and has been recorded from Nebraska, South Dakota, North Dakota, Minnesota, Montana, Colorado, and north into Saskatchewan (NatureServe 2004).
- although a widely distributed type, it has very specific habitat needs and is ranked G2G3 (NatureServe 2004)
- associated with highly alkali wetlands, semi permanent alkali lakes and exposed mud of alkali flats (NatureServe 2004)
- often forms a ring or patch near the centre of saline depressions and is typically found at the edge of non-vegetated mudflats (Wallis 1990)
- dependent on hydrological processes such as seasonal inundation, evaporative dry down, and mineral accumulation resulting in extreme salinity that few species can tolerate (NatureServe 2001)
- the principle salts are sulphates and chlorides of sodium and magnesium (Stewart and Kantrud 1972 as referenced in NatureServe 2001)
- Salicornia is frequent in saline areas of the dark brown soils zone but less common in the black and brown soils zones of Alberta on silt loam to clay soils
- this is a sparsely vegetated community, typically a pure band of Salicornia of 25% or less basal cover with up to 95% unvegetated silt loam or clay flats
- if present, associated species may include Puccinellia nuttalliana, Distichlis stricta, Hordeum jubatum, Triglochin maritima, Chenopodium rubrum and Suaeda erecta
- during drying trends, other species such as Spergularia salina and Chenopodium salinum move in
- this community often grades into graminoids on the upslope side, commonly Puccinellia nuttalliana - Distichlis stricta community on coarse textured soils
- in some areas Salicornia becomes co dominant in a transition zone with the dominants of the adjacent upslope community (usually Triglochin maritima, Puccinellia nuttalliana, Distichlis stricta and/or Hordeum jubatum)
- the Salicornia rubra community is a small patch community, often forming a ring or patch near the centre of saline depressions.

Sparsely Vegetated

Sarcobatus vermiculatus Group

Sarcobatus vermiculatus / Atriplex nuttallii

greasewood / Nuttall's atriplex

CEAB000186

Alberta Rank: **S2S3** Global Rank: **GNR**

- this Dry Mixedgrass community type is primarily associated with steep coulee slopes of variable aspects.
- a badland type; slumping and solifluction is evident on most sites.
- surface substrates typically have over 75% mineral soil, stone and cobble.
- soils are poorly developed and likely saline.
- most often occurs in horizontal bands of vegetation coinciding with the orientation of slumps
- total vegetation cover is generally 40% or less, although denser patches of Sarcobatus vermiculatus may be present
- Sarcobatus vermiculatus is always present, with cover varying from 10% up to 50%.
- Atriplex nuttallii is also consistently present, although cover may be as low as 1%
- associated plant species include Distichlis spicata, Elymus lanceolatus, Chrysothamnus nauseosus and Gutierrezia sarothrae.
- summarized from Wildlands Ecological Consulting Ltd. 2004.

Saxifraga mertensiana Group

Saxifraga mertensiana cliff vegetation

Merten's saxifrage cliff vegetation

CEGL005903

Alberta Rank: **SNR** Global Rank: **G2?**

- described throughout the alpine zone of Glacier National Park, Montana and also occasionally in the subalpine.
- may occur in the alpine and subalpine of Waterton Lakes National Park, but not yet documented there.
- it is found in moist crevices of cliff faces and overhangs on primarily southwest- to west-facing exposures with very steep slopes.
- the crevices vary in depth from a few decimeters to more than a meter and exhibit a unique, cool, moist and shaded microclimate.
- they vary from moist, to wet, depending on seepage
- plants grow within pockets of trapped fine-textured soil
- extensive bryophyte cushions develop which in turn promote the formation of organic-rich soil.
- Saxifraga mertensiana, Saxifraga cernua, and Saxifraga rivularis (= Saxifraga debilis), are strongly associated with this habitat.
- Cryptogramma stelleri and Cerastium beeringianum are usually present
- other forbs present include Epilobium anagallidifolium (= Epilobium alpinum), Saxifraga occidentalis, and Deschampsia caespitosa.
- bryophytes are an important component, but cover can be variable from 5% to greater than 50%.
- the main taxa are Philonotis fontana var. americana, Brachythecium spp., and Bryum spp.
- lichens do occur on rock the surfaces, amounts ranging from nil to 50%.
- summarized from NatureServe 2004.

Sparsely Vegetated

Scirpus nevadensis Group

Scirpus nevadensis - (Triglochin maritima)

Nevada bulrush - (seaside arrow-grass)

CEAB000092

Alberta Rank: **S2S3** Global Rank: **GNR**

- a saline emergent marsh documented in the Central Parkland Natural Subregion, but expected to occur in Dry Mixedgrass and Northern Fescue Subregions as well.
- Scirpus nevadensis is usually the dominant and sometimes the only species in this community, although Triglochin maritima is sometimes prominent.
- Wallis (1990) splits these into a Scirpus nevadensis type and a Scirpus nevadensis - Triglochin maritima type, but as they are both emergent types of sandy saline shores, they have been merged here to a single type.
- associated with wetlands that are often subject to extreme fluctuations in water level.
- the community appears to be restricted to sandy shores of saline to hypersaline wetlands (Wallis 1990).
- Scirpus nevadensis is usually dominant, with a very open growth, and is often the only species in the community.
- Triglochin maritima a frequent associate and may be co-dominant in some stands.
- Distichlis stricta may come in on the dryer edge of the community; or Puccinellia nuttalliana on the wetter side.
- may border or occur in patches with a Suaeda calceoliformis community on strongly alkali sites, often in a band above an unvegetated alkali shore.

Scree Slope Group

Aquilegia flavescens - Senecio megacephalus

yellow columbine - large-flowered ragwort

CEGL005899

Alberta Rank: **SNR** Global Rank: **G2G3**

- a community of subalpine to alpine sites documented in northwestern Montana (Glacier National Park), principally on its western side.
- may occur in Waterton Lakes National Park in Alberta, but has yet to be documented there.
- a tall-forb community typical of steep (45 to 70%) scree slopes with west- through southeast-facing exposures.
- wind exposure may be a key environmental factor along with irrigation from upslope snow.
- there is essentially no soil development due to ongoing soil action (creep and slides) and congeliturbation banks.
- rock cover is high (60-100%).
- this is a very open (mostly less than 20% canopy cover, as high as 65%), tall-forb community with much visible rock and mineral soil surface.
- Senecio megacephalus, Aquilegia flavescens, Chamerion angustifolium (= Epilobium angustifolium), and Symphyotrichum foliaceum (= Aster foliaceus) are consistently present.
- Penstemon ellipticus and Phacelia hastata are also usually present, but overtopped by the taller species.
- mosses and lichens usually comprise less than 1% canopy cover.
- the above summarized from NatureServe 2004.

Sparsely Vegetated

Scree Slope Group

Phacelia hastata - (Penstemon ellipticus) scree slope sparse vegetation

silver-leaved scorpionweed- (creeping beardtongue) scree slope sparse vegetation

CEGL005901

Alberta Rank: **S2S3** Global Rank: **G2G3**

- a subalpine to alpine community of steep to very steep (45 to 78%) talus slopes spanning a range of exposures from east to primarily southwest (facing prevailing winds).
- the upper portions of these scree areas may receive and retain considerable snow which contributes meltwater to downslope positions.
- these are active, unstable sites for the most part with loose surface rocks and obvious areas of slope movement.
- rock dominates the surface with more than 95% exposure being common
- sites are more mesic than they appear because there is an accumulation of fine soil below the scree cover that is somewhat protected from evaporation.
-vascular plant cover ranges between 1% and 25%.
- Penstemon ellipticus may have the greatest cover, up to 25%, or occasionally be absent.
- the forb component is diverse and heterogeneous with even the nominal species Phacelia hastata present in only 80% of the plots.
- other forbs evidencing only a modest constancy include Stellaria americana, Minuartia nuttallii (= Arenaria nuttallii), Arenaria capillaris, and Phacelia sericea.
- summarized from NatureServe 2004.

Saxifraga bronchialis scree slope sparse vegetation

spotted saxifrage scree slope sparse vegetation

CEGL005902

Alberta Rank: **S2S3** Global Rank: **G3?**

- a Subalpine to Alpine small-patch scree community
- occurs predominantly on steep to very steep (36 to 70%) talus slopes of all aspects.
- found occasionally on fell-fields of level ridges, reflecting a highly variable degree of substrate stability.
- unconsolidated, unvegetated and actively moving scree mantles the slope between vertically elongated vegetation patches.
- disturbance, mass wasting on the steep slopes and congeliturbation on level summits and ridgetops, is the primary driver of structural and floristic composition.
- has been noted on red and green argillites.
- exposed rock is mostly greater than 75%.
- litter (about 10% average cover) and moss/lichen (averaging about 15% cover) also present
- mineral soil is present in slightly greater than trace amounts.
- soil development is minimal
- Saxifraga bronchialis is the indicator species for this type, but has a highly variable cover, from trace amounts in exceedingly rocky expressions to approaching 20%.
- it consistently has the greatest cover of any vascular species.
- Saxifraga bronchialis establishes dense mats that block the movement of scree, which lodges upslope against the stout cushions.
- Potentilla fruticosa is regularly present as a trace subshrub.
- some forbs are broadly distributed (in trace amounts) across the type, including Sedum lanceolatum, Achillea millefolium, Cerastium arvense, Poa secunda, and Eriogonum ovalifolium.
- other herbs appear to be elevationally stratified.
- lower elevation species include Woodsia scopulina, Penstemon albertinus, Selaginella wallacei, Pseudoroegneria spicata, and Artemisia michauxiana,
- Potentilla diversifolia, Poa alpina, Solidago multiradiata, Festuca brachyphylla, Penstemon ellipticus, and Sibbaldia procumbens tend to be at higher elevations (mostly above 2000 m).
- Lichens and mosses generally comprise less than 10% combined cover, with no species particularly indicative of this environment.
- summarized from NatureServe 2004.

Sparsely Vegetated

Spartina gracilis Group

Spartina gracilis - (Pascopyrum smithii)

alkali cord grass - (western wheat grass)

CEAB000093

Alberta Rank: **S2S3** Global Rank: **GNR**

- a saline dry meadow of the Central Parkland Natural Subregion
- possibly also occurs in the Dry Mixedgrass and Northern Fescue subregions
- typically found on open sandy sites; may be associated with slightly alkaline seepage springs
- Wallis (1990) considers Spartina gracilis - Pascopyrum smithii saline dry meadow to be an open sandy site variant of Distichlis stricta - Pascopyrum smithii saline dry meadow.
- associated with wetlands that are often subject to extreme fluctuations in water level and may become dry basins during drought years.
- marks the upper zone of the halophytic communities; leading to semi-halophytic communities upslope.

Sporobolus cryptandrus Group

Sporobolus cryptandrus semi-active dune

sand dropseed semi-active dune

CEAB000110

Alberta Rank: **S2** Global Rank: **GNR**

- a Dry Mixedgrass community of partially stabilized sand dunes, documented primarily in the Pakowki area (Coenen, V. and J. Bentz 2003).
- usually found on south to southwest dune faces on sites with active sand movement
- exposed sand often exceeds 50%.
- sand movement buries some plants and exposes the roots of others; few species can persist in these dry and unstable sites.
- shrubs such as Rosa spp. may be present, but with very low cover
- this is a sparsely vegetated type, with Sporobolus cryptandrus the dominant species and Oryzopsis hymenoides always present, usually with greater than 5% cover.
- other species usually present, although with low cover, are Heterotheca villosa and Helianthus annuus.

Suaeda moquinii Group

Suaeda moquinii - Atriplex suckleyi sparsely vegetated badland slopes

Moquin's sea-blite - endolepis sparsely vegetated badland slopes

CEAB000112

Alberta Rank: **S2?** Global Rank: **GNR**

- badland community of crumbly shale or clay slopes along lower valleys in the Dry Mixedgrass Natural Subregions (Wershler and Wallis 1986).
- sparse cover of Suaeda moquinii with scattered Atriplex suckleyi.
- Atriplex nuttallii usually a component and is predominant on most of the lighter colored shales.
- Atriplex suckleyi dominates on the few areas of looser, darker shales.
- more work needed to determine if there are two cts (Suaeda moquinii - Atriplex suckleyi and Suaeda moquinii - Atriplex nuttallii) or one with variants.

Sparsely Vegetated

Triglochin maritima Group

Triglochin maritima emergent marsh
seaside arrow-grass emergent marsh
CEAB000094
Alberta Rank: **S2?** Global Rank: **GNR**

- a Grassland and Parkland saline emergent marsh associated with saline seeps and wetlands.
- documented only in the Central Parkland, but likely occurs grassland subregions including the Dry Mixedgrass and Northern Fescue.
- typically found near the centre of saline depressions as a part of a complex of vegetation around shallow wetlands.
- these wetlands are often subject to extreme fluctuations in water level.
- occurs on wetter sites with fine sand to sandy clay soils that are saline and intermittently flooded.
- forms a pure band of Triglochin maritima, usually with less than 20% cover.
- basal cover of Triglochin varies from 5 to 15%, with the densest stands associated with the coarsest soils.
- Puccinellia nuttalliana is the principle associated species (Wallis 1990), but only occurs in half the stands.

Aquatic

Diatom ponds Group

Cymbella pusilla - Mastogloia smithii - Nitzschia palea
diatom ponds
CEAB000162
Alberta Rank: **S1S3** Global Rank: **GNR**

- shallow (less than 50 cm deep) ponds found in the Northern Mixedwood Subregion of the Boreal Forest Natural Region
- may also occur in the Central Mixedwood Subregion or in the Subalpine or Alpine Subregions in the Rocky Mountain Natural Region
- associated with bulrush marshes and may evaporate away by the end of a summer
- strongly influenced by dissolution of gypsum, neutral to alkaline and high in sulphates (Timoney et al. 1997)
- few aquatic macrophytes
- a benthic diatom community give the ponds a characteristic yellow color from the air, changing to pink then white as the water dries up

Emergent aquatic Group

Hippuris vulgaris - Ranunculus circinatus - Callitriche sp.
common mare's-tail - white water crowfoot - water-starwort
CEAB000106
Alberta Rank: **SU** Global Rank: **GNR**

- an aquatic community of standing water along creeks of the Grassland Natural Region (Wallis 1977), documented only in the Dry Mixedgrass.
- forms dense mats of Hippuris vulgaris, Ranunculus circinatus, Callitriche sp. in semi-permanent pools along creeks with alkali content
- noted from pools along a single creek so more information needed to verify the validity of the type
- aquatic communities are not well studied

Aquatic

Emergent aquatic Group

Sparganium eurycarpum emergent aquatic vegetation
giant bur-reed emergent aquatic vegetation
CEAB000216
Alberta Rank: **S1S2** Global Rank: **GNR**

- an emergent aquatic community documented in the Dry Mixedwood Boreal and Central Parkland natural subregions.
- may also occur in other Boreal Forest subregions.
- it occurs in shallow water (10 to 100cm deep) along the channel edges of slow-moving streams and rivers.
- sites commonly have saturated soils of high organic content.
- Sparganium eurycarpum cover is dense in the three documented occurreneces (averaging 85%).
- other floating and emergent vegetation may be present, but the community is almost completely dominated by Sparganium eurycarpum (N=3).
- the above summarized from Thompson, W. H. and P. L. Hansen 2003.
- may be equivalent to CEGL003323 Sparganium eurycarpum Herbaceous Vegetation ranked G4 (NatureServe).

Floating-leaved aquatic Group

Glyceria borealis - Sium suave - Sparganium angustifolium
northern manna grass - water parsnip - narrow leaved bur-reed
CEAB000171
Alberta Rank: **S1?** Global Rank: **GNR**

- an aquatic community of slow moving Canadian Shield streams in the Kazan Upland (Allen et al. 2002).
- found in about 2.5 m deep water as a band on both sides of La Butte Creek.
- Glyceria borealis forms dense patches with up to 90% cover.
- Sium suave and Sparganium angustifolium contribute about 10% cover each to the community.
- pondweeds such as Potamogeton richardsonii are more prominent in adjacent deep water but may intergrade with this community.

Submergent aquatic Group

Isoetes bolanderi aquatic community
Bolander's quillwort aquatic community
CEAB000159
Alberta Rank: **S1** Global Rank: **GNR**

- a submerged aquatic community of small oligotrophic lakes in the Subalpine Natural Subregion
- found in shallow water on non-calcareous silt/sand substrate (Brunton 1995).
- not found in areas of coarse substrate (Smith and Bradley 2002).
- Isoetes bolanderi is the dominate species, and often the only species of significant cover in the community (Brunton 1995).
- Isoetes bolanderi is not associated with any other species in Alberta occurrences.
- typically sparsly vegetated, with 90 to 100% bare sediment.
- in quadrats with Isoetes bolanderi, cover varied from present to 75%.

Aquatic

Submergent aquatic Group

Isoetes echinospora aquatic community
northern quillwort aquatic community
CEAB000036
Alberta Rank: **S1** Global Rank: **GNR**
- a community of the Boreal Forest and Canadian Shield Natural Regions.
- forms bands in shallow water on sandy substrate (Allen et al. 2003).
- likely requires protected sites with little wave action.
- essentially a monotypic community, although seedlings of other aquatic species may be present.

Ruppia cirrhosa aquatic community
widgeon-grass aquatic community
CEAB000091
Alberta Rank: **S1** Global Rank: **GNR**
- a Grassland and Parkland aquatic community, endemic to the glaciated portion of the Great Plains.
- in Alberta, documented in the Mixedgrass and Central Parkland Subregions.
- found in brackish wetlands along outwash channels in Montana (Heidel et al 2000).
- characteristic of hypersaline ponds of greater than 50 o/oo salinity (Kantrud et al 1989).
- these types of ponds usually have an unvegetated shore due to their strongly saline nature.
- species is given as Ruppia maritima in Moss (1983).

Forest/Woodland

Picea mariana Group

Picea mariana southernmost population

Black spruce southernmost population

CEAB000123

Alberta Rank: **SU** Global Rank: **GNR**

- southernmost population of Picea mariana in Alberta is found in the Bragg Creek area
- significant due to the disjunct nature of the community

Populus tremuloides Group

Populus tremuloides - P. balsamifera / Alnus viridus / Calamagrostis canadensis

aspen - balsam poplar / green alder / bluejoint

CEAB000085

Alberta Rank: **S3?** Global Rank: **GNR**

- an open, mature Foothills community type with a tree canopy cover of 30% or less.
- alder and bluejoint dominate the understory (Willoughby and Downing 1995).
- with 55 plots in ESIS, the community is not considered rare.
- recommended for the watch list due to its significance as wildlife habitat and concern regarding impacts of on-going logging and because it is thought to be a fairly restricted range.

Pseudotsuga menziesii Group

Pseudotsuga menziesii / Leymus innovatus

Douglas-fir / hairy wild rye

CEAB000125

Alberta Rank: **S3?** Global Rank: **GNR**

- found on xeric to subxeric, south-facing slopes on morainal or colluvial landforms.
- primarily restricted to the Montane Natural Subregion, as far north as the Athabasca River valley in Jasper National Park.
- Douglas-fir is dominant in a usually closed tree canopy, although lodgepole pine is present in some stands.
- a moderatly well-developed shrub layer is dominated by ground juniper (10 to 25% cover).
- pine reed grass is the dominant grass in more southern stands, hairly wild rye in northern ones.
- type C1 (Corns and Achuff 1982)
- prescribed burning may be required to maintain the community type.

Shrubland

Betula pumila Group

Betula pumila - Salix spp. / Carex spp.

dwarf birch - willow / sedges

CEAB000126

Alberta Rank: **S3?** Global Rank: **GNR**

- Parkland string fens (sand plain fens in Wallis 1990)
- disjunct community, extremely localized
- further work is needed to characterize these communities

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APPENDIX 1
DEFINITIONS OF PHYSIOGNOMIC CLASSES

Physiognomic classes for terrestrial ecological communities
As used in the ACIMS Ecological Community Tracking List (based on Maybury 1999)

Forest / Woodland
Stands of trees that may be:

- woodlands with a generally open physiognomy (25 to 60 % cover) or
- forests with a generally closed physiognomy (60 to 100% cover). The crowns of the trees are generally overlapping.

These two classes have been grouped in the tracking list as the data are often missing to determine in which class a treed type best fits.

Shrubland
An ecological community dominated by shrubs generally greater than 0.5m tall. Individuals or clumps may be overlapping to not touching, but usually have greater than 25% cover. If trees are present, they have less than 25% cover.

Dwarf Shrubland
An ecological community that is dominated by low-growing shrubs generally less than 0.5m tall. Individuals or clumps may be overlapping to not touching, but usually have greater than 25% cover. If trees or tall shrubs are present, they have less than 25% cover.

Shrub Herbaceous
Herbaceous plants dominate with at least 25% cover. Tall or dwarf shrubs are present and provide a significant structural component to the community, but with less than 25% cover.

Herbaceous
Herbaceous plants dominate with at least 25% cover. If trees or tall or dwarf shrubs are present, they have less than 25% cover and do not provide a significant structural component to the community.

Sparsely Vegetated
Abiotic substrate is dominant. Vegetation is scattered to nearly absent. The total vegetation typically has less than 25% cover.

Physiognomic classes for aquatic ecological communities
As used in the ACIMS Ecological Community Tracking List

Emergent Aquatic
Rooted or attached aquatic plants (vascular and non-vascular) with uppermost leaves emerging above the water surface.

Floating-leaved Aquatic
Rooted or attached aquatic plants (vascular and non-vascular) with uppermost leaves floating on the water surface. Flowers and flowering structures may be emergent above or floating on the water surface.

Submergent Aquatic
Rooted or attached aquatic plants (vascular and non-vascular) with uppermost leaves submerged below the water surface. Flowers and flowering structures may be emergent above or floating on the water surface.

APPENDIX 2

ECOLOGICAL COMMUNIITY PATTERN TYPES

Ecological communities can be divided into three main pattern types:

- **Matrix communities** are widespread and cover large areas across the landscape.
- **Large patch communities** are less extensive and cover less of the landscape, but overall may still form large, uninterrupted patches.
- **Small patch communities** form small, discrete areas, usually associated with specific, specialised habitats, such as cliff faces or saline seepages.

APPENDIX 3
TRACKED ECOLOGICAL COMMUNITIES BY NATURAL REGION

The following table lists the ecological community types on the tracking list in alphabetical order of scientific name. Communities new to the tracking list for 2012 are shaded in grey, as is any information that has changed (e.g. a type may be re-ranked and a new rank would be signalled by that field being shaded grey).

Each type has a unique code, given in the left-hand column. Codes that begin with CEAB indicate a community that is recognized in Alberta, but that has not been formally compared with types outside the province. Codes that begin with CEGL indicate a more widely recognized type that has both a provincial SRank as well as a global GRank. When they are available, both ranks are provided in the tracking list itself, as well as in the following table. This table is provided to aid in use of the tracking list and every attempt is made to keep it updated, but in the case of a discrepancy, the tracking list should be considered correct.

Also provided in the table is the class and group that the type can be located under in the actual tracking list. The last series of columns lists the Natural Regions and Subregions for Alberta. For each tracking list community, the Natural Region it is known or thought to occur in is coloured. The following code is then given within the associated subregion.

C – Confirmed
: The element is confirmed to occur within the subregion.

P – Potential
: The element potentially occurs in the subregion but has yet to be confirmed.

U – Unlikely
: Although the element occurs in the Region, it is unlikely to occur in the subregion. The subregion may be outside the range of the associated characteristic species for the type, the habitat may not be thought to occur in the subregion or there may be some other reason.

This table is available as an excel spreadsheet. Requests can be forwarded to ACIMS.Data@gov.ab.ca.

						BOREAL FOREST								SHIELD	FOOTHILLS		ROCKY MTNS				PARKLAND			GRASSLAND			
CODE	SCIENTIFIC NAME	COMMON NAME	RANK	CLASS	GROUP	DM	CM	NM	LBH	UBH	Bsub	PAD	AP	KU	LF	UF	Mon	Mon-Cypress Hills	SubA	A	CP	FP	PrP	DMx	Mx	NF	FF
CEGL000317	*Abies bifolia - Picea engelmannii / Luzula hitchcockii* woodland	subalpine fir - Engelmann spruce / smooth wood-rush woodland	S1S2 G5	Forest/ Woodland	*Picea engelmannii*												U	U	C	U							
CEGL000322	*Abies bifolia - Picea engelmannii / Oplopanax horridus*	subalpine fir - Engelmann spruce / devil's-club	SNR G3	Forest/ Woodland	*Picea engelmannii*												U	U	P	U							
CEGL005920	*Abies bifolia - Picea engelmannii / Streptopus amplexifolius - Luzula hitchcockii* woodland	subalpine fir - Engelmann spruce / clasping-leaved twisted-stalk - smooth wood rush woodland	S2S3 G2G3	Forest/ Woodland	*Picea engelmannii*												U	U	C	U							
CEGL005914	*Abies bifolia - Picea engelmannii / Vaccinium scoparium / Xerophyllum tenax* forest	subalpine fir - Engelmann spruce / grouseberry / bear-grass forest	S1 G4G5	Forest/ Woodland	*Picea engelmannii*												U	U	C	U							
CEGL005823	*Abies bifolia - Picea engelmannii / Valeriana sitchensis* woodland	subalpine fir - Engelmann spruce / mountain valerian woodland	S2? G2?	Forest/ Woodland	*Picea engelmannii*												U	U	C	U							
CEAB000050	*Abies bifolia – Pinus albicaulis – Picea engelmannii / Empetrum nigrum*	subalpine fir - whitebark pine - Engelmann spruce / crowberry	S2	Forest/ Woodland	*Pinus albicaulis*												U	U	C	U							
CEAB000124	*Abies bifolia - Pinus albicaulis - Picea engelmannii / Vaccinium scoparium* forest	subalpine fir - whitebark pine - Engelmann spruce / grouseberry forest	S2	Forest/ Woodland	*Pinus albicaulis*												U	U	C	U							
CEAB000051	*Abies bifolia – Pinus albicaulis / Xerophyllum tenax*	subalpine fir - whitebark pine / beargrass	S1S2	Forest/ Woodland	*Pinus albicaulis*												U	U	C	U							
CEAB000052	*Abies bifolia – Pinus flexilis – Populus tremuloides / Thalictrum venulosum*	subalpine fir - limber pine - aspen / veiny meadow rue	S2?	Forest/ Woodland	*Pinus flexilis*												C	U	C	U							
CEGL000628	*Acer negundo / Prunus virginiana*	Manitoba maple / choke cherry	S1S2 G3	Forest/ Woodland	*Acer negundo*																C	U	U	C	U	P	U
CEAB000211	*Alnus incana ssp. tenuifolia / Matteuccia struthiopteris* shrubland	river alder / ostrich fern shrubland	S2?	Shrubland	*Alnus incana ssp. tenuifolia*	P	C	P	C	P	P	P	P														
CEAB000029	*Amelanchier alnifolia / Arctostaphylos uva-ursi / Oryzopsis pungens*	saskatoon / common bearberry / northern rice grass	S2S3	Shrubland	*Amelanchier alnifolia*	C	P	P	U	U	P	P	P								U	U	C				
CEGL001065	*Amelanchier alnifolia / Pseudoroegneria spicata* shrubland	saskatoon / bluebunch wheat grass shrubland	S2S3 G3G4Q	Shrubland	*Amelanchier alnifolia*												C	U	U	U	U	C	U				
CEAB000120	*Andromeda polifolia / Sarracenia purpurea / Sphagnum angustifolium*	bog rosemary / pitcher-plant / peat moss	S1S2	Shrubland	*Andromeda polifolia*	U	P	U	U	U	U	U	C	C													
CEAB000054	*Antennaria lanata – Artemisia norvegica*	woolly everlasting - mountain sagewort	S1	Herbaceous	*Artemisia norvegica*												U	U	C	C							
CEGL005899	*Aquilegia flavescens - Senecio megacephalus*	yellow columbine - large-flowered ragwort	SNR G2G3	Sparsely Vegetated	Scree slope												U	U	P	P							
CEGL005831	*Arctostaphylos uva-ursi / Pseudoroegneria spicata* dwarf shrubland	common bearberry / bluebunch wheat grass dwarf shrubland	S2S3 G2G3	Dwarf Shrubland	*Arctostaphylos uva-ursi*												C	U	C	U	U	C	U				
CEGL005832	*Arctostaphylos uva-ursi / Solidago multiradiata*	common bearberry / alpine goldenrod	SNR G2G3	Dwarf Shrubland	*Arctostaphylos uva-ursi*												U	U	P	P							
CEGL005855	*Arenaria capillaris / Polytrichum piliferum*	linear leaved sandwort / awned hair-cap moss	SNR G2G3	Herbaceous	*Arenaria capillaris*												U	U	P	P							
CEAB000207	*Aristida purpurea* grassland	red three-awn grassland	S1	Herbaceous	*Aristida purpurea*																			C	U	U	U
CEAB000156	*Artemisia cana - Atriplex nuttallii* badland slopes	silver sagebrush -Nuttall's atriplex badland slopes	S2S3	Sparsely Vegetated	*Artemisia cana*																			C	U	U	U
CEAB000155	*Artemisia cana - Sarcobatus vermiculatus / Stipa comata*	silver sagebrush - greasewood / needle-and-thread	S1S2	Shrub Herbaceous	*Artemisia cana*																			C	U	U	U
CEAB000154	*Artemisia cana / Festuca campestris - Stipa curtiseta*	silver sagebrush / mountain rough fescue - western porcupine grass	S1?	Shrub Herbaceous	*Artemisia cana*																			U	C	U	U
CEAB000153	*Artemisia cana / Festuca idahoensis*	silver sagebrush / Idaho fescue	SNR	Shrub Herbaceous	*Artemisia cana*																			U	P	U	P
CEAB000174	*Artemisia cana / Pascopyrum smithii - Elymus lanceolatus*	silver sagebrush / western wheat grasses - northern wheat grasses	S2S3	Shrub Herbaceous	*Artemisia cana*																			C	U	U	U

						BOREAL FOREST								SHIELD	FOOTHILLS		ROCKY MTNS				PARKLAND			GRASSLAND			
CODE	SCIENTIFIC NAME	COMMON NAME	RANK	CLASS	GROUP	DM	CM	NM	LBH	UBH	Bsub	PAD	AP	KU	LF	UF	Mon	Mon-Cypress Hills	SubA	A	CP	FP	PrP	DMx	Mx	NF	FF
CEAB000173	*Artemisia cana / Pascopyrum smithii - Elymus lanceolatus - Atriplex nuttallii* saline flats	silver sagebrush / wheat grasses - Nuttall's atriplex saline flats	S2S3	Shrub Herbaceous	*Artemisia cana*																			C	U	U	U
CEAB000151	*Artemisia cana / Stipa comata – Calamovilfa longifolia*	silver sagebrush / needle-and-thread - sand grass	S3	Shrub Herbaceous	*Artemisia cana*																			C	U	U	U
CEAB000193	*Artemisia cana / Stipa comata - Pascopyrum smithii - Bouteloua gracilis*	silver sagebrush / needle-and-thread - western wheat grass - blue grama	S2?	Shrub Herbaceous	*Artemisia cana*																			C	U	U	U
CEAB000152	*Artemisia cana / Stipa curtiseta – Elymus lanceolatus*	silver sagebrush / western porcupine grass – northern wheat grass	S1S2	Shrub Herbaceous	*Artemisia cana*																			C	U	U	U
CEAB000157	*Artemisia cana / Stipa viridula – Pascopyrum smithii*	silver sagebrush / green needle grass - western wheat grass	S2S3	Shrubland	*Artemisia cana*																			C	U	U	U
CEAB000219	*Artemisia longifolia* bare shale community	long-leaved sagewort - bare shale community	S1S2	Sparsely Vegetated	*Artemisia longifolia*																			C	U	P	U
CEGL001521	*Artemisia longifolia - Calamovilfa longifolia* badland community	long-leaved sagewort - sand grass badland community	S1S2 G3G4	Sparsely Vegetated	*Artemisia longifolia*																			C	U	U	U
CEAB000097	*Artemisia longifolia - Chrysothamnus nauseosus*	long-leaved sagewort - rabbitbrush	S1	Sparsely Vegetated	*Artemisia longifolia*																			C	U	U	U
CEAB000055	*Artemisia norvegica – Mertensia paniculata – Leymus innovatus*	mountain sagewort - tall lungwort - hairy wild rye	S1	Herbaceous	*Artemisia norvegica*												U	U	C	C							
CEAB000008	*Artemisia tridentata* ssp. *vaseyana - Amelanchier alnifolia*	big sagebrush - saskatoon slope community	S1	Shrub Herbaceous	*Artemisia tridentata* ssp. *vaseyana*												C	U	U	U							
CEAB000010	*Artemisia tridentata* ssp. *vaseyana – Rhamnus alnifolia*	big sagebrush - alder-leaved buckthorn	S1	Shrub Herbaceous	*Artemisia tridentata* ssp. *vaseyana*												C	U	U	U							
CEGL005900	*Athyrium alpestre* var *americanum - Cryptogramma acrostichoides*	alpine spleenwort - parsley fern	SNR G2G3	Sparsely Vegetated	*Athyrium alpestre* var *americanum*												U	U	P	P							
CEAB000161	*Atriplex subspicata - Puccinellia nuttalliana - Triglochin palustris* string fen	spearscale saltbrush - Nuttall's salt-meadow grass - slender arrow grass	S1S3	Herbaceous	*Puccinellia nuttalliana*	U	P	C	U	U	U	U	U														
CEAB000115	*Betula glandulosa / Festuca campestris*	bog birch / mountain rough fescue	S2S3	Shrubland	*Betula glandulosa*										P	C											
CEAB000175	*Betula neoalaskana / Ledum groenlandicum*	Alaska birch / common Labrador tea	S1S2	Forest/ Woodland	*Betula neoalaskana*	C	P	U	U	U	U	U	U								P	U	U				
CEAB000214	*Betula neoalaskana – Picea glauca / Salix discolor / Equisetum arvense* swamp forest community	Alaska birch - white spruce / pussy willow / common horsetail swamp forest community	S1S2	Forest/ Woodland	*Betula neoalaskana*	P	U	U	U	U	U	U	U								C	U	U				
CEAB000056	*Betula occidentalis - Amelanchier alnifolia / Artemisia campestris - Elymus lanceolatus (Agropyron dasystachyum)*	water birch - saskatoon / plains wormwood - northern wheat grass	S1	Shrubland	*Betula occidentalis*												C	U	U	U							
CEAB000176	*Betula occidentalis / Juniperus horizontalis*	Water birch / creeping juniper	S2S3	Shrubland	*Betula occidentalis*																C	U	U				
CEAB000169	*Betula occidentalis* grassland riparian shrubland	water birch grassland riparian shrubland	S2S3	Shrubland	*Betula occidentalis*																U	P	U	C	C	U	C
CEGL001080	*Betula occidentalis* montane shrubland	water birch montane shrubland	S1S2 G3G4	Shrubland	*Betula occidentalis*												P	U	U	U	U	C	U				
CEAB000016	*Betula papyrifera / Betula occidentalis / Arctostaphylos uva-ursi*	white birch / water birch / common bearberry	S1	Forest/ Woodland	*Betula papyrifera*												C	U	U	U							
CEAB000224	*Betula papyrifera / Lycopodium obscurum - Lycopodium annotinum woodland*	white birch / ground-pine - stiff club-moss woodland	S2?	Forest/ Woodland	*Betula papyrifera*										C	P											
CEAB000177	*Betula papyrifera / Shepherdia canadensis*	paper birch / buffaloberry	S1S2	Forest/ Woodland	*Betula papyrifera*																C	U	U				
CEAB000210	*Betula pumila - Ledum groenlandicum / Juncus balticus / Tomentypnum nitens - Hylocomium splendens* slope fen	dwarf birch - common Labrador tea / wire rush / golden moss - stair-step moss slope fen	S1?	Shrubland	*Betula pumila*										P	C											

						BOREAL FOREST								SHIELD	FOOTHILLS		ROCKY MTNS				PARKLAND			GRASSLAND			
CODE	SCIENTIFIC NAME	COMMON NAME	RANK	CLASS	GROUP	DM	CM	NM	LBH	UBH	Bsub	PAD	AP	KU	LF	UF	Mon	Mon-Cypress Hills	SubA	A	CP	FP	PrP	DMx	Mx	NF	FF
CEAB000194	*Bouteloua gracilis - Distichlis stricta - Stipa comata*	blue grama - salt grass - needle-and-thread	S2S3	Herbaceous	*Bouteloua gracilis*																			C	U	U	U
CEAB000160	*Calamagrostis stricta - Triglochin maritima* string fen	narrow reed grass - seaside arrowgrass sting fen	S1S3	Herbaceous	*Calamagrostis stricta*	U	P	C	U	U	U	U	U														
CEAB000178	*Calamovilfa longifolia – Sporobolus cryptandrus*	Sand grass – sand dropseed	S2S3	Herbaceous	*Calamovilfa longifolia*																C	U	U				
CEGL001473	*Calamovilfa longifolia - Stipa comata*	sand grass - needle-and-thread	S3 G3	Herbaceous	*Calamovilfa longifolia*																			C	U	U	U
CEGL005863	*Carex albonigra - Myosotis alpestris* herbaceous vegetation	black-and-white sedge - alpine forget-me-not herbaceous vegetation	S2S3 G2G3	Herbaceous	*Carex albonigra*												U	U	U	C							
CEAB000179	*Carex limosa - Menyanthes trifoliata - Cardamine pratensis*	mud sedge - buck-bean - meadow bitter cress	S1S2	Herbaceous	*Carex limosa*	U	C	U	U	U	U	U	U														
CEAB000113	*Carex limosa - Scheuchzeria palustris / Sphagnum teres - S. subsecundum*	mud sedge - scheuchzeria / peat moss	S1	Herbaceous	*Carex limosa*	U	C	U	U	U	U	U	U														
CEAB000031	*Carex limosa / Sphagnum jensenii*	mud sedge / pendant branch peat moss	S1	Herbaceous	*Carex limosa*	U	U	U	U	C	U	U	U		U	C											
CEGL001813	*Carex nebrascensis* community	Nebraska sedge community	S2 G4	Herbaceous	*Carex nebrascensis*																			P	C	U	U
CEAB000121	*Carex oligosperma / Sphagnum subsecundum*	few-fruited sedge / twisted bog moss	S1S2	Herbaceous	*Carex oligosperma*	U	P	U	U	U	U	U	C														
CEAB000037	*Carex pseudocyperus - Calla palustris*	cyperus-like sedge - water arum	S2	Herbaceous	*Carex pseudocyperus*	C	P	P	U	U	U	C	C	P							C	U	U				
CEAB000212	*Carex retrorsa* marsh	turned sedge marsh	S1S2	Herbaceous	*Carex retrosa*	P	C	U	U	U	U	U	U								P	U	U				
CEAB000191	*Carex rostrata* marsh	beaked sedge marsh	S2	Herbaceous	*Carex rostrata*	P	P	P	P	P	C	P	P	C													
CEAB000208	*Carex* spp. - *Stipa curtiseta - Danthonia intermedia* grassland	upland sedge - western porcupine grass - intermediate oat grass grassland	S1?	Herbaceous	*Stipa curtiseta*	P	U	U	U	U	U	U	U								U	U	C				
CEAB000132	*Carex stenophylla - Pascopyrum smithii* slope grassland	low sedge - western wheat grass slope grassland	S1	Herbaceous	*Pascopyrum smithii*	C	U	U	U		U	U	P								U	U	P				
CEAB000122	*Chamaedaphne calyculata - Kalmia polifolia / Cladina mitis*	leatherleaf - northern laurel / green reindeer lichen	S1S2	Shrubland	*Chamaedaphne calyculata*	U	P	U	U	U	U	U	C														
CEAB000058	*Crataegus chrysocarpa / Heracleum lanatum - Urtica dioica - Viola canadensis*	round-leaved hawthorn / cow parsnip - common nettle - western Canada violet	S1S2	Shrubland	*Crataegus chrysocarpa*												U	C	U	U				U	C	C	U
CEAB000162	*Cymbella pusilla - Mastogloia smithii - Nitzschia palea*	diatom ponds	S1S3	Aquatic	Diatom ponds	U	P	C	U	U	U	U	U				U	U	P	P							
CEAB000100	*Danthonia californica – Carex brevior*	California oat grass - slender-beaked sedge	S2	Herbaceous	*Danthonia californica*																			C	U	U	U
CEAB000059	*Danthonia parryi – Festuca idahoensis - Festuca campestris*	Parry oat grass - Idaho fescue - mountain rough fescue	SU	Herbaceous	*Festuca idahoensis*												C	U	U	U							
CEAB000101	*Danthonia unispicata – Elymus lanceolatus – Pascopyrum smithii*	one-spike oat grass - northern wheat grass - western wheat grass	S2	Herbaceous	*Danthonia unispicata*																			C	U	U	U
CEAB000133	*Distichlis stricta - Pascopyrum smithii*	salt grass - western wheat grass	S2	Herbaceous	*Pascopyrum smithii*																C	U	U	C	U	C	U
CEAB000024	*Dryas integrifolia – Carex rupestris*	white mountain avens - rock sedge	S1	Dwarf Shrubland	*Dryas integrifolia*												U	U	C	U							
CEGL001894	*Dryas octopetala - Polygonum viviparum*	white mountain avens - alpine bistort	S1S2 G3?	Dwarf Shrubland	*Dryas octopetala*												U	U	P	C							
CEAB000180	*Elaeagnus commutata – Prunus virginiana / Carex siccata*	Silverberry – chokecherry / hay sedge	S2S3	Shrubland	*Elaeagnus commutata*																C	U	U	P	U	U	P
CEAB000102	*Elaeagnus commutata / Pascopyrum smithii*	silverberry / western wheat grass	S3	Shrubland	*Elaeagnus commutata*																P	U	U	P	P	U	U
CEGL001098	*Elaeagnus commutata* riparian shrubland	silverberry riparian shrubland	SU G2Q	Shrubland	*Elaeagnus commutata*										P	U	P	P	U	U	U	P	U	P	P	U	P
CEAB000190	*Eleocharis quinqueflora* community	few-flowered spike-rush community	S1S2	Herbaceous	*Eleocharis quinqueflora*	U	U	U	U	U	C	U	U														

						BOREAL FOREST								SHIELD	FOOTHILLS		ROCKY MTNS				PARKLAND			GRASSLAND			
CODE	SCIENTIFIC NAME	COMMON NAME	RANK	CLASS	GROUP	DM	CM	NM	LBH	UBH	Bsub	PAD	AP	KU	LF	UF	Mon	Mon-Cypress Hills	SubA	A	CP	FP	PrP	DMx	Mx	NF	FF
CEAB000143	*Elymus lanceolatus - Antennaria parviflora*	northern wheat grass - small-leaved everlasting	S1	Herbaceous	*Elymus lanceolatus*												C	U	U	U							
CEAB000144	*Elymus lanceolatus - Artemisia dracunculus - Artemisia frigida*	northern wheat grass - dragonwort - pasture sagewort	S1	Herbaceous	*Elymus lanceolatus*												C	U	U	U							
CEAB000025	*Elymus lanceolatus - Artemisia frigida*	northern wheat grass - pasture sagewort	S2S3	Herbaceous	*Elymus lanceolatus*												C	U	U	U							
CEAB000142	*Elymus lanceolatus - Elymus trachycaulus*	northern wheat grass - slender wheat grass	S1	Herbaceous	*Elymus lanceolatus*												C	U	U	U							
CEAB000145	*Elymus lanceolatus - Muhlenbergia cuspidata*	northern wheat grass - plains muhly	SNR	Herbaceous	*Elymus lanceolatus*																			P	U	U	U
CEAB000146	*Elymus lanceolatus - Pascopyrum smithii*	northern wheat grass - western wheat grass	S2?	Herbaceous	*Elymus lanceolatus*	C	U	U	U	U	U	U	U								U	U	P	C	U	U	U
CEAB000147	*Elymus lanceolatus - Stipa comata*	northern wheat grass - needle-and-thread	S2	Herbaceous	*Elymus lanceolatus*												C	U	U	U	U	C	U	C	C	U	P
CEAB000087	*Elymus trachycaulus - Carex atherodes*	slender wheat grass - awned sedge	S1	Herbaceous	*Elymus trachycaulus*																U	U	C				
CEAB000148	*Elymus trachycaulus - Distichlis stricta*	slender wheat grass - salt grass	S1	Herbaceous	*Elymus trachycaulus*	U	P	C	U	U	U	U	U														
CEAB000149	*Elymus trachycaulus - Hierochloe hirta* ssp. *arctica*	slender wheat grass - sweet grass	SU	Herbaceous	*Elymus trachycaulus*	C	P	P	U	U	U	P	U														
CEAB000150	*Elymus trachycaulus - Koeleria macrantha*	slender wheat grass - June grass	SU	Herbaceous	*Elymus trachycaulus*	U	U	C	U	U	U	U	U				P	U	P	U							
CEAB000086	*Elymus trachycaulus - Stipa* spp.	slender wheat grass - needle grass species	S1	Herbaceous	*Elymus trachycaulus*																U	U	C				
CEAB000103	*Erigeron radicatus - Phlox hoodii - Eriogonum flavum*	dwarf fleabane - moss phlox - yellow umbrella-plant	S1	Sparsely Vegetated	*Erigeron radicatus*																			C	U	U	U
CEAB000220	*Eurotia lanata / Schedonnardus paniculatus* ephemeral drainage	winter-fat / tumble grass ephemeral drainage	S1S2	Sparsely Vegetated	*Eurotia lanata*																			C	U	U	U
CEAB000116	*Festuca altaica - Deschampsia caespitosa*	northern rough fescue - tufted hair grass	S1	Herbaceous	*Festuca altaica*										U	P	U	U	C	U							
CEAB000061	*Festuca altaica - Leymus innovatus (Elymus innovatus)*	northern rough fescue - hairy wild rye	S1	Herbaceous	*Festuca altaica*												U	U	C	U							
CEAB000117	*Festuca campestris - Deschampsia caespitosa*	mountain rough fescue - tufted hair grass	S1	Herbaceous	*Festuca campestris*										U	C											
CEAB000118	*Festuca campestris - Leymus innovatus (Elymus innovatus)*	mountain rough fescue - hairy wild rye	S2S3	Herbaceous	*Festuca campestris*										U	C	U	U	C	U							
CEGL001629	*Festuca campestris - Pseudoroegneria spicata* grassland	mountain rough fescue - bluebunch wheat grass grassland	S1S2 G4	Herbaceous	*Festuca campestris*												C	U	C	U	U	C	U				
CEAB000202	*Festuca campestris - Stipa curtiseta*	mountain rough fescue - western porcupine grass	S2S3	Herbaceous	*Festuca campestris*												U	C	U	U							
CEAB000104	*Festuca hallii* grassland	plains rough fescue grassland	S1	Herbaceous	*Festuca hallii*																C	U	U	U	U	C	U
CEAB000033	*Festuca hallii - Calamovilfa longifolia*	plains rough fescue - sand grass	S1	Herbaceous	*Festuca hallii*																C	U	U	U	U	C	U
CEAB000034	*Festuca hallii - Carex* spp. */ Arctostaphylos uva-ursi*	plains rough fescue - sedges / common bearberry	S1	Herbaceous	*Festuca hallii*																C	U	U	U	U	C	U
CEAB000198	*Festuca hallii - Koeleria macrantha - Elymus lanceolatus*	plains rough fescue - June grass - northern wheat grass	S1S2	Herbaceous	*Festuca hallii*																			U	P	U	U
CEAB000035	*Festuca hallii - Koeleria macrantha / Juniperus horizontalis /* forbs	plains rough fescue - June grass / creeping juniper / forbs	S2	Herbaceous	*Festuca hallii*																C	U	U	U	U	C	U
CEAB000199	*Festuca hallii - Muhlenbergia cuspidata*	plains rough fescue - plains muhly	S1S2	Herbaceous	*Festuca hallii*																			U	C	U	U
CEAB000030	*Festuca hallii - Stipa curtiseta* grassland	plain's rough fescue - western porcupine grass grassland	S2S3	Herbaceous	*Festuca hallii*																C	P	U	P	P	C	P
CEAB000032	*Festuca hallii - Stipa viridula*	plains rough fescue - green needle grass	S1	Herbaceous	*Festuca hallii*																P	U	U	U	U	C	U
CEGL001621	*Festuca idahoensis - Elymus lanceolatus (Agropyron dasystachyum) - Stipa comata*	Idaho fescue - northern wheat grass - needle-and-thread	S3 G4	Herbaceous	*Festuca idahoensis*																			U	P	U	C

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CEGL001624	*Festuca idahoensis - Pseudoroegneria spicata* grassland	Idaho fescue - bluebunch wheat grass grassland	S1S2 G4	Herbaceous	*Festuca idahoensis*												C	U	C	U							
CEAB000171	*Glyceria borealis - Sium suave - Sparganium angustifolium*	northern manna grass - water parsnip - narrow leaved bur-reed	S1?	Aquatic	Floating-leaved aquatic									C													
CEAB000105	*Glyceria striata* community	fowl manna grass community	SU	Herbaceous	*Glyceria striata*																			C	U	P	U
CEAB000225	*Hudsonia tomentosa* sand flats	sand heather sand flats	S2?	Sparsely Vegetated	*Hudsonia tomentosa*	P	P	U	U	U	U	U	C	P													
CEAB000106	*Hippuris vulgaris - Ranunculus circinatus - Callitriche* sp.	common mare's-tail - white water crowfoot - water-starwort	SU	Aquatic	Emergent aquatic																			C	P	U	U
CEAB000159	*Isoetes bolanderi* aquatic community	Bolander's quillwort aquatic community	S1	Aquatic	Submergent aquatic												U	U	C	U							
CEAB000036	*Isoetes echinospora* aquatic community	northern quillwort aquatic community	S1	Aquatic	Submergent aquatic	U	P	P	C	P	P	U	C	C													
CEAB000062	*Juncus drummondii – Carex saxatilis – Ranunculus eschscholtzii*	Drummond's rush - rocky-ground sedge - snow buttercup	S1?	Herbaceous	*Juncus drummondii*												U	U	U	C							
CEAB000119	*Juncus filiformis / Sphagnum* spp.	thread rush / peat moss	S1S2	Herbaceous	*Juncus filiformis*										U	C											
CEGL005871	*Juncus parryi / Sibbaldia procumbens* snowbed community	Parry's rush / sibbaldia snowbed community	S1S2 G3G4	Herbaceous	*Juncus parryi*												U	U	C	C							
CEAB000088	*Juniperus horizontalis / (Koeleria macrantha) / Cladina mitis*	creeping juniper - (June grass) / green reindeer lichen	S1S2	Sparsely Vegetated	*Juniperus horizontalis*																C	U	U				
CEAB000181	*Juniperus horizontalis / Calamovilfa longifolia – Carex pensylvanica* ssp. *heliophila*	Creeping juniper / sand grass – sun-loving sedge	S2S3	Dwarf Shrubland	*Juniperus horizontalis*																C	U	U				
CEAB000007	*Juniperus horizontalis / Carex pensylvanica - Eriogonum flavum* badland community	creeping juniper / sun-loving sedge- yellow umbrella-plant badland community	S1S2	Sparsely Vegetated	*Juniperus horizontalis*																			C	U	U	U
CEAB000026	*Koeleria macrantha – Artemisia frigida – Linum lewisii*	June grass - pasture sagewort - wild blue flax	S2S3	Herbaceous	*Artemisia frigida*												C	U	U	U							
CEAB000134	*Koeleria macrantha - Pascopyrum smithii*	June grass - western wheat grass	S1S2	Herbaceous	*Pascopyrum smithii*																C	U	C				
CEAB000188	*Larix laricina - Picea mariana / Cornus stolonifera - Rubus idaeus*	tamarack - black spruce / red-osier dogwood - wild red raspberry	S1S2	Forest/ Woodland	*Picea mariana*	P	P	U	U	U	U	U	U								C	U	U				
CEAB000038	*Larix laricina / Carex prairea*	tamarack / prairie sedge	S1	Forest/ Woodland	*Larix laricina*	C	P	U	U	U	U	U	U														
CEAB000063	*Larix lyallii / Luzula hitchcockii*	subalpine larch / smooth wood rush	S2?	Forest/ Woodland	*Larix lyallii*												U	U	C	U							
CEGL005884	*Larix lyallii / Vaccinium membranaceum / Luzula hitchcockii* woodland	subalpine larch / tall bilberry / smooth wood-rush woodland	S2 G2G3	Forest/ Woodland	*Larix lyallii*												U	U	C	U							
CEAB000003	*Larix occidentalis / Rubus parviflorus*	western larch / thimbleberry	S1	Forest/ Woodland	*Larix occidentalis*												C	U	P	U							
CEAB000172	*Leymus mollis - Tanacetum bipinnatum ssp. huronense* shoreline dune	American dune grass - Indian tansy shoreline dune	S1	Sparsely Vegetated	*Leymus mollis*	U	U	U	U	U	U	U	P	C													
CEAB000064	*Lupinus nootkatensis* meadow	Nootka lupine meadow	S2?	Herbaceous	*Lupinus nootkatensis*												U	U	C	U							
CEGL005888	*Menziesia ferruginea / Xerophyllum tenax* shrubland	false azalea / bear-grass shrubland	S1S2 G3G4	Shrubland	*Menziesia ferruginea*												U	U	C	U							
CEAB000158	*Muhlenbergia asperifolia - Scirpus nevadensis - Distichlis stricta*	scratch grass - Nevada bulrush - salt grass	S1S2	Herbaceous	*Muhlenbergia asperifolia*																P	U	U	C	U	P	U
CEAB000107	*Oryzopsis hymenoides - Leymus canadensis*	Indian rice grass - hairy wild rye	S2?	Sparsely Vegetated	*Oryzopsis hymenoides*																			C	U	U	U
CEAB000192	*Pascopyrum smithii - Artemisia frigida - Opuntia polyacantha* grassland	western wheat grass - pasture sagewort - prickly-pear grassland	S2S3	Herbaceous	*Pascopyrum smithii*																			C	P	U	U
CEAB000135	*Pascopyrum smithii - Artemisia ludoviciana*	western wheat grass - prairie sagewort	S1S2	Herbaceous	*Pascopyrum smithii*																			C	U	U	U

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CEAB000136	*Pascopyrum smithii - Artemisia tilesii - Artemisia frigida*	western wheat grass - Herriot's sagewort - pasture sagewort	S1	Herbaceous	*Pascopyrum smithii*	C	U	U	U	U	U	U	U								U	U	C				
CEAB000137	*Pascopyrum smithii - Atriplex nuttallii*	western wheat grass - atriplex	S1	Sparsely Vegetated	*Pascopyrum smithii*																			C	U	U	U
CEAB000138	*Pascopyrum smithii - Bouteloua gracilis grassland*	western wheat grass - blue grama grassland	S2?	Herbaceous	*Pascopyrum smithii*																			C	P	U	U
CEAB000195	*Pascopyrum smithii - Carex stenophylla*	western wheat grass - low sedge	S2S3	Herbaceous	*Pascopyrum smithii*																			C	P	U	U
CEAB000139	*Pascopyrum smithii - Hordeum jubatum*	western wheat grass - foxtail barley	S1	Herbaceous	*Pascopyrum smithii*																P	U	U	U	U	C	U
CEAB000140	*Pascopyrum smithii - Pyrrocoma uniflora*	western wheat grass - one-flowered ironplant	S1	Sparsely Vegetated	*Pascopyrum smithii*												C	U	U	U							
CEAB000065	*Penstemon ellipticus* talus barren	creeping beardtongue talus barren	S1?	Sparsely Vegetated	*Penstemon ellipticus*												U	U	U	C							
CEGL005901	*Phacelia hastata - (Penstemon ellipticus)* scree slope sparse vegetation	silver-leaved scorpionweed-(creeping beardtongue) scree slope sparse vegetation	S2S3 G2G3	Sparsely Vegetated	Scree slope												U	U	C	C							
CEGL005877	*Phyllodoce glanduliflora / Sibbaldia procumbens*	yellow heather / sibbaldia	SU G2G3	Dwarf Shrubland	*Phyllodoce glanduliflora*												U	U	P	P							
CEAB000017	*Picea engelmannii - Abies bifolia / Dryas octopetala*	Engelmann spruce - subalpine fir / white mountain avens	S2S3	Forest/ Woodland	*Picea engelmannii*												U	U	C	U							
CEAB000066	*Picea engelmannii – Abies bifolia / Salix planifolia / Hylocomium splendens*	Engelmann spruce - subalpine fir / flat-leaved willow / stair-step moss	S1?	Forest/ Woodland	*Picea engelmannii*												U	U	C	U							
CEAB000018	*Picea engelmannii – Abies bifolia / Salix vestita / Cassiope tetragona*	Engelmann spruce - subalpine fir / rock willow / white mountain-heather	S2	Forest/ Woodland	*Picea engelmannii*												U	U	C	U							
CEAB000226	*Picea engelmanniii - Pinus albicaulis / Menziesia ferruginea* forest	Engelmann Spruce - whitebark pine / false azalea forest	S2	Forest/ Woodland	*Pinus albicaulis*												U	U	C	U							
CEAB000019	*Picea engelmannii / Leymus innovatus*	Engelmann spruce / hairy wild rye	S2	Forest/ Woodland	*Picea engelmannii*												U	U	C	U							
CEAB000067	*Picea engelmannii / Salix drummondiana*	Engelmann spruce / Drummond's willow	S1?	Forest/ Woodland	*Picea engelmannii*												U	U	C	U							
CEAB000068	*Picea engelmannii / Salix vestita*	Engelmann spruce / rock willow	S2?	Forest/ Woodland	*Picea engelmannii*												U	U	C	U							
CEAB000070	*Picea glauca / Abietinella abietina*	white spruce / fern moss	S2S3	Forest/ Woodland	*Picea glauca*												C	U	C	U							
CEAB000040	*Picea glauca / Alnus incana ssp. tenuifolia – Betula neoalaskana / Equisetum pratense / Hylocomium splendens*	white spruce / river alder - Alaska birch / meadow horsetail / stair-step moss	S3	Forest/ Woodland	*Picea glauca*	P	C	P	U	U	U	U	U														
CEAB000069	*Picea glauca / Betula pumila - Salix bebbiana / Carex eburnea*	white spruce / dwarf birch - beaked willow / bristle-leaved sedge	S1?	Forest/ Woodland	*Picea glauca*												C	U	U	U							
CEAB000041	*Picea glauca / Cetraria islandica*	white spruce / lichen	S1?	Forest/ Woodland	*Picea glauca*	U	C	P	U	U	U	U	P														
CEAB000222	*Picea glauca / Equisetum scirpoides* forest	white spruce / dwarf scouring-rush forest	SU	Forest/ Woodland	*Picea glauca*	P	P	P	P	C	P	U	P														
CEAB000020	*Picea glauca / Rosa acicularis / Abietinella abietina*	white spruce / prickly rose / fern moss	S1	Forest/ Woodland	*Picea glauca*												C	U	U	U							
CEAB000021	*Picea glauca / Shepherdia canadensis / Abietinella abietina*	white spruce / Canada buffaloberry / fern moss	S2	Forest/ Woodland	*Picea glauca*												C	U	P	U							
CEAB000204	*Picea mariana / Cladina stellaris*	black spruce / star-tipped reindeer lichen	S1	Forest/ Woodland	*Picea mariana*	U	U	U	U	P	C	U	U														
CEAB000189	*Picea mariana / Cornus stolonifera /* feathermoss	black spruce / red-osier dogwood / feathermoss	S1S2	Forest/ Woodland	*Picea mariana*	P	P	U	U	U	U	U	U								C	U	U				
CEAB000071	*Pinus albicaulis - Abies bifolia / Luzula hitchcockii - Vaccinium myrtillus*	whitebark pine - subalpine fir / smooth wood rush - low bilberry	S1S2	Forest/ Woodland	*Pinus albicaulis*												U	U	C	U							

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CEGL005840	*Pinus albicaulis – Picea engelmannii / Dryas octopetala* woodland	whitebark pine - Engelmann spruce / white mountain avens woodland	S1 G2G3	Forest/ Woodland	*Pinus albicaulis*												U	U	C	U							
CEAB000073	*Pinus albicaulis – Pinus contorta / Juniperus communis – Leymus innovatus – Linnaea borealis*	whitebark pine - lodgepole pine / ground juniper - hairy wild rye	S2S3	Forest/ Woodland	*Pinus albicaulis*												U	U	C	U							
CEAB000074	*Pinus albicaulis / Juniperus communis – Arctostaphylos uva-ursi*	whitebark pine / ground juniper - common bearberry	S2S3	Forest/ Woodland	*Pinus albicaulis*												U	U	C	U							
CEGL005929	*Pinus contorta / Cornus stolonifera* woodland	lodgepole pine / red-osier dogwood woodland	S2? G2G3	Forest/ Woodland	*Pinus contorta*												C	U	C	U							
CEAB000130	*Pinus contorta / Ledum groenlandicum / Vaccinium scoparium / Pleurozium schreberi*	lodgepole pine / common Labrador tea / grouseberry / Schreber's moss	S1?	Forest/ Woodland	*Pinus contorta*												U	U	C	U							
CEGL000164	*Pinus contorta / Spiraea betulifolia* forest	lodgepole pine / white meadowsweet forest	S2S3 G3G4	Forest/ Woodland	*Pinus contorta*												U	U	C	U							
CEAB000075	*Pinus flexilis - Pseudotsuga menziesii / Juniperus* spp. / *Arctostaphylos uva-ursi*	limber pine - Douglas-fir / juniper species / common bearberry	S2	Forest/ Woodland	*Pinus flexilis*												C	U	U	U							
CEAB000076	*Pinus flexilis / Arctostaphylos uva ursi - Juniperus horizontalis*	limber pine / common bearberry - creeping juniper	S2	Forest/ Woodland	*Pinus flexilis*												C	U	U	U							
CEGL000802	*Pinus flexilis / Arctostaphylos uva-ursi* woodland	limber pine / common bearberry woodland	S2 G4	Forest/ Woodland	*Pinus flexilis*												C	U	U	U							
CEGL000806	*Pinus flexilis / Festuca campestris* woodland	limber pine / mountain rough fescue woodland	S1S2 G3	Forest/ Woodland	*Pinus flexilis*												C	U	U	U							
CEGL000807	*Pinus flexilis / Juniperus communis* woodland	limber pine / common juniper woodland	S1S2 G5	Forest/ Woodland	*Pinus flexilis*												C	U	U	U							
CEGL000815	*Pinus flexilis* scree woodland	Limber pine scree woodland	S1S2 G3Q	Forest/ Woodland	*Pinus flexilis*												C	U	U	U							
CEGL002664	*Populus angustifolia / Cornus stolonifera*	narrow-leaf cottonwood / red-osier dogwood	S2S3 G4	Forest/ Woodland	*Populus angustifolia*												P	U	U	U				C	C	U	C
CEAB000166	*Populus angustifolia* / recent alluvial	narrow-leaf cottonwood / recent alluvial	S2S3	Sparsely Vegetated	*Populus angustifolia*												P	U	U	U				C	C	U	C
CEAB000184	*Populus angustifolia / Symphoricarpos occidentalis*	narrow-leaf cottonwood / buckbrush	S2S3	Forest/ Woodland	*Populus angustifolia*												P	U	U	U				C	C	U	P
CEAB000077	*Populus balsamifera - P. tremuloides / Alopecurus alpinus - Calamagrostis canadensis*	balsam poplar - aspen / alpine foxtail - bluejoint	S1S2	Forest/ Woodland	*Populus balsamifera*												C	U	U	U							
CEAB000042	*Populus balsamifera /Alnus incana ssp. tenuifolia - Cornus stolonifera / Equisetum pratense*	balsam poplar / river alder - red-osier dogwood / meadow horsetail	S3	Forest/ Woodland	*Populus balsamifera*	P	C	P	U	U	U	U	U													
CEAB000114	*Populus balsamifera / Rhamnus alnifolia / Equisetum arvense*	balsam poplar / alder-leaved buckthorn	S1	Forest/ Woodland	*Populus balsamifera*	U	C	U	U	U	U	U	U													
CEAB000043	*Populus balsamifera / Viburnum opulus / Matteuccia struthiopteris*	balsam poplar / high-bush cranberry / ostrich fern	S1S2	Forest/ Woodland	*Populus balsamifera*	P	C	U	P	U	U	U	U								P	U	U				
CEGL000542	*Populus balsamifera ssp. trichocarpa - (Populus tremuloides) / Heracleum lanatum* forest	black cottonwood - (aspen) / cow parsnip forest	S2 G2	Forest/ Woodland	*Populus balsamifera ssp. trichocarpa*												C	U	C	U							
CEGL005905	*Populus balsamifera ssp. trichocarpa - Picea engelmannii / Cornus stolonifera* forest	black cottonwood - Engelmann spruce / red-osier dogwood forest	S1S2 G2G3	Forest/ Woodland	*Populus balsamifera ssp. trichocarpa*												C	U	U	U							
CEGL005907	*Populus balsamifera ssp. trichocarpa - Picea engelmannii / Equisetum arvense* forest	black cottonwood - Engelmann spruce / common horsetail forest	S1S2 G2?	Forest/ Woodland	*Populus balsamifera ssp. trichocarpa*												C	U	U	U							
CEGL005845	*Populus balsamifera ssp. trichocarpa / Calamagrostis canadensis* forest	black cottonwood - conifer / bluejoint forest	S1S2 G2?	Forest/ Woodland	*Populus balsamifera ssp. trichocarpa*												C	U	U	U							
CEGL000657	*Populus deltoides / Cornus stolonifera*	plains cottonwood / red-osier dogwood	S2S3 G2G3	Forest/ Woodland	*Populus deltoides*																			C	U	U	U
CEAB000163	*Populus deltoides / Glycyrrhiza lepidota - Juncus balticus*	plains cottonwood / wild liquorice - wire rush	S2S3	Forest/ Woodland	*Populus deltoides*																			C	U	U	U

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CEAB000164	*Populus deltoides* / recent alluvial	plains cottonwood / recent alluvial	S1S3	Sparsely Vegetated	*Populus deltoides*																			C	U	U	U
CEAB000183	*Populus deltoides / Symphoricarpos occidentalis*	plains cottonwood / buckbrush	S2S3	Forest/ Woodland	*Populus deltoides*																			C	U	U	U
CEGL005908	*Populus tremuloides - Abies bifolia - Picea engelmannii / Streptopus amplexifolius* forest	aspen - subalpine fir - Engelmann spruce / clasping-leaved twisted-stalk forest	S1S2 G2G3	Forest/ Woodland	*Populus tremuloides*												C	U	C	U							
CEGL005886	*Populus tremuloides - Amelanchier alnifolia* avalanche chute shrubland	aspen - saskatoon avalanche chute shrubland	S1S2 G3?	Shrubland	*Populus tremuloides*												C	U	C	U							
CEAB000182	*Populus tremuloides / Juniperus horizontalis / Carex siccata*	Aspen / creeping juniper / hay sedge	S2S3	Forest/ Woodland	*Populus tremuloides*																C	U	U				
CEAB000023	*Populus tremuloides / Leymus innovatus – Aster conspicuus* avalanche community	aspen / hairy wild rye - showy aster avalanche community	S2	Forest/ Woodland	*Populus tremuloides*												C	U	C	C							
CEAB000022	*Populus tremuloides / Menziesia ferruginea*	aspen / false azalea	S1	Forest/ Woodland	*Populus tremuloides*												U	U	C	U							
CEAB000170	*Populus tremuloides / Rosa acicularis / Apocynum androsaemifolium*	aspen / prickly rose / spreading dogbane	S1S2	Forest/ Woodland	*Populus tremuloides*	P	P	U	U	U	U	C	P														
CEAB000078	*Populus tremuloides / Rubus parviflorus*	aspen / thimbleberry	S2	Forest/ Woodland	*Populus tremuloides*												C	U	U	U	U	P	U				
CEAB000044	*Populus tremuloides / Rubus parviflorus / Aralia nudicaulis*	aspen / thimbleberry / wild sarsaparilla	S2S3	Forest/ Woodland	*Populus tremuloides*	U	C	U	U	U	U	U	U		C	U											
CEAB000045	*Populus tremuloides / Salix bebbiana -Corylus cornuta / Calamagrostis canadensis – Matteuccia struthiopteris*	aspen / beaked willow - beaked hazelnut / bluejoint - ostrich fern	S1	Forest/ Woodland	*Populus tremuloides*	P	C	U	U	U	U	U	U														
CEAB000209	*Populus tremuloides / Vaccinium myrtilloides* woodland	aspen / common blueberry woodland	S2?	Forest/ Woodland	*Populus tremuloides*	C	C	U	U	U	U	U	P								U	U	C				
CEAB000223	*Populus x acuminata / Symphoricarpos occidentails*	lance-leaf cottonwood / buckbrush woodland	S1S2	Forest/ Woodland	*Populus x acuminata*																			C	C	U	P
CEAB000108	*Populus X jackii – Betula occidentalis / Salix lutea / Stipa comata*	cottonwood - water birch / yellow willow / needle-and-thread	S1	Forest/ Woodland	*Populus X jackii*																			C	U	U	U
CEAB000203	*Potentilla fruticosa / Festuca campestris - Danthonia intermedia*	shrubby cinquefoil /mountain rough fescue - intermediate oat grass	S2S3	Shrub Herbaceous	*Potentilla fruticosa*												U	C	U	U							
CEAB000196	*Prunus virginiana / Elymus lanceolatus - Koeleria macrantha*	choke cherry / northern wheat grass - June grass	S1S2	Shrubland	*Prunus virginiana*																			C	U	U	U
CEAB000131	*Pseudoroegneria spicata - Carex obtusata*	bluebunch wheat grass - blunt sedge	S1	Herbaceous	*Pseudoroegneria spicata*												C	U	C	U							
CEAB000081	*Pseudoroegneria spicata – Leymus innovatus – Aster conspicuus*	bluebunch wheat grass - hairy wild rye - showy aster	S1	Herbaceous	*Pseudoroegneria spicata*												C	U	P	U							
CEAB000079	*Pseudoroegneria spicata* grassland	bluebunch wheat grass grassland	S1	Herbaceous	*Pseudoroegneria spicata*												P	U	C	U							
CEAB000082	*Pseudotsuga menziesii - Pinus flexilis / Juniperus communis / Festuca campestris*	Douglas-fir - limber pine / ground juniper / mountain rough fescue	S2	Forest/ Woodland	*Pseudotsuga menziesii*												C	U	P	U							
CEGL005853	*Pseudotsuga menziesii / Angelica* spp. forest	Douglas-fir / angelica spp. forest	S1S2 G2?	Forest/ Woodland	*Pseudotsuga menziesii*												C	U	C	U							
CEAB000046	*Puccinellia nuttalliana – Suaeda calceoliformis – Spergularia marina* barren	Nuttall's salt-meadow grass - western sea-blite - salt-marsh sand spurry barren	S2	Sparsely Vegetated	*Puccinellia nuttalliana*	U	C	U	U	U	U	U	U														
CEGL001799	*Puccinellia nuttalliana* community	Nuttall's salt-meadow grass community	S3? G3?	Herbaceous	*Puccinellia nuttalliana*	U	U	P	U	U	U	U	U								C	U	C	C	U	C	U
CEGL001132	*Rhamnus alnifolia* shrubland	alder-leaved buckthorn shrubland	S1S2 G3	Shrubland	*Rhamnus alnifolia*												C	U	U	U							
CEAB000185	*Rhus trilobata / Stipa comata*	skunkbush / needle-and-thread	S2S3	Shrubland	*Rhus trilobata*																			C	P	U	U
CEAB000165	*Rumex venosus* sand dune community	wild begonia sand dune community	S2S3	Herbaceous	*Rumex venosus*																			C	U	U	U

						BOREAL FOREST								SHIELD	FOOTHILLS		ROCKY MTNS				PARKLAND			GRASSLAND			
CODE	SCIENTIFIC NAME	COMMON NAME	RANK	CLASS	GROUP	DM	CM	NM	LBH	UBH	Bsub	PAD	AP	KU	LF	UF	Mon	Mon-Cypress Hills	SubA	A	CP	FP	PrP	DMx	Mx	NF	FF
CEAB000091	*Ruppia cirrhosa* aquatic community	widgeon-grass aquatic community	S1	Aquatic	Submergent aquatic																C	P	U	P	C	P	U
CEGL001999	*Salicornia rubra* emergent marsh	samphire emergent marsh	S2 G2G3	Sparsely Vegetated	*Salicornia rubra*	C	C	C	U	U	U	C	U								C	U	U	C	P	P	U
CEGL000947	*Salix amygdaloides* woodland	peach-leaved willow woodland	S1S2 G3	Herbaceous	*Salix amygdaloides*																			C	U	U	U
CEAB000048	*Salix athabascensis* string shrubland	Athabasca willow string shrubland	SNR	Shrubland	*Salix athabascensis*	U	U	P	U	U	U	U	U														
CEAB000167	*Salix bebbiana / Cornus stolonifera*	beaked willow / red-osier dogwood	S3?	Shrubland	*Salix bebbiana*												C	U	U	U	C	C	U	C	P	P	P
CEAB000014	*Salix bebbiana / Rubus idaeus / Geranium richardsonii*	beaked willow / wild red raspberry / wild white geranium	S2	Shrubland	*Salix bebbiana*												C	U	U	U	U	C	U	U	U	U	P
CEGL002667	*Salix drummondiana / Calamagrostis canadensis* shrubland	Drummond's willow / bluejoint shrubland	S1 G3	Shrubland	*Salix drummondiana*												C	U	U	U							
CEAB000049	*Salix drummondiana / Scirpus microcarpus – Calamagrostis canadensis*	Drummond's willow / small-fruited bulrush - bluejoint	S1	Shrubland	*Salix drummondiana*	P	C	U	U	U	U	U	U		P	U											
CEAB000084	*Salix drummondiana / Thalictrum venulosum*	Drummond's willow / veiny meadow rue	S1	Shrubland	*Salix drummondiana*												U	U	C	P							
CEAB000168	*Salix lutea / Cornus stolonifera*	yellow willow / red-osier dogwood	S3?	Shrubland	*Salix lutea*																			C	P	P	P
CEAB000215	*Salix pedicellaris / Potentilla palustris* rich fen	bog willow / marsh cinquefoil rich fen	S2?	Shrubland	*Salix pedicellaris*	C	P	P	P	P	P	P	P														
CEAB000186	*Sarcobatus vermiculatus / Atriplex nuttallii*	greasewood / Nuttall's atriplex	S2S3	Sparsely Vegetated	*Sarcobatus vermiculatus*																			C	U	U	U
CEAB000197	*Sarcobatus vermiculatus / Distichlis stricta - Pascopyrum smithii*	greasewood / salt grass - western wheat grass	S2	Shrub Herbaceous	*Sarcobatus vermiculatus*																			C	U	U	U
CEAB000013	*Sarcobatus vermiculatus / Pascopyrum smithii*	greasewood / western wheat grass	S2S3	Shrubland	*Sarcobatus vermiculatus*																			C	U	U	U
CEAB000015	*Sarcobatus vermiculatus* silt dune community	greasewood silt dune community	S1	Shrubland	*Sarcobatus vermiculatus*																			C	U	U	U
CEGL005902	*Saxifraga bronchialis* scree slope sparse vegetation	spotted saxifrage scree slope sparse vegetation	S2S3 G3?	Sparsely Vegetated	Scree slope												U	U	C	C							
CEGL005903	*Saxifraga mertensiana* cliff vegetation	Merten's saxifrage cliff vegetation	SNR G2G3	Herbaceous	*Saxifraga mertensiana*												U	U	U	P							
CEAB000109	*Schizachyrium scoparium – Calamovilfa longifolia*	little bluestem - sand grass	S2	Herbaceous	*Schizachyrium scoparium*																C	C	U	P	P	P	C
CEAB000002	*Schizachyrium scoparium – Festuca campestris*	little bluestem - mountain rough fescue	S1?	Herbaceous	*Schizachyrium scoparium*																			P	C	U	C
CEAB000092	*Scirpus nevadensis - (Triglochin maritima)*	Nevada bulrush - (seaside arrow-grass)	S2S3	Sparsely Vegetated	*Scirpus nevadensis*																C	U	U	P	U	P	U
CEAB000216	*Sparganium eurycarpum* emergent aquatic vegetation	giant bur-reed emergent aquatic vegetation	S1S2	Aquatic	*Emergent aquatic*	C	P	P	P	P	P	P	P								C	U	P				
CEAB000093	*Spartina gracilis - (Pascopyrum smithii)*	alkali cord grass - (western wheat grass)	S2S3	Sparsely Vegetated	*Spartina gracilis*																C	U	U	P	U	P	U
CEAB000110	*Sporobolus cryptandrus* semi-active dune	sand dropseed semi-active dune	S2	Sparsely Vegetated	*Sporobolus cryptandrus*																C	U	U	C	U	U	U
CEGL005860	*Stipa columbiana - Lupinus sericeus* herbaceous vegetation	Columbia needle grass - silky perennial lupine herbaceous vegetation	S2S3 G2G3	Herbaceous	*Stipa columbiana*												C	U	U	U							
CEAB000111	*Stipa comata - Festuca idahoensis - F. saximontana grassland*	needle-and-thread - Idaho fescue - Rocky Mountain fescue grassland	S1	Herbaceous	*Stipa comata*																			C	U	U	U
CEAB000089	*Stipa curtiseta - S. viridula - Carex* spp.	western porcupine grass - green needle grass - sedges	S2S3	Herbaceous	*Stipa curtiseta*	P	U	U	U	U	U	U	U								U	U	C				
CEAB000028	*Stipa richardsonii – Koeleria macrantha – Antennaria parvifolia*	Richardson's needle grass - June grass - small-leaved everlasting	S2S3	Herbaceous	*Stipa richardsonii*												C	U	U	U							
CEAB000112	*Suaeda moquinii – Atriplex suckleyi* sparsely vegetated badland slopes	Moquin's sea-blite - endolepis sparsely vegetated badland slopes	S2?	Sparsely Vegetated	*Suaeda moquinii*																			C	U	U	U

						BOREAL FOREST								SHIELD	FOOTHILLS		ROCKY MTNS				PARKLAND			GRASSLAND			
CODE	**SCIENTIFIC NAME**	**COMMON NAME**	**RANK**	**CLASS**	**GROUP**	**DM**	**CM**	**NM**	**LBH**	**UBH**	**Bsub**	**PAD**	**AP**	**KU**	**LF**	**UF**	**Mon**	**Mon-Cypress Hills**	**SubA**	**A**	**CP**	**FP**	**PrP**	**DMx**	**Mx**	**NF**	**FF**
CEAB000221	*Symphoricarpos albus - Amelanchier alnifolia* slope type	snowberry - saskatoon shrubby slope	S2?	Shrubland	*Symphoricarpos albus*	P	P	U	U	U	U	U	C								U	U	P				
CEAB000200	*Symphoricarpos occidentalis / Elymus lanceolatus - Stipa comata*	buckbrush / northern wheat grass - needle-and-thread	S2	Shrub Herbaceous	*Symphoricarpos occidentalis*																			P	C	U	U
CEAB000187	*Symphoricarpos occidentalis / Leymus cinereus* shrubland	buckbrush / giant wild rye shrubland	S2S3	Shrubland	*Symphoricarpos occidentalis*																			P	C	U	U
CEAB000201	*Symphoricarpos occidentalis / Stipa comata - Calamovilfa longifolia - Carex stenophylla*	buckbrush / needle-and-thread - sand grass - low sedge	S2	Shrub Herbaceous	*Symphoricarpos occidentalis*																			P	C	U	U
CEAB000094	*Triglochin maritima* emergent marsh	seaside arrow-grass emergent marsh	S2?	Sparsely Vegetated	*Triglochin maritima*																C	U	U	P	U	P	U
CEAB000213	*Triglochin maritima - Carex praegracilis* spring fen	seaside arrow-grass - graceful sedge spring fen	S1S2	Herbaceous	*Carex praegracilis*	P	C	U	U	U	U	U	U														
CEGL005879	*Vaccinium (myrtillus, scoparium) / Luzula hitchcockii*	low bilberry, grouseberry / smooth wood rush	SNR G2G3	Dwarf Shrubland	*Vaccinium* spp.												U	U	C	P							
CEGL005891	*Vaccinium membranaceum / Xerophyllum tenax*	tall bilberry / bear-grass	SU G3?	Shrubland	*Vaccinium membranaceum*												U	U	P	U							
CEGL005859	*Xerophyllum tenax* herbaceous vegetation	bear-grass herbaceous vegetation	S1S2 GNR	Herbaceous	*Xerophyllum tenax*												C	U	C	U							

Alberta Conservation Information Management System - Community Characterization

Last Updated:

CEAB000172

Leymus mollis - Tanacetum bipinnatum ssp. huronense shoreline dune

American dune grass - Indian tansy shoreline dune

Natural Region(s)	- Canadian Shield
Natural Subregion(s)	- Kazan Upland
Present and Historic Range	- found on slightly exposed beaches along the north shore of L. Athabasca, at the transition from the Athabasca Plain to the Kazan Upland subregions - also reported in Sask along the south shore of L. Athabasca so may occur along the Alberta portion of the south shore, in the Athabasca Plain Natural Subregion.
Additional Distribution Comment	- found in discontinuous patches along the north shore of Lake Athabasca - although it is reported in Sask along the S shore of the lake, in Alberta the south shore is reported to be predominantly a silty shoreline, dominated by materials
Landform(s)	- slightly exposed lake beaches, on low, stabilizing sand dunes.
Topographic Position	- past the active wave zone.
Geologic Substrate	- primarily sands eroded from the Athabaca Formation and redistributed through wave, wind and ice action.
Environmental Determinants	- above the area of active erosion through wave action or ice push. - source of sand needed to form small dunes.
Vegetation Layers Present	- shrub, herb
Percent Cover by Layer	- shrubs are absent to sparse. - herb cover sparse to up to 40%.
Abundant Species per Layer	- Salix spp. (seedlings) are the most common shrub, but may be absent. - Leymus mollis dominates the herb layer.
Description - Unvegetated Surface	- sand.
Percent Unvegetated	- up to 60% unvegetated.
Species Found in Every Occurrence	- Leymus mollis is always present and dominant. - Tanacetum bipinnatum ssp huronense is always present and usually prominant. - Stellaria longipes and Festuca rubra are usually present, but with low cover.
Key Plant Species	- Leymus mollis and Tanacetum bipinnatum ssp. huronense.
Associated Tracking List Species	- Leymus mollis and Tanacetum bipinnatum ssp. huronense.
Variability - Species Composition	- the Shelter Point location had a number of shrubs present, including Betula neoalaskana, Empetrum nigrum and Juniperus and Salix seedlings. - Artemisa campestris is present in some stands. - Bromus inermis var pumpellianus is prominant in some stands, but absent in others.
Variability - Structure & Pattern	- a sparse shrub layer may or may not be present.
Type & Duration of Natural Distur	- some input of new sand likely needed to maintain the community.
Successional Status	- pioneer community of active sand.
Successional Stages	- appears to be the first stage in the stabilization of small beach dunes. - Leymus mollis and Bromus inermis var pumpellianus spread quickly by rhizomes, and so are able to survive in an active sand environment. - as the sand becomes further stabilized, shrubs such as Salix spp., Juniperus etc begin to move in. - organic matter accumulates, further stabilizing the sand and facilitating succession. - in a study on succession in wet dune slacks, a strong correlation was found between age, organic matter accumulation, acidification and soil enrichment (J04SYK01ABCA).
Community Patch Size	- small patch.
Patch Description	- often with a linear orientation, paralleling the lake shore.

Alberta Conservation Information Management System - Community Characterization

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CEAB000172

Leymus mollis - Tanacetum bipinnatum ssp. huronense shoreline dune

American dune grass - Indian tansy shoreline dune

Management Comments	- similar pioneer communities have been severally degraded as invasion by non-native species causes stabilization of dunes and reduced sand movement. - sandy shores favoured by this community are subject to human use impacts. - a change in the balance between disturbance and stabilization of the sand would be expected to have a negative impact on this community.
Additional Comments	- surveys along the south shore of Lake Athabasca needed to confirm the range of this community type.

Similar_Association	Notes
Leymus mollis - Abronia latifolia (NNDNAT01ABCA)	- also found on foredunes, but in a marine environment and with a different suite of species.

Related_Name	Relationship	Reference
- first dune	- equivalent	B01JON01ABCA
- zone of sand dunes	- equivalent	N28RAU01ABCA

Reference Code	Author	Year	Title	Publisher
B01JON01ABCA	Jonker, P.M. and J.S. Rowe	2001	The sand dunes of Lake Athabasca; your adventure in learning.	University Extension Press, Saskatoon, SK. 194 pp.
J04SYK01ABCA	Sykora, K.V., van den Bogert, J.C.J.	2004	Changes in soil and vegetation during	Journal of Vegetation Science 15:
N03ALL01ABCA	Allen, L., J. D. Johnson, K. Vujnovic	2003	Small Patch Communities of Fidler-Greywillow Wildland Provincial Park	Parks and Protected Areas, Alberta Community Development. Edmonton, Alberta. 37 pp.
N28RAU01ABCA	Raup, L.C.	1928	A survey of the vegetation of Shelter Point, Athabasca Lake	Thesis submitted to the University of Pittsburgh
NNDNAT01ABCA	NatureServe.		NatureServe Explorer: An online encyclopedia of life [web application] http://www.natureserve.org/explorer. Year accessed included in citation.	NatureServe, Arlington, Virginia.