Expanded Legend for the South Okanagan Biophysical Mapping Project

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Chapt. I - INTRODUCTION:

Background:

The South Okanagan Biophysical mapping project was undertaken by the British Columbia Ministry of the Environment to classify the South Okanagan region according to its ability to support different rare, threatened and endangered species (Harper et al., 1991/**249**). __#__ Habitat Units are identified and described in this report. Each habitat unit represents an area that is relatively homogenous in terms of terrain, soils, topography, bedrock geology, vegetation and animal use. Most units are then further classified according to either succesional stage (for forested areas) or range condition (for shrub-grasslands).

Capability and suitability maps for 54 different wildlife species (32 birds, 12 mammals, 8 reptiles and 2 amphibians) can be generated from this habitat mapping project which will help to manage the area for the benefit of those species (Harper et al., 1991 / **249**). Interpretive maps that rate and classify the landscape for plant and invertebrate diversity will also be generated (Harper et al., 1991).

Objectives:

Interest in the South Okanagan area is far from new; we have known for decades that the South Okanagan is both an integral and endangered part of British Columbia's biodiversity. The Interpretation Section of the B.C. Parks Brach warned in 1964, over thirty years ago, that the last chance had come to save this area for the future (Harper et al., 1991). Sixteen years later, Scudder suggested that if that had been the last chance, then 1980 was the "*very last chance*" to preserve this area.

Finally, in _____ the Habitat Conservation Fund, the Nature Trust of B.C. and the Ministry of the Environment have cooperated to act on this important opportunity to preserve the unique biological heritage of this area. Fortunately, the chance to protect this area is not yet lost but, as each warning comes, the ecosystems are fewer and less intact.

In 1990, the South Okanagan Conservation Strategy was published, which combined the efforts of two existing initiatives, the South Okanagan Critical areas Program (SOCAP), sponsored by the Nature Trust fund of British Columbia and the Habitat Conservation Fund (HCF) Okanagan Endangered Spaces Program, sponsored by the B.C. Ministry of the Environment (Hlady, 1990). Its goal was to ensure the "identification, protection and management of the remaining natural environments" in the study area (Hlady, 1990).

In the objectives outlined in the South Okanagan Conservation Strategy, the first phase was "habitat and priority species inventory" (Hlady 1990), which involved the biophysical mapping the area at 1:20,000. The South Okanagan Biophysical Mapping Project is the result of that directive. The interpretive maps which can be generated from

this mapping project will help to identify areas of high priority for habitat protection, acquisition, enhancement and species re-introduction programs (Harper et al., 1991), so that resource agencies can coordinate their planning to best protect the diversity of the South Okanagan area.

Area:

The area mapped includes the south Okanagan and Similkameen valleys, the northernmost extension of the Western great basin of North America (**250** Harper et al., 1991). The area extends from Okanagan Mountain Provincial Park to the U.S. border (north to south) and from Anarchist Mnt. to the Ashnola River (east to west).

Climate:

This region lies in the rain shadow of the Coast Mountains which means that as moist air masses move eastward from the Pacific, they are forced to loose their moisture (in the form of precipitation) as they pass over the mountain range (Wittneben, 1985). As a result the air that reaches the South Okanagan region has very little moisture content and so the climate of the Okanagan is very dry. The summers are usually hot and very dry while the winters are crisp, largely overcast with temperatures below freezing for about ten weeks. Since the climate is so dry, however, the winters are often free of snow. Occasionally, during the winter, cold arctic air intrudes into the valleys causing temperatures to drop to about -25^{o}C (Wittneben, 1985). This range of semi-arid habitats produced by the combination of hot summers, mild winters and low annual precipitation represents one the three most endangered biomes within Canada (**250** Harper et al., 199____).

Glacial History:

At the maximum glaciation of the Wisconsin period, the entire province was covered with an ice-sheet believed to be at an elevation of about 8,000 feet. As the climate rapidly changed with the glacier's retreat, many areas of the ice-sheet wasted away by down-melting which left high-elevation areas free of ice before the adjacent valley bottoms. Like many other of the major valleys of British Columbia, the glacial features of the South Okanagan were formed mostly in the period of glacial retreat when a tongue of glacial ice occupied the valley which was surrounded by ice-free uplands. There are some mixed unconsolidated deposits from the time of glacial advance and before, but most of the landscape features were formed during the last glaciation and later (Nasmith, 1962)

From the time of maximum glacial occupation of the Okanagan Valley, morrainal ridges, Kame terraces and meltwaters channels are still visible today. Ridges of sorted or

unsorted material, lateral morraines, were deposited at the edges of the glaciers. Where meltwater streams ran alongside the glacier, meltwater channels were eroded into the existing landscape. Kame terraces, made of stratified drift, were also deposited by those same streams (Nasmith 1962).

As the glaciers retreated, the meltwater streams fed by the melting glacier deposited stratified drift (ranging in texture from fine sand to coarse gravel) which can be seen in outwash terraces. Kettled outwash areas consist of mostly this same stream-deposited sand and gravel along with some silt and clay from small ponds. The kettle holes in this area were formed as material was deposited around stagnant blocks of ice which later melted to leave this distinctive 'kettled' landscape. As the Glacier retreated, many areas formed lakes from the meltwater of the retreating lobe of ice. Thick deposits of sand, silt and clay accumulated on the lake bottoms; these deposits were well preserved in some (but not all) of the areas as the lakes later drained and can be found in the areas surrounding many of the present day lakes (Nasmith, 1962).

During the Late Glacial period, after the glaciers had retreated but while they still had an extensive effect on the landscape, large flows of glacier meltwater were carried by rivers which eroded river channels and terraces into Okanagan Valley. These rivers were fed by the melting glacier which was quite far away at this point, and they eventually dried up when the source diminished. This period is also marked by raised alluvial fans and deltas which were created when the base level of streams (i.e. the water level in lakes) was much higher (Nasmith, 1962).

These landscape features seem to have been formed by a continuous down-melting and retreat of the glacier with no re-advances. They would then have been created in the order described above, taking into account that the stages of glacial occupation and retreat within the Okanagan Valley would have varied at any given time from north to south. Even at present there is a marked change of climactic conditions within the Valley from north to south (Nasmith,1962).

In more recent times, the Okanagan River has been one of the major forces shaping the landscape of the Okanagan Valley. The recent Okanagan River Floodplain deposits consist of sand, silt and swamp deposits. The river segments between Skaha Lake and Osoyoos Lake consist of river channels cut by the Okanagan River late glacial time when it carried large amounts of meltwater. The river in these areas is presently underfit (undersized) for this larger channel and it meanders across the floodplain deposits which have deposited within this older channel. The Okanagan river has also created alluvial fans and deltas (through deposition), as well as beaches, spits and dunes which are often older deposits reworked by wind and waves (Nasmith, 1962).

BIOGEOCLIMATIC UNITS:

Bgxh1 - Okanagan Very Dry Hot Bunchgrass Variant:

Found at low elevations at the southern end of the Okanagan Valley, between Summerland and the U.S. border and along the Similkammen river

PPxh1(a)

IDFxh1

IDFdk1

IDFdm1

MSxk

ESSFxc

ECOREGION UNITS:

The diverse habitats and climate types of British Columbia have been classified in many different ways, one of which is the Ecoregion classification system. This system divides the province into discrete units at several scales, the largest of which is the Ecoprovince. The South Okanagan area is found within the Southern Interior Ecoprovince which is then divided into several smaller Ecoregions of which the study area traverses three (the Northern Cascade Ranges Ecoregion, the Okanagan Highland Ecoregion, and the Thompson - Okanagan Plateau Ecoregion). These Ecoregion units are each further divided into several smaller ecosection units. The study area includes the following five ecosections which are described as follows (Demarchi, 1997):

Okanagan Range Ecosection (OKR)
A mountain and basin landscape in the rugged mountainous area on the leeward side of the Cascade range. Only the higher mountain summits in this area were glaciated. The upper slopes are dominated by subalpine forests and rolling alpine tundra, while the low-elevation basins are primarily steppe-grasslands. It stretches from Hedley and Keremos south to Cathedral Mountain Provincial Park and the United States border (Demarchi, 1997).

Southern Okanogan Basin Ecosection (SOB)
This is the driest area in British Columbia with grassland communities very similar to those further south in Oregon and Washington. The landscape consists of trenches and foothills stretching from Okanagan falls on Skaha Lake south past the international border to Omak in Washington (Demarchi, 1997).

Southern Okanogan Highlands Ecosection (SOH)
This rolling forested upland is dominated by dry Ponderosa pine and Interior Douglas-fir forests. As it stretches southwards into Washington, however, the valleys are dominated by grassslands (Demarchi, 1997)

Northern Okanagan Basin (NOB)
This trench and foothill area extends from the Shuswap River at Enderby south to Skaha Lake, an area that was extensively glaciated. It includes Skaha, Okanagan, Wood and Kalamalka lakes. The lower and mid-slopes (above the lake and riparian area) are dominated by Bunchgrass and Ponderosa pine zones, while meadow-steppe and dry Interior Douglas-fir forests dominate the upper slopes (Demarchi, 1997)

Northern Okanagan Highlands Ecosection (NOH)
This ecosection extends from the Coldstream-Shuswap valley in the north to the Kettle valley in the south with several river valleys dissecting this upland surface. Air rising over the Columbia Mountains to the east creates a moister climate in this area. The Douglas-fir zone occurs on the lower slopes of the main valleys with the valley slopes in the eastern area dominated by the moist Interior Cedar - Hemlock Zone. The Montane spruce zone, with forests dominated by lodgepole pine, occurs on the western and

southern uplands and the Englemann Spruce - Subalpine-fir Zone is found on the highest upland areas (Demarchi, 1997).

Chapt. II - BIODIVERSITY:

The South Okanagan is a unique location and a hotspot for Canadian biodiversity at many different scales. Within a small area, several diverse and ecologically important habitats can be found including shrub-grasslands, wetlands, alkali ponds, Riparian woodlands, coniferous forests, cliffs, canyons and talus slopes (Bryan et al., 199____). Grasslands are especially rare in British Columbia, covering about a third of one percent of the province, much of which is located within the South Okanagan region.

Though only a small portion of the province, the South Okanagan area is home to 58% of British Columbia's endangered and threatened (red-listed) animal species, 25% of blue listed species (of management concern) and 14% of yellow-listed species (of management interest) (Hlady, 1990). There are 23 invertebrate species, for instance, that occur in South Okanagan region and nowhere else in the world and 75 other invertebrates that occur nowhere else in Canada (Cannings and Cannings, 1995). At least 100 rare, threatened or endangered plants grow in the South Okanagan region.

Not only does this area contain a disproportionately high percentage of British Columbia's and Canada's endangered and threatened plant and animal species, these small 'peripheral populations' are living at the northernmost edges of their viable habitat and so play a valuable role in maintaining genetic diversity within a species (Scudder 1989 cited in Harper et al., 1991) which is an important part of biodiversity.

Threats To Biodiversity:

For an area with such ecological importance and rich biological diversity, surprisingly little of the land is protected. Even including parks, ecological reserves, Wildlife management areas and those properties protected by the Canadian Wildlife Service and the Nature Trust of B.C., less than 3% of the study area is protected (Bryan et al., 199___). Even within Crown lands (which cover only 12% of the grasslands of the South Okanagan), off-road vehicles, weed invasion and livestock grazing have altered once-pristine grasslands (Bryan et al., 199___).

One of the major threats to the area is development. The Southern Interior of British Columbia is the fastest growing area of the province with a population increase of at least 45% over the past 20 years (Bryan et al., 199___). Urban development in combination with the associated forestry, mining, removal of talus for construction, agriculture, recreational vehicle use and livestock grazing has all taken its toll. At present only about 10% of the original grassland habitat remains relatively undisturbed. Riparian habitats are also particularly threatened; about 85% of the riparian and wetland habitats are permanently gone as a result of the channelization of the Okanagan River and the infilling of marshes and ponds for development (Bryan et al., 199___). Some species - such as the Burrowing owl, Sage Grouse, Sharp-tailed Grouse, and breeding Peregrine Falcons - are already locally extinct, mostly due to habitat destruction and fragmentation (Bryan et al., 199___). The Short-horned Lizard, with no credible sightings since 1898, may also be locally extirpated (Bryan et al., 199___).

It is not only land use, however, but also people's attitudes towards different species and ecosystems that put them at risk. Without an informed human population, the 'undeveloped' areas surrounding urban locations are seen as 'empty space' in which to expand; talus slopes, important ecological features, may be taken simply as piles of rubble.

Vertebrate Diversity:

Not only rare and endangered wildlife species have been addressed by this study (as all species are important to the larger ecosystem), but the species have been prioritized according to their situation and the risks they face. The study prioritizes 37 red- and blue-listed vertebrate species (endangered, threatened, or sensitive) as listed below (Harper et al., 199___):

Mammals:

Badger	*Taxidea taxus*
Fringed Myotis	*Myotis thysanodes*
Great Basin Pocket Mouse	*Perognathus parvus*
Nuttall's Cottontail	*Silvilagus nuttallii*
Pallid Bat	*Antrozous pallidus*
Soutern Red Bat	*Lasiurus blossevilli*
Spotted bat	*Euderma maculatum*
Townsend's Big-eared Bat	*Plecotus townsendii*
Western Harvest Mouse	*Reithrodontomys megalotis*
Western Small-footed Myotis	*Myotis ciliolabrum*
White-tailed Jackrabbit	*Lepus townsendii*

Birds

American White Pelican	*Pelecanus erythrorhynchos*
Bobolink	*Dolichonyx oryzivorus*
Brewer's Sparrow	*Spizella breweri*
Burrowing Owl	*Athene cunicularia*
Canyon Wren	*Catherpes mexicanus*
Common Poorwill	*Phalaenoptilus nuttallii*
Flammulated Owl	*Otus Flammeolus*
Grasshopper Sparrow	*Ammondramus savannarum*
Gray Flycatcher	*Empidonax wrightii*
Great Blue Heron	*Ardea herodias*
Lewis' woodpecker	*Melanerpes lewis*
Long-billed Curlew	*Numenius americanus*
Perigrine Falcon	*Falco peregrinus*
Prairie Falcon	*Falco mexicanus*
Sage Thrasher	*Oreoscoptes montanus*

White-headed Woodpecker	*Picoides albolarvatus*
White-throated Swift	*Aeronautes saxatalis*
Williamson's Sapsucker	*Sphyrapicus thyroideus*
Yellow-breasted Chat	*Icteria virens*

Reptiles

Gopher Snake	*Pituophis melanoleucus*
Night Snake	*Hypsiglena torquata*
Short-horned Lizard	*Phrynosoma douglassii*
Western rattlesnake	*Crotalus viridus*

Amphibians

Tiger Salamander	*Ambystoma tigrinum*

The other vertebrate species which are not red- or blue-listed but still are addressed in this report include the following 3 mammals, 12 birds, 4 reptiles and 1 amphibian (Harper et al., 1991):

Mammals:

Bighorn sheep	*Ovis canadensis*
Mule deer	*Odocoileus hemiomus*
White-tailed deer	*Odocoileus virginianus*

Birds

Eared Grebe	*Podeceps nigricollis*
Ferruginous Hawk	*Buteo regalis*
Golden Eagle	*Aquila chrysaetos*
Lark Sparrow	*Chondestes grammacus*
Long-eared Owl	*Asio otus*
Osprey	*Pandion haliaetus*
Sage Grouse	*Centrocercus urophasianus*
Sandhill Crane	*Grus canadensis*
Sharp-tailed Grouse	*Tympanuchus phasianellus*
Swainson's Hawk	*Buteo swainsoni*
Turkey Vulture	*Cathartes aura*
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*

Reptiles

Painted Turtle	*Chrysemys picta*
Rubber Boa	*Charina bottae*
Western Skink	*Eumeces skiltonianus*
Western Yellow-bellied Racer	*Coluber mormon*

Amphibians

Great Basin Spadefoot Toad	*Scaphiopus intermontanus*

The follwing three species of fish found in the South Okanagan are also considered to be vulnerable (Harper et al., 1991):

Fish	
Leopard Dace	*Rhinichthys falcatus*
Umatilla Dace	*Rhinichthys umatilla*
Mottled Sculpin	*Cottus bairdi*

Flood control and river channeling have put aquatic species are at risk by rerouting water courses and reducing aquatic and riparian ecosystems to a fraction of their original extent (Harper et al., 1991). Wetland areas, for instance, have been reduced to 15% of their original area (Harper et al., 1991). Another threat to fish populations and diversity is the process called, ironically, 'lake rehabilitation' which involves poisoning a lake with rotenone to remove species of fish that are undesirable for sports fishing (Harper et al., 1991). This process, along with the practice of stocking lakes with fish that feed on amphibian larvae, has also greatly impacted the native amphibian populations in these lakes (Harper et al., 1991).

Invertebrate Diversity:

Even though so little is generally known about invertebrates, an estimated 15 000 species of invertebrates are thought to live in the South Okanagan area (Cannings and Cannings, 1995). It is known, however, that the South Okanagan is home to at least 23 invertebrate species that occur nowhere else in the world, 75 species found nowhere else in the country and another 258 species that occur nowhere else in the province (Bryan et al., 199____). Considering how little we know about invertebrates, these numbers may actually be a lot higher. The South Okanagan Conservation Strategy (1990) has compiled as list of Invertebrates of special interest (see South Okanagan Conservation Strategy, appendix 4).

Plant Diversity:

Not only individual animal and plant species are threatened but also entire ecosystem types. In 1980, Pojar rated as threatened the dry forest savanna ecosystems of Ponderosa pine and Bunchgrass; the riparian and lakeshore forests were rated as very threatened (Harper et al., 1991). Just as animal species have been categorized into different priority levels, entire plant communities have been ranked according to their current range and risks they face. As of 1991, the South Okanagan Critical Areas Program (SOCAP) had 33 rare plant communities listed as Priority 1 including Sagebrush, Antelope-brush (*Pushia tridentata*), Ponderosa pine (*Pinus ponderosa*), Black Cottonwood (*Populs balsamifera* ssp. *trichocarpa*), Water Birch (*Betula*

occidentalis) (Harper et al., 1991). Several wetland and dry lakebed ecosystems in the South Okanagan are also considered to rare (Harper et al., 1991). In addition to ecosystem types at risk in the South Okanagan, Harper et al. (1991) lists 67 individual rare, endangered, and threatened plant species found in the study area.

SOILS:

do you want a description of the soils?

Chapt. III - BIOPHYSICAL HABITAT UNITS

Intro:

Methods:

Conversions: (insert here)

Biophysical Habitat Unit descriptions:(insert here)

Chapt. IV - HABITAT MANAGEMENT?

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HABITAT UNIT / SITE SERIES CONVERSIONS for Bgxh1

Habitat Units (this legend)		MoF site series	
AE	Antelope-brush - evening-primrose southerly aspect, coarse sand	BGxh1/02	Antelope-brush - needle-and-thread grass
AN	Antelope-brush - needle-and-thread grass coarse-textured soils	BGxh1/02	Antelope-brush - needle-and-thread grass
ANc	Antelope-brush - needle-and-thread grass coarse-textured soils, cool aspect	BGxh1/02	Antelope-brush - needle-and-thread grass
ANf	Antelope-brush - needle-and-thread grass coarse textured soils, fan	BGxh1/02	Antelope-brush - needle-and-thread grass
ANw	Antelope-brush - needle-and-thread grass coarse textured soils, warm aspect	BGxh1/02	Antelope-brush - needle-and-thread grass
ASg	Trembling aspen - common snowberry moist, gully		
ASp	Trembling aspen - common snowberry moist, floodplain		
BA*	Barren		
BD	Water birch - red-osier dogwood swamp		
BE*	Beach		
BS	Paper birch - common snowberrry moist, gully		
CA*	Canal		
CB	Summer-cypress - bentgrass meadow		
CD	Black cottonwood - red-osier dogwood floodplain	BGxh1/07	Act (BLACK COTTONWOOD) - Water birch
CF*	Cultivated field		
CLc*	Cliff high, cool aspect		
CLw*	Cliif high, warm aspect		
CMc*	Cliff moderate, cool asepct		
CMw*	Cliff moderate, warm aspect		
CO*	Cultivated orchard		
CT	Common Cattail Marsh		
CV*	Cultivated vineyeard		
FL*	Feedlot		
GB*	Gravel bar		
GC*	Golf course		
GP*	Gravel pit		
HA	Black hawthorn copse		
LA*	Large lake		
MI*	Mine		
OS	Oregon grape - saskatoon gully		

OW*	Shallow open water		
Owa	Shallow open water, alkaline		
PA	Ponderosa pine - Antelope-brush coarse textured soil	BGxh1/04	Py (Ponderosa pine) - Antelope brush - Red three-awn
PAf	Ponderosa pine - Antelope-brush coarse textured soil, fan	BGxh1/04	Py (Ponderosa pine) - Antelope brush - Red three-awn
PB	Ponderosa pine - water birch moist fan		
PD*	Pasture, dry		
PF	Ponderosa pine - Idaho fescue warm aspect, deep soil		
PM*	Pasture, moist		
PO*	Pond		
PS	Ponderosa pine - selaginella shallow soil		
PSc	Ponderosa pine - selaginella shallow soil, cool aspect		
PSw	Ponderosa pine - selaginella shallow soil, warm aspect		
PW	Ponderosa pine - bluebunch wheatgrass mesic		
PWc	Ponderosa pine - bluebunch wheatgrass mesic, cool aspect		
PWf	Ponderosa pine - bluebunch wheatgrass mesic, fan		
RM	Western redcedar - Douglas maple riparian		
RO*	Rock outcrop - lichen		
ROc*	Rock outcrop - lichen, cool aspect		
ROw*	Rock outcrop - lichen, warm aspect		
SB	Silverweed - bulrush meadow		
SL*	Sewage lagoon		
SN	Big sagebrush - needle-and-thread grass coarse-textured soil	BGxh1/01	Big sage - Needle-and-thread grass
SNf	Big sagebrush - needle-and-thread grass coarse-textured soil, fan	BGxh1/01	Big sage - Needle-and-thread grass
SOc	Saskatoon - mock-orange talus, cool aspect		
SOw	Saskatoon - mock-orange talus, warm aspect		
SP	Common snowberry - pinegrass moist		
SS	Big sagebrush - selaginella very shallow soil	BGxh1/03	Bluebunch wheatgrass - Selaginella
ST	Stream (includes seasonal gravel bars)		
SWl	Big sagebrush - bluebunch wheatgrass mesic, lacustrine	BGxh1/01	Big sage - Needle-and-thread grass

SWm	Big sagebrush - bluebunch wheatgrass, morainal	BGxh1/01	Big sage - Needle-and-thread grass
TAc*	Talus, cool aspect		
TAw*	Talus, warm aspect		
TC*	Transportation corridor		
UR*	Urban - suburban		
WBc	Bluebunch wheatgrass - Sandberg's bluegrass deep soil, cool aspect	BGxh1/01	Big sage - needle-and-thread grass
WBw	Bluebunch wheatgrass - Sandberg's bluegrass deep soil, warm aspect	BGxh1/01	Big sage - needle-and-thread grass
WJ	Bluebunch wheatgrass - junegrass mesic		
WSc	Bluebunch wheatgrass - selaginella shallow soil, cool aspect	BGxh1/03	Bluebunch wheatgrass - Selaginella
WSw	Bluebunch wheatgrass - selaginella shallow soil, warm aspect	BGxh1/03	Bluebunch wheatgrass - Selaginella
YS	Yellow pine - saskatoon fan	BGxh1/05	Py (Ponderosa pine) - Sumac

HABITAT UNIT / SITE SERIES CONVERSIONS for PPxh1 and PPxh1a

Habitat Units (this legend)		**MoF site series**	
AN	Antelope-brush - needle-and-thread grass coarse-textured soils		
ANc	Antelope-brush - needle-and-thread grass coarse-textured soils, cool aspect		
ANf	Antelope-brush - needle-and-thread grass coarse-textured soils, fan		
ANw	Antelope-brush - needle-and-thread grass coarse-textured soils, warm aspect		
ASg	Trembling aspen - common snowberry moist, gully		
ASp	Trembling aspen - common snowberry, floodplain		
BA*	Barren		
BD	Water birch - red-osier dogwood swamp		
BE*	Beach		
BS	Paper birch - common	PPxh1/08	Fd (Douglas fir) - Water

	snowberry moist gully		birch - Douglas maple
CA*	Canal		
CD	Black cottonwood - red-osier dogwood floodplain		
CF*	Cultivated field		
CLc*	Cliff high, cool aspect		
CLw*	Cliff high, warm aspect		
CMc*	Cliff moderate, cool aspect		
CMw*	Cliff moderate, warm aspect		
CO*	Cultivated orchard		
CT	Common cattail marsh		
CV*	Cultivated vineyard		
DPc	Douglas-fir - pinegrass mesic, cool aspect		
GB*	Gravel bar		
GC*	Golf course		
GP*	Gravel pit		
HA	Black hawthorn - copse		
MI*	Mine		
OSc	Oregon grape - saskatoon gully, cool aspect		
OW	Shallow open water		
OWa	Shallow open water, alkaline		
PA	Ponderosa pine - antelope-brush coarse-textured soil		
PB	Ponderosa pine - water birch moist, fan		
PAf	Ponderosa pine - antelope-brush coarse-textured soil, fan		
PD*	Pastur, dry		
PF	Ponderosa pine - Idaho fescue warm aspect, deep soil	PPxh1/01	Py (Ponderosa pine) - Bluebunch wheatgrass - Idaho fescue
PM*	Pasture, moist		
PO*	Pond		
PS	Ponderosa pine - selaginella shallow soil	PPxh1/02	Py (Ponderosa pine) - Red three-awn
PSc	Ponderosa pine - selaginella shallow soil, cool aspect	PPxh1/02	Py (Ponderosa pine) - Red three-awn
PSw	Ponderosa pine - selaginella shallow soil, warm aspect	PPxh1/02	Py (Ponderosa pine) - Red three-awn
PW	Ponderosa pine - bluebunch wheatgrass mesic	PPxh1/01	Py (Ponderosa pine) - Bluebunch wheatgrass - Idaho fescue
PWc	Ponderosa pine - bluebunch wheatgrass mesic, cool aspect	PPxh1/01	Py (Ponderosa pine) - Bluebunch wheatgrass - Idaho fescue
PWf	Ponderosa pine - bluebunch wheatgrass mesic, warm aspect	PPxh1/01	Py (Ponderosa pine) - Bluebunch wheatgrass - Idaho fescue
RM	Western redcedar - Douglas maple riparian		

RO*	Rock outcrop - lichen		
ROc*	Rock outcrop - lichen cool aspect		
ROw*	Rock outcrop - lichen warm aspect		
SB	Silverweed - bulrush meadow		
SN	Big sagebrush - needle-and-thread grass coarse-textured soil		
SNf	Big sagebrush - needle-and-thread grass		
SOc	Saskatoon - mock-orange talus, cool aspect		
SOw	Saskatoon - mock-orange talus, warm aspect		
SP	Common snowberry - pinegrass moist		
SS	Big sagebrush - selaginella very shallow soil		
SWl	Big sagebrush - bluebunch wheatgrass mesic, lacustrine		
TC*	Transportation corridor		
TAc*	Talus - cool aspect		
TAw*	Talus - warm aspect		
UR*	Urban		
WAc	Bluebunch wheatgrass - arrow-leaved balsamroot deep soil, cool aspect	PPxh1/03	Big sagebrush - Bluebunch wheatgrass
WAw	Bluebunch wheatgrass - arrow-leaved balsamroot deep soil, warm aspect	PPxh1/03	Big sagebrush - Bluebunch wheatgrass
WF	Bluebunch wheatgrass - Idaho fescue coarse-textured soil	PPxh1/03	Big sagebrush - Bluebunch wheatgrass
WFf	Bluebunch wheatgrass - Idaho fescue coarse-textured soil, fan	PPxh1/03	Big sagebrush - Bluebunch wheatgrass
WJ	Bluebunch wheatgrass - junegrass mesic	PPxh1/03	Big sagebrush - Bluebunch wheatgrass
WSc	Bluebunch wheatgrass - selaginella shallow soil, cool aspect		
WSw	Bluebunch wheatgrass - selaginella shallow soil, warm aspect		
YS	Yellow pine - saskatoon fan		

HABITAT UNIT / SITE SERIES CONVERSIONS for IDFxh1

Habitat Units (this legend)		**MoF site series**	
ASg	Trembling aspen - common		

	snowberry moist gully		
BA*	Barren		
BD	Water birch - red-osier dogwood swamp		
BE*	Beach		
BS	Paper birch - common snowberry moist, gully	IDFxh1/08	SxwFd (Spruce, Douglas-fir) - Douglas maple - Dogwood
CD	Black cottonwood - red-osier dogwood floodplain		
CLc	Cliff high, cool aspect		
CLw	Cliff high, warm aspect		
CMc*	Cliff moderate, cool aspect		
CMw*	Cliff moderate, warm aspect		
CT	Common cattail marsh		
DP	Douglas-fir - pinegrass mesic	IDFxh1/01	FdPy (Douglas-fir - Ponderosa pine) - Pinegrass
DPc	Douglas-fir - pinegrass mesic, cool aspect	IDFxh1/01	FdPy (Douglas-fir - Ponderosa pine) - Pinegrass
DPf	Douglas-fir - pinegrass mesic, fluvial	IDFxh1/01	FdPy (Douglas-fir - Ponderosa pine) - Pinegrass
DPs	Douglas-fir - pinegrass mesic, shallow soil		
DW	Douglas-fir - bluebunch wheatgrass warm aspect, deep soil	IDFxh1/03	FdPy (Douglas-fir - Ponderosa pine) - Bluebunch wheatgrass - Pinegrass
FW	Idaho fescue - bluebunch wheatgrass steep, warm aspect		
GB*	Gravel bar		
LA*	Large lake		
OW*	Shallow open water		
OWa	Shallow open water, alkaline		
PD*	Pature dry		
PM*	Pature, moist		
PS	Ponderosa pine - selaginella shallow soil	IDFxh1/02	FdPy (Douglas-fir - Ponderosa pine) - Bluebunch wheatgrass - Balsamroot
PSc	Ponderosa pine - selaginella shallow soil, war, cool aspect	IDFxh1/02	FdPy (Douglas-fir - Ponderosa pine) - Bluebunch wheatgrass - Balsamroot
PSw	Ponderosa pine - selaginella shallow soil, warm aspect	IDFxh1/02	FdPy (Douglas-fir - Ponderosa pine) - Bluebunch wheatgrass - Balsamroot
PW	Ponderosa pine - bluebunch wheatgrassmesic,		
PWc	Ponderosa pine - bluebunch wheatgrassmesic, cool aspect		
PEf	Ponderosa pine - bluebunch wheatgrassmesic, warm aspect		

RO*	Rock outcrop - lichen		
ROc*	Rock outcrop - lichen, cool aspect		
ROw*	Rock outcrop - lichen, warm aspect		
SB	Silverweed - bulrush meadow		
SE	Sedge wetland		
SOc	Saskatoon - mock-orange talus, cool aspect		
SOw	Saskatoon - mock-orange talus, warm aspect		
SP	Common snowberry - pinegrass moist		
SS	Big sagebrush - selaginella very shallow soil		
SWl	Big sagebrush - bluebunch wheatgrass mesic, lacustrine		
TAc*	Talus, cool aspect		
TAw*	Talus, warm aspect		
VKc	Vasey's big sagebrush - Kentucky bluegrass grassland, cool aspect		
WKw	Vasey's big sagebrush - Kentucky bluegrass grassland, warm aspect		
WA	Bluebunch wheatgrass - arrow-leaved balsamroot deep soil		
WAc	Bluebunch wheatgrass - arrow-leaved balsamroot deep soil, cool aspect		
WAw	Bluebunch wheatgrass - arrow-leaved balsamroot deep soil, warm aspect		
WBc	Bluebunch wheatgrass - Sandberg's bluegrass deep soil, cool aspect		
WJ	Bluebunch wheatgrass - junegrass mesic		
WSc	Bluebunch wheatgrass - selaginella shallow soil, cool aspect		
WSw	Bluebunch wheatgrass - selaginella shallow soil, warm aspect		
YS	Yellow pine - saskatoon fan		

HABITAT UNIT / SITE SERIES CONVERSIONS for IDFdk1

Habitat Units		**MoF site**	

(this legend)		series	
ASg	Trembling aspen - common snowberry moist gully		
BE*	Beach		
DYd	Doulas-fir - yarrow warm aspect, deep soil	IDFdk1/04	Fd (Douglas-fir) - Pinegrass - Yarrow
DYs	Douglas-fir - yarrow warm aspect, shallow soil	IDFdk1/04	Fd (Douglas-fir) - Pinegrass - Yarrow
LP	Lodgepole pine - pinegrass mesic	IDFdk1/01	Fd (Douglas-fir) - Pinegrass - Feathermoss
LPc	Lodgepole pinegrass mesic, cool aspect	IDFdk1/01	Fd (Douglas-fir) - Pinegrass - Feathermoss
LPf	Lodgepole pine - pinegrass mesic, fan		
LPs	Lodgepole pine - pinegrass mesic, shallow soil		
OW*	Shallow open water		
PSc	Ponderosa pine - selaginella shallow soil, cool aspect		
PSw	Ponderosa pine - selaginella shallow soil, warm aspect		
RO*	Rock outcrop		
ROc*	Rock outcrop, cool aspect		
ROw*	Rock outcrop, warm aspect		
SE	Sedge wetland		
SOc	Saskatoon - mock-orange talus, cool aspect		
SOw	Saskatoon - mock-orange talus, warm aspect		
SP	Common snowberry - pinegrass moist		
SS	Big sagebrush - selaginella very shallow soil		
TAc*	Talus, cool aspect		
TAw*	Talus, warm aspect		
VK	Vasey's big sagebrush - Kentucky bluegrass grassland		
VKc	Vasey's big sagebrush - Kentucky bluegrass grassland, cool aspect		
VKw	Vasey's big sagebrush - Kentucky bluegrass grassland, warm aspect		
WAw	Bluebunch wheatgrass - arrow-leaved balsamroot deep soil, warm aspect		
WSc	Bluebunch wheatgrass - selaginella shallow soil, cool aspect		
WSw	Bluebunch wheatgrass - selaginella shallow soil, warm aspect		

HABITAT UNIT / SITE SERIES CONVERSIONS for MSxk

Habitat Units (this legend)		MoF site series	
ASg	Trembling aspen - common snowberry moist, gully		
DAd	Douglas-fir - heart-leaved arnica warm aspect, deep soil	MSxk/05	FdPl (Douglas-fir, Lodgepole pine) - Pinegrass - Arnica
DAs	Douglas-fir - heart-leaved arnica warm aspect, shallow soil	MSxk/05	FdPl (Douglas-fir, Lodgepole pine) - Pinegrass - Arnica
LL	Lodgepole pine - arctic lupine mesic	MSxk/01	Pl (Lodgepole pine) - Pinegrass - Lupine
LLc	Lodgepole pine - arctic lupine mesic, cool aspect	MSxk/01	Pl (Lodgepole pine) - Pinegrass - Lupine
LLs	Lodgepole pine - arctic lupine mesic, shallow soil		
OW*	Shallow open water		
RO*	Rock outcrop		
ROc*	Rock outcrop - cool aspect		
ROw*	Rock outcrop - warm aspect		
SG	Spruce - black gooseberry moist	MSxk/08	Sxc (Spruce) - Gooseberry - Grouseberry
TAc*	Talus, cool aspect		
TAw*	Talus, warm aspect		
VK	Vasey's big sagebrush - Kentucky bluegrass grassland	MSxk/04	Big sage - Pinegrass
VKc	Vasey's big sagebrush - Kentucky bluegrass grassland, cool aspect	MSxk/04	Big sage - Pinegrass
VKw	Vasey's big sagebrush - Kentucky bluegrass grassland, warm aspect	MSxk/04	Big sage - Pinegrass
WSw	Bluebunch wheatgrass - selaginella shallow soil, warm aspect		

HABITAT UNIT / SITE SERIES CONVERSIONS for ESSFxc

Habitat Units (this legend)		MoF site series	
FG	Subalpine fir - grouseberry mesic	ESSFxc/01	******need part 2*****

FGc	Subalpine fir - grouseberry mesic, cool aspect	ESSFxc/01	****need part 2******
OW	Shallow open water		
PO*	Pond		
RO*	Rock outcrop		
ROc*	Rock outcrop, cool aspect		
ROw*	Rock outcrop, warm aspect		
SE	Sedge wetland		
VK	Vasey's big sagebrush - Kentucky bluegrass grassland		
VKc	Vasey's big sagebrush - Kentucky bluegrass grassland, cool aspect		
VKw	Vasey's big sagebrush - Kentucky bluegrass grassland, warm aspect		
WSw	Bluebunch wheatgrass - selaginella shallow soil, warm aspect		

HABITAT UNIT / SITE SERIES CONVERSIONS for IDFdm1

Habitat Units (this legend)		**MoF site series**	
CMc*	Cliff moderate, cool aspect		
CMw*	Cliff moderate, warm aspect		
CT	Cattail marsh		
DT	Dougls-fir - twinflower mesic	IDFdm1/01	FdPl (Douglas-fir, Lodgepole pine) - Pinegrass - Twinflower
DTc	Douglas-fir - twinflower mesic, cool aspect	IDFdm1/01	FdPl (Douglas-fir, Lodgepole pine) - Pinegrass - Twinflower
DTs	Douglas-fir - twinflower mesic, shallow soil		
OW	Shallow open water		
PO*	Pond		
PPd	Ponderosa pine - pinegrass warm aspect, deep soil	IDFdm1/03	FdPy (Douglas-fir, Ponderosa pine) - Bluebunch wheatgrass - Pinegrass
PPs	Ponderosa pine - pinegrass warm aspect, shallow soil	IDFdm1/03	FdPy (Douglas-fir, Ponderosa pine) - Bluebunch wheatgrass - Pinegrass
PS	Ponderosa pine - selaginella shallow soil		
RO*	Rock outcrop - lichen		
ROc*	Rock outcrop - lichen, cool aspect		

ROw*	Rock outcrop - lichen, warm aspect		
SD	Spruce - red-osier dogwood moist, gully	IDFdm1/06	SxwFd (Spruce, Douglas-fir) - Dogwood - Gooseberry
SE	Sedge wetland		
SOc	Saskatoon - mock-orange talus, cool aspect		
SOw	Saskatoon - mock-orange talus, warm aspect		
SS	Big sagebrush - selaginella very shallow soil		
TAc*	Talus, cool aspect		
TAw*	Talus, warm aspect		
WAw	Bluebunch wheatgrass - arow-leaved balsamroot deep soil, warm aspect		
WSc	Bluebunch wheatgrass - selaginella shallow soil, cool aspect		
WSw	Bluebunch wheatgrass - selaginella shallow soil, warm aspect		

TABLES NOT FOR REPORT:

HABITAT UNIT / SITE SERIES CONVERSIONS for Bgxh1

Habitat Units (this legend)		MoF site series		TEM mapping units
AE	Antelope-brush - evening-primrose southerly aspect, coarse sand	BGxh1/02	Antelope-brush - needle-and-thread grass	ANw
AN	Antelope-brush - needle-and-thread grass coarse-textured soils	BGxh1/02	Antelope-brush - needle-and-thread grass	AN
ANc	Antelope-brush - needle-and-thread grass coarse-textured soils, cool aspect	BGxh1/02	Antelope-brush - needle-and-thread grass	ANk
ANf	Antelope-brush - needle-and-thread grass coarse textured soils, fan	BGxh1/02	Antelope-brush - needle-and-thread grass	ANn
ANw	Antelope-brush - needle-and-thread grass coarse textured soils, warm aspect	BGxh1/02	Antelope-brush - needle-and-thread grass	ANw
ASg	Trembling aspen - common snowberry moist, gully			AS
ASp	Trembling aspen - common snowberry moist, floodplain			ASy
BA*	Barren			BA
BD	Water birch - red-osier dogwood swamp			BD
BE*	Beach			BE
BS	Paper birch - common snowberrry moist, gully			
CA*	Canal			CA
CB	Summer-cypress - bentgrass meadow			CB
CD	Black cottonwood - red-osier dogwood floodplain	BGxh1/07	Act (BLACK COTTONWOOD) - Water birch	CD
CF*	Cultivated field			CF
CLc*	Cliff high, cool aspect			CLk
CLw*	Cliif high, warm aspect			CLw
CMc*	Cliff moderate, cool asepct			CMk
CMw*	Cliff moderate, warm aspect			CMw
CO*	Cultivated orchard			CO
CT	Common Cattail Marsh			CT
CV*	Cultivated vineyeard			CV
FL*	Feedlot			FL

GB*	Gravel bar			GB
GC*	Golf course			
GP*	Gravel pit			GP
HA	Black hawthorn copse			HA
LA*	Large lake			LA
MI*	Mine			MI
OS	Oregon grape - saskatoon gully			OS
OW*	Shallow open water			OW
Owa	Shallow open water, alkaline			OW
PA	Ponderosa pine - Antelope-brush coarse textured soil	BGxh1/04	Py (Ponderosa pine) - Antelope brush - Red three-awn	PA
PAf	Ponderosa pine - Antelope-brush coarse textured soil, fan	BGxh1/04	Py (Ponderosa pine) - Antelope brush - Red three-awn	PAn
PB	Ponderosa pine - water birch moist fan			PB
PD*	Pasture, dry			PD
PF	Ponderosa pine - Idaho fescue warm aspect, deep soil			
PM*	Pasture, moist			PM
PO*	Pond			PO
PS	Ponderosa pine - selaginella shallow soil			PS
PSc	Ponderosa pine - selaginella shallow soil, cool aspect			PSk
PSw	Ponderosa pine - selaginella shallow soil, warm aspect			PSw
PW	Ponderosa pine - bluebunch wheatgrass mesic			
PWc	Ponderosa pine - bluebunch wheatgrass mesic, cool aspect			PWk
PWf	Ponderosa pine - bluebunch wheatgrass mesic, fan			PWn
RM	Western redcedar - Douglas maple riparian			RM
RO*	Rock outcrop - lichen			RO
ROc*	Rock outcrop - lichen, cool aspect			ROk
ROw*	Rock outcrop - lichen, warm aspect			ROw
SB	Silverweed - bulrush meadow			SB
SL*	Sewage lagoon			SL
SN	Big sagebrush - needle-and-thread grass coarse-textured soil	BGxh1/01	Big sage - Needle-and-thread grass	SWc
SNf	Big sagebrush - needle-and-thread grass coarse-textured soil, fan	BGxh1/01	Big sage - Needle-and-thread grass	SWcn
SOc	Saskatoon - mock-orange talus, cool aspect			SOk
SOw	Saskatoon - mock-orange talus, warm aspect			SOw

SP	Common snowberry - pinegrass moist			SP
SS	Big sagebrush - selaginella very shallow soil	BGxh1/03	Bluebunch wheatgrass - Selaginella	WSv
ST	Stream (includes seasonal gravel bars)			ST
SWl	Big sagebrush - bluebunch wheatgrass mesic, lacustrine	BGxh1/01	Big sage - Needle-and-thread grass	SWf
SWm	Big sagebrush - bluebunch wheatgrass, morainal	BGxh1/01	Big sage - Needle-and-thread grass	SW
TAc*	Talus, cool aspect			TAk
TAw*	Talus, warm aspect			TAw
TC*	Transportation corridor			TC
UR*	Urban - suburban			UR
WBc	Bluebunch wheatgrass - Sandberg's bluegrass deep soil, cool aspect	BGxh1/01	Big sage - needle-and-thread grass	WBk
WBw	Bluebunch wheatgrass - Sandberg's bluegrass deep soil, warm aspect	BGxh1/01	Big sage - needle-and-thread grass	WBw
WJ	Bluebunch wheatgrass - junegrass mesic			
WSc	Bluebunch wheatgrass - selaginella shallow soil, cool aspect	BGxh1/03	Bluebunch wheatgrass - Selaginella	WSk
WSw	Bluebunch wheatgrass - selaginella shallow soil, warm aspect	BGxh1/03	Bluebunch wheatgrass - Selaginella	WSw
YS	Yellow pine - saskatoon fan	BGxh1/05	Py (Ponderosa pine) - Sumac	PCn

HABITAT UNIT / SITE SERIES CONVERSIONS for PPxh1 and PPxh1a

Habitat Units (this legend)		**MoF site series**		**TEM mapping units**
AN	Antelope-brush - needle-and-thread grass coarse-textured soils			AN
ANc	Antelope-brush - needle-and-thread grass coarse-textured soils, cool aspect			ANk
ANf	Antelope-brush - needle-and-thread grass coarse-textured soils, fan			
ANw	Antelope-brush - needle-and-thread grass coarse-textured soils, warm aspect			ANw

ASg	Trembling aspen - common snowberry moist, gully			AS
ASp	Trembling aspen - common snowberry, floodplain			ASy
BA*	Barren			BA
BD	Water birch - red-osier dogwood swamp			BD
BE*	Beach			BE
BS	Paper birch - common snowberry moist gully	PPxh1/08	Fd (Douglas fir) - Water birch - Douglas maple	DM
CA*	Canal			CA
CD	Black cottonwood - red-osier dogwood floodplain			CD
CF*	Cultivated field			CF
CLc*	Cliff high, cool aspect			CLk
CLw*	Cliff high, warm aspect			CLw
CMc*	Cliff moderate, cool aspect			CMk
CMw*	Cliff moderate, warm aspect			CMw
CO*	Cultivated orchard			CO
CT	Common cattail marsh			
CV*	Cultivated vineyard			CV
DPc	Douglas-fir - pinegrass mesic, cool aspect			
GB*	Gravel bar			GB
GC*	Golf course			GC
GP*	Gravel pit			GP
HA	Black hawthorn - copse			HA
MI*	Mine			
OSc	Oregon grape - saskatoon gully, cool aspect			
OW	Shallow open water			OW
OWa	Shallow open water, alkaline			OW
PA	Ponderosa pine - antelope-brush coarse-textured soil			PA
PB	Ponderosa pine - water birch moist, fan			
PAf	Ponderosa pine - antelope-brush coarse-textured soil, fan			PAn
PD*	Pastur, dry			PD
PF	Ponderosa pine - Idaho fescue warm aspect, deep soil	PPxh1/01	Py (Ponderosa pine) - Bluebunch wheatgrass - Idaho fescue	PWw
PM*	Pasture, moist			PM
PO*	Pond			PO
PS	Ponderosa pine - selaginella shallow soil	PPxh1/02	Py (Ponderosa pine) - Red three-awn	PT
PSc	Ponderosa pine - selaginella shallow soil, cool aspect	PPxh1/02	Py (Ponderosa pine) - Red three-awn	PSk
PSw	Ponderosa pine - selaginella shallow soil, warm aspect	PPxh1/02	Py (Ponderosa pine) - Red three-awn	PTw
PW	Ponderosa pine - bluebunch wheatgrass mesic	PPxh1/01	Py (Ponderosa pine) - Bluebunch wheatgrass -	PW

			Idaho fescue	
PWc	Ponderosa pine - bluebunch wheatgrass mesic, cool aspect	PPxh1/01	Py (Ponderosa pine) - Bluebunch wheatgrass - Idaho fescue	PWk
PWf	Ponderosa pine - bluebunch wheatgrass mesic, warm aspect	PPxh1/01	Py (Ponderosa pine) - Bluebunch wheatgrass - Idaho fescue	PWc
RM	Western redcedar - Douglas maple riparian			
RO*	Rock outcrop - lichen			RO
ROc*	Rock outcrop - lichen cool aspect			ROk
ROw*	Rock outcrop - lichen warm aspect			ROw
SB	Silverweed - bulrush meadow			SB
SN	Big sagebrush - needle-and-thread grass coarse-textured soil			
SNf	Big sagebrush - needle-and-thread grass			
SOc	Saskatoon - mock-orange talus, cool aspect			SOk
SOw	Saskatoon - mock-orange talus, warm aspect			SOw
SP	Common snowberry - pinegrass moist			SP
SS	Big sagebrush - selaginella very shallow soil			WSv
SWl	Big sagebrush - bluebunch wheatgrass mesic, lacustrine			
TC*	Transportation corridor			
TAc*	Talus - cool aspect			TAk
TAw*	Talus - warm aspect			TAw
UR*	Urban			UR
WAc	Bluebunch wheatgrass - arrow-leaved balsamroot deep soil, cool aspect	PPxh1/03	Big sagebrush - Bluebunch wheatgrass	SWk
WAw	Bluebunch wheatgrass - arrow-leaved balsamroot deep soil, warm aspect	PPxh1/03	Big sagebrush - Bluebunch wheatgrass	SWw
WF	Bluebunch wheatgrass - Idaho fescue coarse-textured soil	PPxh1/03	Big sagebrush - Bluebunch wheatgrass	SWc
WFf	Bluebunch wheatgrass - Idaho fescue coarse-textured soil, fan	PPxh1/03	Big sagebrush - Bluebunch wheatgrass	SWc
WJ	Bluebunch wheatgrass - junegrass mesic	PPxh1/03	Big sagebrush - Bluebunch wheatgrass	SW
WSc	Bluebunch wheatgrass - selaginella shallow soil, cool aspect			WSk
WSw	Bluebunch wheatgrass - selaginella shallow soil, warm aspect			WSw

YS	Yellow pine - saskatoon fan			

HABITAT UNIT / SITE SERIES CONVERSIONS for IDFxh1

Habitat Units (this legend)		**MoF site series**		**TEM mapping units**
ASg	Trembling aspen - common snowberry moist gully			AS
BA*	Barren			BA
BD	Water birch - red-osier dogwood swamp			BD
BE*	Beach			BE
BS	Paper birch - common snowberry moist, gully	IDFxh1/08	SxwFd (Spruce, Douglas-fir) - Douglas maple - Dogwood	DM
CD	Black cottonwood - red-osier dogwood floodplain			CD
CLc	Cliff high, cool aspect			
CLw	Cliff high, warm aspect			
CMc*	Cliff moderate, cool aspect			CMk
CMw*	Cliff moderate, warm aspect			CMw
CT	Common cattail marsh			CT
DP	Douglas-fir - pinegrass mesic	IDFxh1/01	FdPy (Douglas-fir - Ponderosa pine) - Pinegrass	DP
DPc	Douglas-fir - pinegrass mesic, cool aspect	IDFxh1/01	FdPy (Douglas-fir - Ponderosa pine) - Pinegrass	DPk
DPf	Douglas-fir - pinegrass mesic, fluvial	IDFxh1/01	FdPy (Douglas-fir - Ponderosa pine) - Pinegrass	DPc
DPs	Douglas-fir - pinegrass mesic, shallow soil			
DW	Douglas-fir - bluebunch wheatgrass warm aspect, deep soil	IDFxh1/03	FdPy (Douglas-fir - Ponderosa pine) - Bluebunch wheatgrass - Pinegrass	PW
FW	Idaho fescue - bluebunch wheatgrass steep, warm aspect			WB
GB*	Gravel bar			GB
LA*	Large lake			LA
OW*	Shallow open water			OW
OWa	Shallow open water, alkaline			
PD*	Pature dry			
PM*	Pature, moist			PM
PS	Ponderosa pine - selaginella shallow soil	IDFxh1/02	FdPy (Douglas-fir - Ponderosa pine) - Bluebunch wheatgrass - Balsamroot	PB
PSc	Ponderosa pine - selaginella shallow soil, war, cool aspect	IDFxh1/02	FdPy (Douglas-fir - Ponderosa pine) - Bluebunch wheatgrass - Balsamroot	PBk

PSw	Ponderosa pine - selaginella shallow soil, warm aspect	IDFxh1/02	FdPy (Douglas-fir - Ponderosa pine) - Bluebunch wheatgrass - Balsamroot	PBw
PW	Ponderosa pine - bluebunch wheatgrassmesic,			
PWc	Ponderosa pine - bluebunch wheatgrassmesic, cool aspect			
PEf	Ponderosa pine - bluebunch wheatgrassmesic, warm aspect			
RO*	Rock outcrop - lichen			RO
ROc*	Rock outcrop - lichen, cool aspect			ROk
ROw*	Rock outcrop - lichen, warm aspect			ROw
SB	Silverweed - bulrush meadow			SB
SE	Sedge wetland			
SOc	Saskatoon - mock-orange talus, cool aspect			SOk
SOw	Saskatoon - mock-orange talus, warm aspect			SOw
SP	Common snowberry - pinegrass moist			DS
SS	Big sagebrush - selaginella very shallow soil			SS
SWl	Big sagebrush - bluebunch wheatgrass mesic, lacustrine			
TAc*	Talus, cool aspect			TAk
TAw*	Talus, warm aspect			TAw
VKc	Vasey's big sagebrush - Kentucky bluegrass grassland, cool aspect			VKk
WKw	Vasey's big sagebrush - Kentucky bluegrass grassland, warm aspect			WKw
WA	Bluebunch wheatgrass - arrow-leaved balsamroot deep soil			
WAc	Bluebunch wheatgrass - arrow-leaved balsamroot deep soil, cool aspect			SWk
WAw	Bluebunch wheatgrass - arrow-leaved balsamroot deep soil, warm aspect			SWw
WBc	Bluebunch wheatgrass - Sandberg's bluegrass deep soil, cool aspect			
WJ	Bluebunch wheatgrass - junegrass mesic			WF
WSc	Bluebunch wheatgrass - selaginella shallow soil, cool aspect			SWks
WSw	Bluebunch wheatgrass -			SWsw

	selaginella shallow soil, warm aspect			
YS	Yellow pine - saskatoon fan			

HABITAT UNIT / SITE SERIES CONVERSIONS for IDFdk1

Habitat Units (this legend)		**MoF site series**		**TEM mapping units**
ASg	Trembling aspen - common snowberry moist gully			AS
BE*	Beach			BE
DYd	Doulas-fir - yarrow warm aspect, deep soil	IDFdk1/04	Fd (Douglas-fir) - Pinegrass - Yarrow	DYw
DYs	Douglas-fir - yarrow warm aspect, shallow soil	IDFdk1/04	Fd (Douglas-fir) - Pinegrass - Yarrow	DYsw
LP	Lodgepole pine - pinegrass mesic	IDFdk1/01	Fd (Douglas-fir) - Pinegrass - Feathermoss	LP
LPc	Lodgepole pinegrass mesic, cool aspect	IDFdk1/01	Fd (Douglas-fir) - Pinegrass - Feathermoss	LPk
LPf	Lodgepole pine - pinegrass mesic, fan			
LPs	Lodgepole pine - pinegrass mesic, shallow soil			
OW*	Shallow open water			OW
PSc	Ponderosa pine - selaginella shallow soil, cool aspect			
PSw	Ponderosa pine - selaginella shallow soil, warm aspect			
RO*	Rock outcrop			RO
ROc*	Rock outcrop, cool aspect			ROk
ROw*	Rock outcrop, warm aspect			ROw
SE	Sedge wetland			
SOc	Saskatoon - mock-orange talus, cool aspect			
SOw	Saskatoon - mock-orange talus, warm aspect			
SP	Common snowberry - pinegrass moist			SP
SS	Big sagebrush - selaginella very shallow soil			
TAc*	Talus, cool aspect			TAk
TAw*	Talus, warm aspect			TAw
VK	Vasey's big sagebrush - Kentucky bluegrass grassland			VK
VKc	Vasey's big sagebrush - Kentucky bluegrass grassland, cool aspect			VKk
VKw	Vasey's big sagebrush - Kentucky bluegrass grassland,			VKw

	warm aspect			
WAw	Bluebunch wheatgrass - arrow-leaved balsamroot deep soil, warm aspect			
WSc	Bluebunch wheatgrass - selaginella shallow soil, cool aspect			
WSw	Bluebunch wheatgrass - selaginella shallow soil, warm aspect			

HABITAT UNIT / SITE SERIES CONVERSIONS for MSxk

Habitat Units (this legend)		**MoF site series**		**TEM mapping units**
ASg	Trembling aspen - common snowberry moist, gully			
DAd	Douglas-fir - heart-leaved arnica warm aspect, deep soil	MSxk/05	FdPl (Douglas-fir, Lodgepole pine) - Pinegrass - Arnica	DA
DAs	Douglas-fir - heart-leaved arnica warm aspect, shallow soil	MSxk/05	FdPl (Douglas-fir, Lodgepole pine) - Pinegrass - Arnica	DAs
LL	Lodgepole pine - arctic lupine mesic	MSxk/01	Pl (Lodgepole pine) - Pinegrass - Lupine	LL
LLc	Lodgepole pine - arctic lupine mesic, cool aspect	MSxk/01	Pl (Lodgepole pine) - Pinegrass - Lupine	LLk
LLs	Lodgepole pine - arctic lupine mesic, shallow soil			
OW*	Shallow open water			OW
RO*	Rock outcrop			RO
ROc*	Rock outcrop - cool aspect			ROk
ROw*	Rock outcrop - warm aspect			ROw
SG	Spruce - black gooseberry moist	MSxk/08	Sxc (Spruce) - Gooseberry - Grouseberry	SG
TAc*	Talus, cool aspect			TAk
TAw*	Talus, warm aspect			TAw
VK	Vasey's big sagebrush - Kentucky bluegrass grassland	MSxk/04	Big sage - Pinegrass	VK
VKc	Vasey's big sagebrush - Kentucky bluegrass grassland, cool aspect	MSxk/04	Big sage - Pinegrass	VKk
VKw	Vasey's big sagebrush - Kentucky bluegrass grassland, warm aspect	MSxk/04	Big sage - Pinegrass	VKw
WSw	Bluebunch wheatgrass -			

	selaginella shallow soil, warm aspect			

HABITAT UNIT / SITE SERIES CONVERSIONS for ESSFxc

Habitat Units (this legend)		MoF site series		TEM mapping units
FG	Subalpine fir - grouseberry mesic	ESSFxc/01	******need part 2*****	FG
FGc	Subalpine fir - grouseberry mesic, cool aspect	ESSFxc/01	****need part 2******	FGk
OW	Shallow open water			OW
PO*	Pond			PO
RO*	Rock outcrop			RO
ROc*	Rock outcrop, cool aspect			ROk
ROw*	Rock outcrop, warm aspect			ROw
SE	Sedge wetland			
VK	Vasey's big sagebrush - Kentucky bluegrass grassland			VK
VKc	Vasey's big sagebrush - Kentucky bluegrass grassland, cool aspect			VKk
VKw	Vasey's big sagebrush - Kentucky bluegrass grassland, warm aspect			Vkw
WSw	Bluebunch wheatgrass - selaginella shallow soil, warm aspect			

HABITAT UNIT / SITE SERIES CONVERSIONS for IDFdm1

Habitat Units (this legend)		MoF site series		TEM mapping units
CMc*	Cliff moderate, cool aspect			
CMw*	Cliff moderate, warm aspect			
CT	Cattail marsh			
DT	Dougls-fir - twinflower mesic	IDFdm1/01	FdPl (Douglas-fir, Lodgepole pine) - Pinegrass - Twinflower	DT
DTc	Douglas-fir - twinflower mesic, cool aspect	IDFdm1/01	FdPl (Douglas-fir, Lodgepole pine) - Pinegrass - Twinflower	DTk
DTs	Douglas-fir - twinflower mesic, shallow soil			

OW	Shallow open water			OW
PO*	Pond			
PPd	Ponderosa pine - pinegrass warm aspect, deep soil	IDFdm1/03	FdPy (Douglas-fir, Ponderosa pine) - Bluebunch wheatgrass - Pinegrass	PPd
PPs	Ponderosa pine - pinegrass warm aspect, shallow soil	IDFdm1/03	FdPy (Douglas-fir, Ponderosa pine) - Bluebunch wheatgrass - Pinegrass	PPs
PS	Ponderosa pine - selaginella shallow soil			
RO*	Rock outcrop - lichen			RO
ROc*	Rock outcrop - lichen, cool aspect			ROk
ROw*	Rock outcrop - lichen, warm aspect			ROw
SD	Spruce - red-osier dogwood moist, gully	IDFdm1/06	SxwFd (Spruce, Douglas-fir) - Dogwood - Gooseberry	SD
SE	Sedge wetland			SE
SOc	Saskatoon - mock-orange talus, cool aspect			SOk
SOw	Saskatoon - mock-orange talus, warm aspect			SOw
SS	Big sagebrush - selaginella very shallow soil			
TAc*	Talus, cool aspect			
TAw*	Talus, warm aspect			Taw
WAw	Bluebunch wheatgrass - arow-leaved balsamroot deep soil, warm aspect			
WSc	Bluebunch wheatgrass - selaginella shallow soil, cool aspect			
WSw	Bluebunch wheatgrass - selaginella shallow soil, warm aspect			

--And then check this against the units that are actually in the report and double check the *ed units etc.-

*****Get FROM THE OFFICE*****:
~~-glacial history from max~~
-does Ted want the final column of conversions in the report?
-biogeoclimatic units
-ask about small map of area...
-names of species not in conversion book - also, some need the second book of the series
-ask ted how he's doing on the tables
-renew soils book
-does Ted want soils info in report?
-ask about dates published and referencing system