Parkland Habitat Partnership:

Intermountain Phase 2010

An Inventory of Sites and Natural Habitats in the Bluewing Corridors Shell River Valley

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Abstract

The purpose of the study, which began in 2001, was to locate and identify undisturbed habitat between the Riding Mountain National Park and the Duck Mountain Provincial Park. This report adds data to the 2009 report titled Parkland Habitat Partnership: Intermountain Phase 2009 (Dillabough, 2009)

The purpose of this study is to locate any native, undisturbed habitats within the corridors of the Duck Mountain Provincial Park and Riding Mountain National Park. Since inception of the project the Rose Ridge corridor and the Bluewing corridor, which connect the Duck Mountain Provincial Park and Riding Mountain National Park, have been studied and in the 2006 report it was estimated that 90-95% of all natural habitat in this area was inventoried.

In total 1940 acres were inventoried during the 2010 field season. Of this total, 400 acres were pasture land, 180 acres were mixed prairie, 1240 were aspen forest, 80 acres were crop and 40 acres were farm yard sites.

The information in this report summarizes the information collected on the habitat types, species and landowner interviews completed during the 2010 summer field season. The properties inventoried were within the rural municipalities of Shell River, Shellmouth-Boulton, and Hillsburg.

Acknowledgements

I would like to thank Gerald Forsyth and Josh Dillabough for their time and guidance, and arranging various training opportunities during the summer.

I would also like to thank Cary Hamel for helping with the identification of plant species and providing training in the identification of calcareous fens and fescue prairie

Additional support was also provided by Riding Mountain Biosphere Reserve, Riding Mountain Park – Parks Canada and Lake of the Prairies Conservation District.

And thank you to all the land owners, for your cooperation and assistance in gathering the information for this report.

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Introduction

The Parkland Habitat Partnership (PHP) was initiated to inventory ecologically significant land around the Riding Mountain National Park and the corridors between Riding Mountain National Park and Duck Mountain Provincial Park. This year the focus of study was on the Shell River Valley Corridor, and was a continuation of the Parkland Habitat Partnership: Intermountain Phase 2009 (Dillabough, 2009)

Several conservation groups and organizations joined together to form the Parkland Habitat Partnership to work on preserving the diverse and native habitat in the region. The many partners include: Friends of Riding Mountain National Park, Parks Canada, Environment Canada, Nature Conservancy of Canada (NCC), Riding Mountain Biosphere Reserve (RMBR), Manitoba Conservation, Habitat Heritage Corporation (MHHC), Fisheries and Oceans Canada, Ducks Unlimited (DUC), Louisiana Pacific, Lake of the Prairies Conservation District and Intermountain Conversation District, and others.

This report summarizes the habitat assessments, species listing, landowner interviews, and other data collected during the 2010 summer field season. The majority of the sites assessed were located within the rural municipalities of Shell River, Shellmouth-Boulton and Hillsburg.

Study Area

The focus of study during past summers has been in the Rose Ridge and Bluewing corridors. The Shell River Valley corridor had not been inventoried intensively during the first years of the program.

The Shell River valley was formed ten thousand years ago with the melt water from the glaciers and the runoff from glacial Lake Agassiz. The massive amount of water created a large river, which is now seen as a steep valley with valley bottoms 60m below the surrounding land surface. (Shell River Watershed – June 2008). There are significant elevation changes in the area as well, from 780 m above sea level in the north eastern portion down to 400 m above sea level in the Assiniboine River valley.

The source of the Shell River is made up of watersheds that begin in the Duck Mountains. During the summer of 2010, the high precipitation throughout the area caused the Shell River to flood in many areas; therefore, it was not possible to do a proper riparian assessment.

The steepness of the Shell River Valley walls makes it impossible to break the soil. This is important in finding key species such as fescue, which generally grows on steep, undisturbed slopes.

Objectives

In 2010, PHP member organizations identified the following key objectives:

- Locate native prairie with a key focus on mapping native fescue prairie in the Shell River Valley
- Determine the health of the Shell River riparian habitat by using the Manitoba Habitat Heritage Corporation (MHHC) riparian health assessment guideline
- Discover and map possible rare calcareous fens, some of which are noted at the north end of the Shell River
- Determine the size and health of aspen forest located in the Shell River valley
- Map and classify wetlands using Stewart and Kantrud classification of natural ponds and lakes in the glaciated pothole region
- Refer landowners to Nature Conservancy Canada (NCC) to negotiate Conservation Easements
- Encourage landowners to participate in programs offered by the Lake of the Prairies Conservation District

Methodology

Site Selection

A database was created in the winter of 08/09 to map the progress of the PHP and the sites that have been visited. From this data base, in summer 2009, 61 sites were selected around the Shell River valley based on vegetation. This report is a continuation of those sites and 68 new sites that were selected.

Site Focus

The goals were to find native prairie, calcareous fens, to locate species at risk or concern, and to conduct riparian health assessments to determine the health of the Shell River. The Steward and Kantrud classification system was used to assess the type and health of wetlands within the Riding Mountain Aspen parkland.

During the summer of 2009, an assessment regime was created to ensure uniformity in data collection procedures.

Habitat Grading Criteria

The Habitat Grading Criteria utilized in the study (Dillabough, 2009) is described below.

The components of the Habitat Grading Criteria were based on the Manitoba Habitat Heritage Corporation (MHHC) Riparian Health Assessment and the Ducks Unlimited wetland classification and modified to show a selection of native health habitats. This score was used to assess the natural habitat within the selected site. The sites that have more native/natural habitats have little to no impact, have a high amount of cover with low use, with very few to no

invasive species. It is from this definition that the weights of the question vary. The more important the attribute to creating a native habitat is, the more it is worth. This resulted in a quick score based out of 30.

Land use – numbered ranking of property use;

Other = 0, Agriculture =3, Planted/Permanent Cover = 6, Native/Natural = 9

Land Use Modifier – present activities on the land that modify the habitat:

Logging/Cultivation= 0, Grazing = 2, Recreation = 4, Idle = 6

Degree of Use – how often the habitat is altered:

High = 0, Medium = 3, Low= 6, None = 9

Cover Percentage – amount of habitat that canopy covers:

>75% =3, 75-50% = 2, 50-25%=1, <25%= 0

Invasive Cover Percentage – total amount of habitat that is made up of invasive species

0%=3, 0-5%=2, 5-10%=1, >10%=0

Total score possibly was out of 30. The habitat grade is classed as:

>80 = A, 70-79 =B, 60-69 = C, 45-59 =D, <45 =F

Some explanation is required for the land use 0= other score. The term “Other” would refer to a type of development that disturbs the soil. Examples of such disturbances found within study area are gravel pits, roads, logging activities, buildings or construction of buildings.

Planted/Permanent cover is defined as species that may be planted in order to create wildlife or vegetation cover; or are habitats that are not planted but currently being used, and are at climax community so the dominant species is unthreatened by the use.

The degree of use can be somewhat confusing as it is dependent on both the land use and the land use modified. The activities that are present on the property will determine how they are rate. The land use modifier is most important when ranking degree of use.

Logging:

High = currently being logged, or logged within 1 year

Medium = Logged 2-4 years ago and saplings are starting to reach 2m tall

Low = logging was 5 years ago and saplings have now grown height of 4 – 6 meters

None = forest or habitat has reached climax community.

Cultivation:

High = yearly crop rotation with fertilizer applications, herbicide or pesticide spraying

Medium = yearly crop rotation with fertilizer applications

Low = yearly crop rotation.

None – does not exist.

Grazing:

High = grasses over grazed, woody species heavily grazed as well (grasses less then ankle height, have golf course appearance, with bare patches of soil

Med= grasses moderately grazed with some shoots resulting in fruiting body, woody species lightly grazed (grasses between ankle and shin)

Low = little grazing most grasses appear to be reaching maximum growth with only most desirable species grazed, no woody species grazed

None = no grazing in that year.

Recreation:

High = area highly manicured or grass cut, roads and trails have no vegetation on them, lots of soil exposed with development high amounts of trail systems

Medium – area has knee high grass, very little soil exposed, trails/roads have grass and weeds growing between tire wear areas

Low = low no soil exposed, no manicuring of area, roads/trails completely covers with grasses

None – trail/road establishment of woody species, no soil exposed.

Idle Land: has only wildlife impact of game trails, old fields and roads growing in with wooding vegetation. Often this land only scores a “None”. If it is used for hiking/hunting it should be reclassified as recreation.

The cover percentage could also be interpreted as ground cover; the percentage of that habitat type that covers the ground. Forests that have undergrowth of grasses and shrubs would not be 100%. Shrub communities often have grasses growing in between shrubs so that cannot be considered 100%. Grasslands are measured against the amount of bare soil present; however, this is the one habitat that has the potential to reach 100% coverage. Maximum marks are given

to the above 75% canopy cover where the community has been allowed to reach its climax. The only exception to this is grassland, were you expect to have a very high cover and low amounts of bare soil. However, most grasslands have above the 75% canopy cover therefore this does not cause major error in the data.

Invasive cover is an estimation of the overall ground cover. It is determined by grouping all the invasive species together in one patch and estimating how much of this makes up the entire habitat.

The range of letter grades to values was created with the aid of the MMHC RHA. Noting that a percentage score above 80% usually means that the habitat is healthy and can support a native community, resulted in an A letter grade score (LGS). A “B” LGS has many of the characteristics of being a good quality habitat with the main difference between the A to B range being that A usually requires most of the land be idle, while the “B” LGS land can have low amounts of land use. The “C” LGS range is for habitats that are used but have more impacts on them. With lower land use, often these habitats could become a “B” LGS or an “A” within two years if left idle. “D” letter grades usually mean that for this habitat, the land use is moderate, that these habitats are starting to degrade and have high amounts of invasive species within them. The range of “D” is larger than the others because of the properties potential to recover if given a chance to. “F” habitats are usually filled with invasive species, or have such high land use that the vegetation is overused. Few native species can handle this amount of use. This grade is often given to cultivated or crop rotation land.

Quarter Grade

A quarter grade is a continuation of the grading system created during the 2009 summer field season. (Dillabough, 2009)

The quarter grade has the same letter grade system ranking as the habitats and the same explanations apply. The quarter section has an overall letter grade, as property boundaries and habitat boundaries do not always coincide. That being said, the overall quarter habitat is the sum of its parts. All values are normalized by the habitat size so as to not show a bias towards the overall quarter section letter grade given. It is much like a school grading system; many assignments, quizzes and tests are used to get a final grade but not all of them are evenly weighted, with your tests usually worth more of your final mark. Similarly, with habitat size or acres; the more acres a habitat has, the more weight it has in the final grade of the quarter. A quarter section grade maybe low, but this does not mean that all habitats on the property are low. Often, some of the higher quality habitats are in smaller sizes thus carrying less weight in the final quarter grade. (Dillabough, 2009)

Pre-Site Evaluation

Prior to conducting a site assessment, training was provided on riparian health assessments, identification of prairie grasses and printing of orthophotos, an aerial photograph geometrically corrected ("orthorectified") such that the scale is uniform so that the photo has the same lack of distortion as a map, of properties and reviewing various field books and previous reports from

the PHP was imperative. From the list of potential land sections to visit, landowner contact information was prepared and calling landowners began.

Data Collection

The data was collected during the 2010 field season by visiting the properties and identifying aspen forests, pastures, and grasslands on the steep slopes of the Shell River Valley. Plants were noted only if a positive identification could be made. Animals were noted by either sightings or tracks.

A habitat grade was made by using the method created during the 2009 field season (Dillabough, 2009). The information collected from field visits was entered into an excel database to create the habitat and quarter grade.

A GIS program was used to show different habitats on the quarter sections visited in 2010. Layers were added and edited over orthophotos.

Results

A total of 1940 acres were ground truthed to gather data in the field that either complemented or disputed the orthophotos during the 2010 field season. Of this it was ascertained that 400 acres were pasture land, 180 acres were mixed prairie, 1240 were aspen forest, 80 acres were crop and 40 were development.

Habitat Observations

Riparian

Heavy rainfall during the summer of 2010 caused the Shell River to flood. Along with the MHHC-RHA, it was determined that a riparian health assessment not be conducted when the river was experiencing flooded conditions.

Calcareous Fens

No calcareous fens were located during the 2010 assessment. The tamarack, which is a favourable tree that surrounds calcareous fens, was not identified.

Prairie

A total of 580 acres of prairie was sighted during the 2010 summer season. Of this 69% was classified as tame grass and 31% was classified has go-back prairie.

Aspen Forest

Aspen Forest constituted the largest habitat found during the 2010 summer season. Approximately 1240 acres were surveyed accounting for 64% of the total land assessed.

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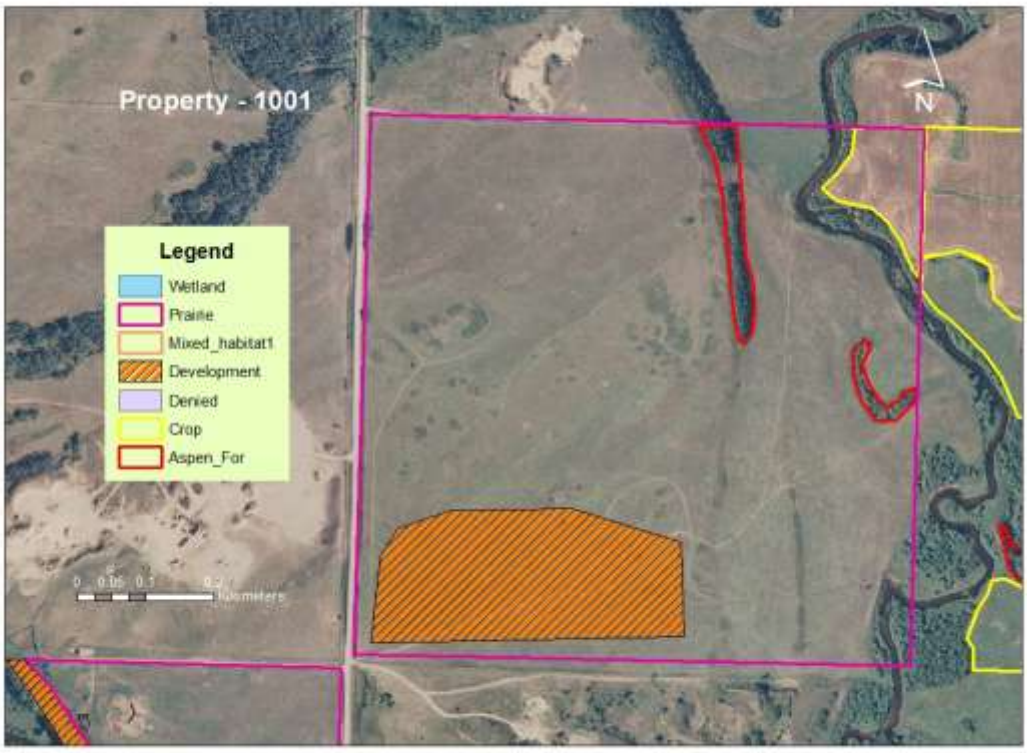
Appendix A

Property numbers (ex. 1001) are used in the final report to protect the rights of the landowners by the Canadian Copy Right act. The first two digits represent the year in which the site was assessed and the last two numbers represent a random ordering in which they were entered into the database.

1001



Past land use – Pasture land

Present land use – Part pasture land and part gravel pits

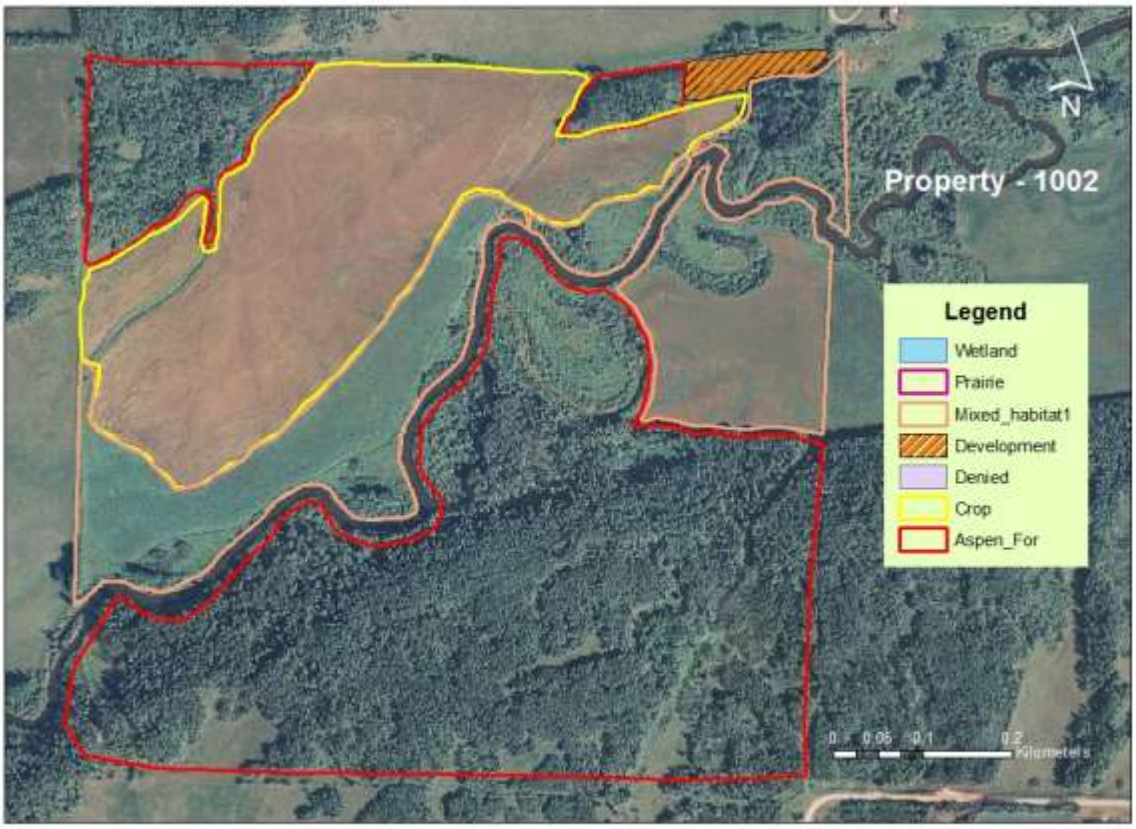
Future land use – Continuation of the same.

Habitats and Score – This quarter section was mainly pasture with large gravel pits in the southwest corner and small clumps of aspen closer to the river. The quarter received a low score (F) because of the gravel pits, and what wasn't a gravel pit was quite heavily grazed.

Landowner observations indicated signs of White Tail Deer (*Odocoileus virginianus*) and Black bear (*Ursus americanus)*

Field Observations: – tame pasture grass and aspen trees along the river and gravel pits

1002



Past Land Use – Parts of the section north and south of the River has been used for alfalfa production with an oats crop rotation.

Present Land Use – There is a cabin located on the north half of the section. The cultivated acres north of the river have oats planted this season. The landowner stated that the south part of the section consisting of aspen forest has never been cleared. There is a small road on the south east side of the section down the hill to the river.

Future Land Use – The land has been given to his daughter and the landowner is unsure of future plans for utilization of the property.

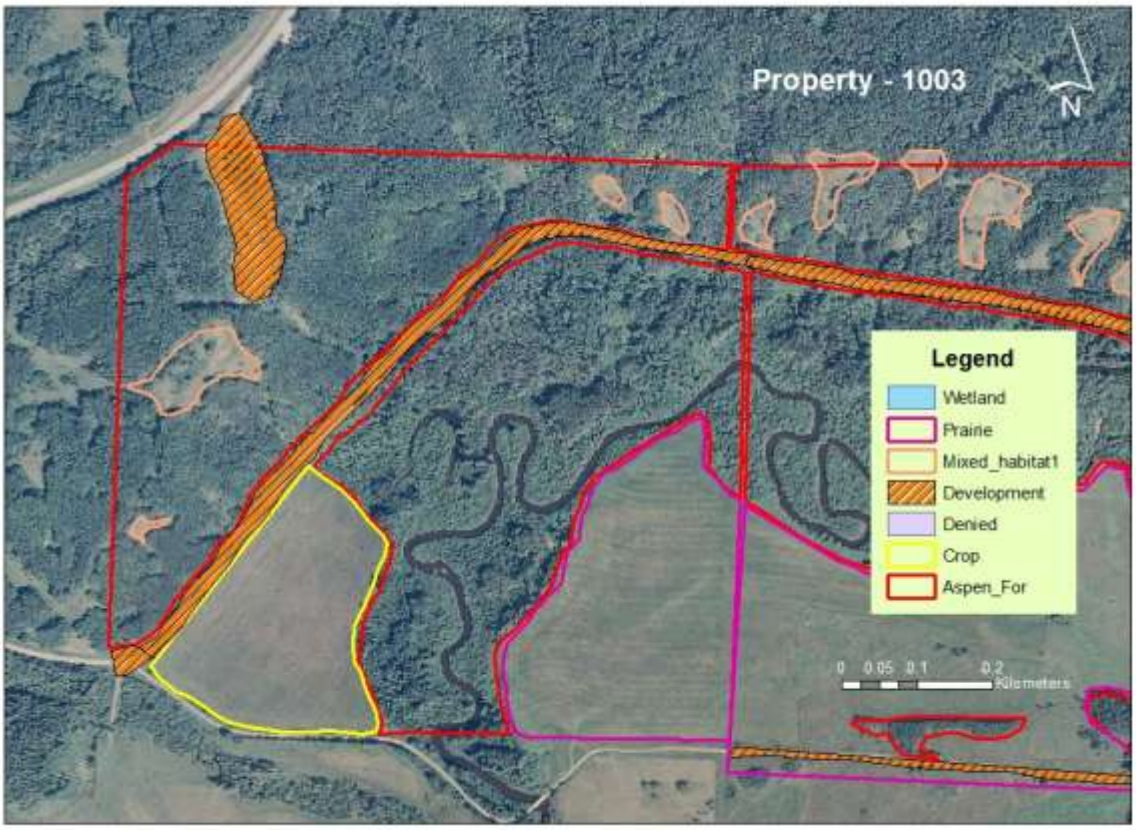
Habitat and Score – This quarter is mainly aspen forest, and crop. On the north side of the river it's used as crop which is usually alfalfa fields and has been pushed right up to the river. The south side is oats this year. Crops are more of a high impact so both of those received a lower score. The aspen forest on the south side of the river received a high score, because according to the landowner's record, not much of that has been disturbed. Over all this quarter received a (C)

The riparian area was so badly flooded that it wasn't possibly to do a proper riparian assessment, however, because as crop land had been pushed right up to the river, it's assumed that the health of the riparian area on this quarter would not be very good.

Fauna: Landowner observations included sightings of Black Bear, *(Ursus americanus)* North American Elk (*Cervus elaphus*), White Tail Deer *(Odocoileus virginianus),* wolf (*Canis lupus)*, and cougar (*Puma concolor).*

My onsite observations included Garter snake (Thamnophis *spp.)* and a white tail deer (*Odocoileus virginianus).*

1003



Past/present land use- The land owner bought the land 10 years ago. It is being used for hay along the road and pasture on the other side of the river. There is riparian fencing all along the river so the cattle cannot get down to the river.

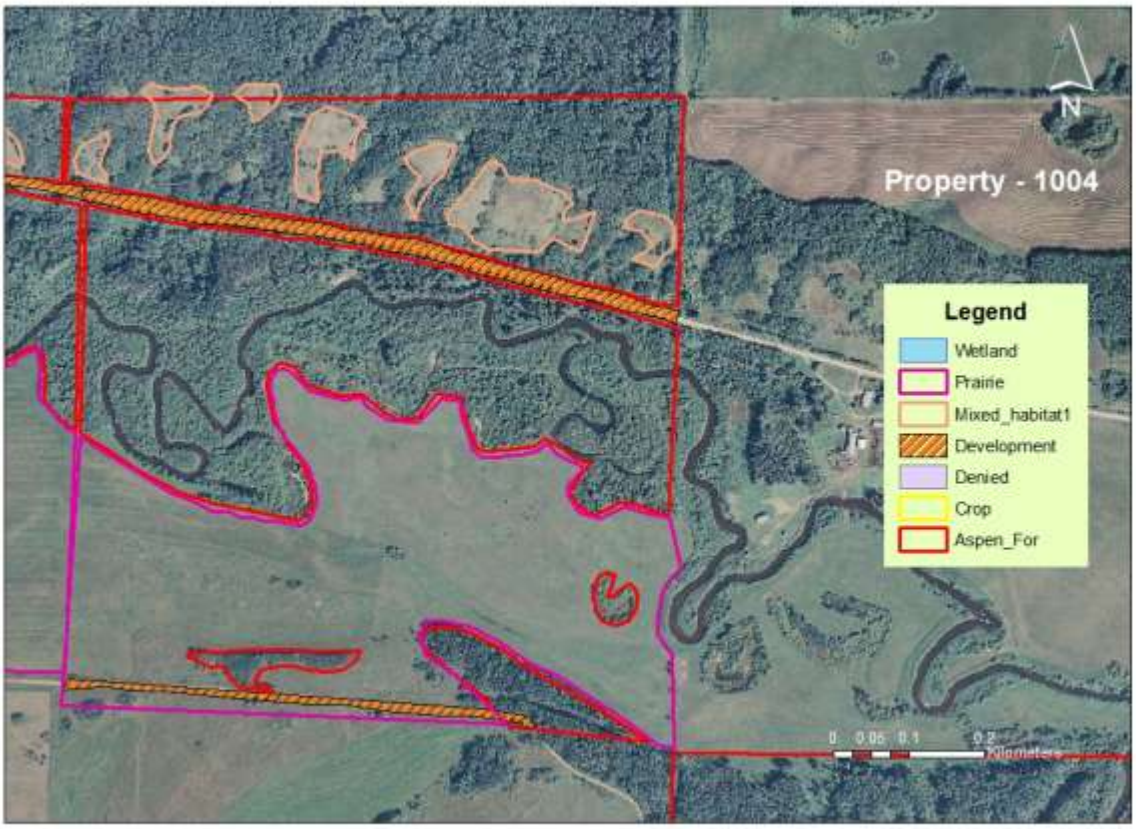
Future land use – Continuation of the same.

Habitat and Grade – This land is mainly crop, aspen forest, and pasture. The road goes directly through the quarter section because of the river and the slope of the valley wall. The north side of the road is aspen forest, and received a fairly good score because it has not been disturbed to any extent. The crop on the south side of the road has been used for hay land for at least ten years. It gets cut once a year, so it received a higher score then it would if it were cut more than once. The pasture area is moderately grazed and the riparian area has been fenced off so cattle cannot get into it, which boosts the score of the area. However, because the river was flooded, it was not possible to do a proper riparian assessment. Because the pasture has been fenced off, it may be assumed that it has moderate health at least because there wouldn't be any disturbance from livestock. Overall, this quarter received a (C).

Fauna - Landowner observations indicated signs of Black Bear, *(Ursus americanus)* North American Elk (*Cervus elaphus*), White Tail Deer *(Odocoileus virginianus),* wolf (*Canis lupus)*

My onsite observations indicated signs of elk and deer.

1004



Past/Present land use- Land is used for pasture, with riparian fencing installed along both sides of the river.

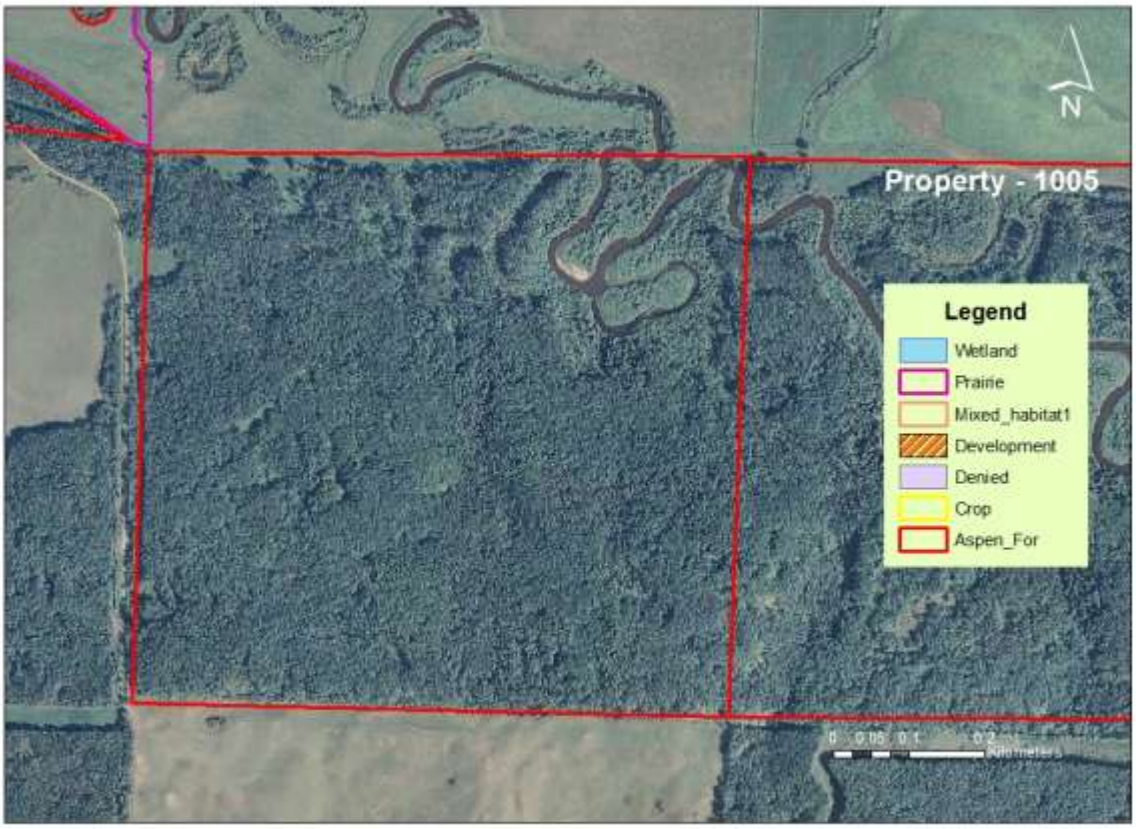
Future land use – Continuation of the same.

Habitat and Grade – This quarter is mainly pasture and aspen forest, with some mixed habitat north of the road. The landowner stated that the land north of the road has not been disturbed, which qualifies for a high score. The riparian area south of the road has been fenced off so the health of the riparian area should be moderate; however, because of flooding this year, it was not possible to properly assess the riparian area. The pasture land is moderately grazed with quite a few invasive species (Brome) which is responsible for the low score. Over all this quarter received a (C)

Fauna – Landowners observations included sightings of Black Bear, *(Ursus americanus)* North American Elk (*Cervus elaphus*), White Tail Deer *(Odocoileus virginianus),* wolf (*Canis lupus)*

My onsite observations indicated signs of elk and deer.

1005



Past/Present land use – Crown land, aspen forest, and a small walking trail.

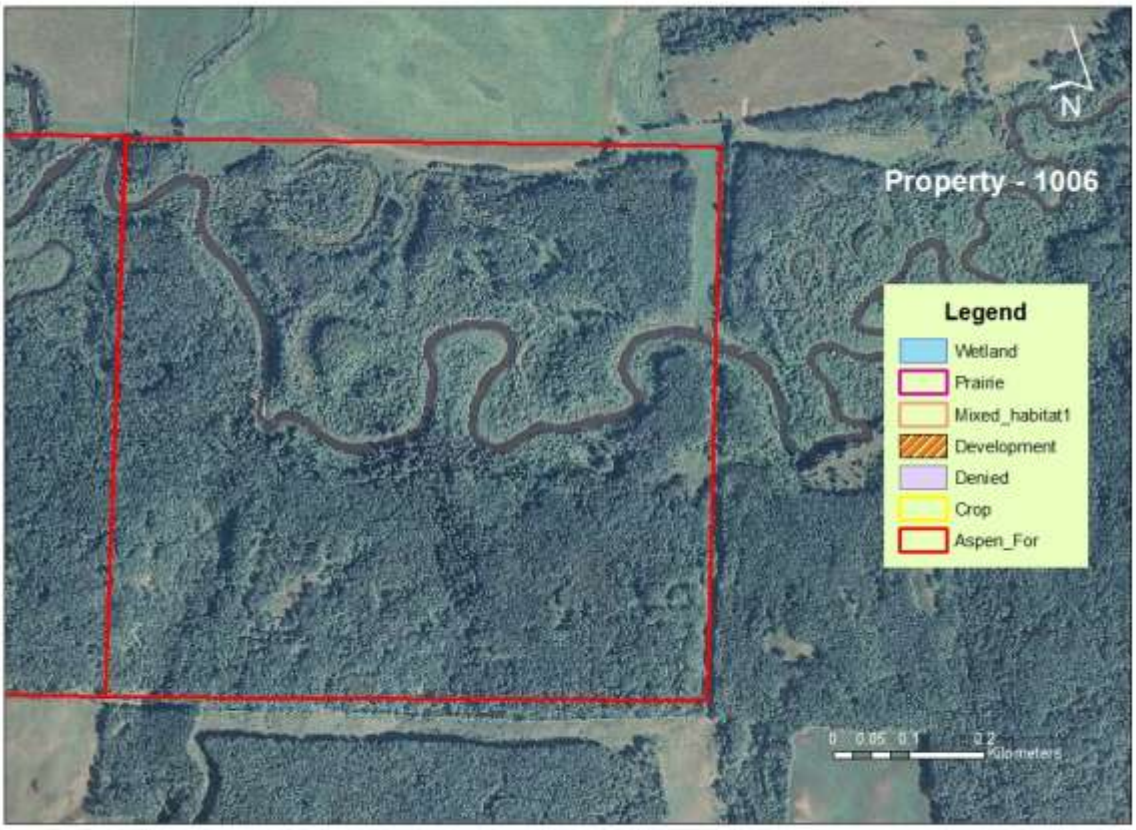
Future land use – Continuation of the same.

Habitat and Grade – This quarter is dominated by aspen forest, and is used for grazing cattle moderately throughout the year. It received a grade of (C) because of the grazing.

Fauna – Landowner observations included sightings of Black Bear, *(Ursus americanus)* North American Elk (*Cervus elaphus*), White Tail Deer *(Odocoileus virginianus),* wolf (*Canis lupus)*

My onsite observations indicated signs of elk and deer.

1006



Past/Present land use – Crown land, aspen forest, small trail used for walking only

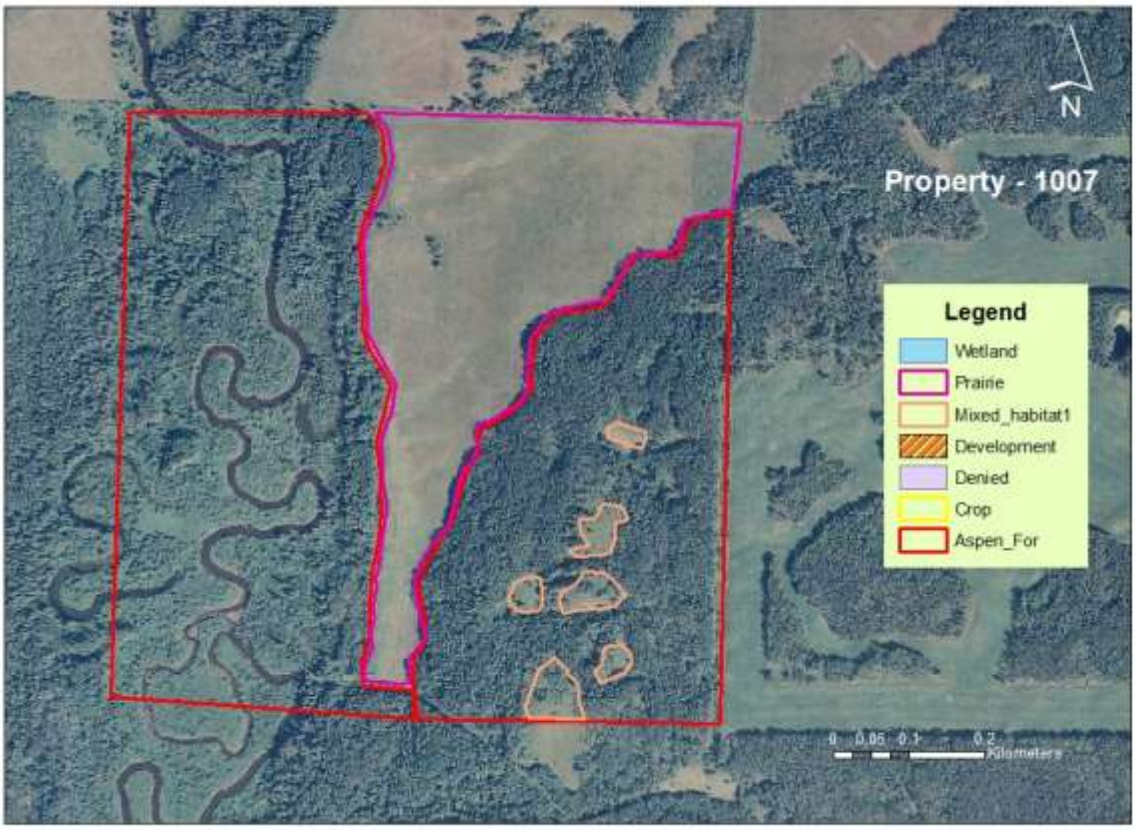
Future land use – Continuation of the same.

Habitat and Grade – This quarter is dominated by aspen forest and is also used for grazing cattle. It received a grade of (C) because of the grazing.

Fauna – Landowner observations indicated sightings of Black Bear, *(Ursus americanus)* North American Elk (*Cervus elaphus*), White Tail Deer *(Odocoileus virginianus),* wolf (*Canis lupus)*

My onsite observations indicated signs of elk and deer.

1007



Past/present land use – rarely grazed pasture with a few cattle for short grazing periods during the year.

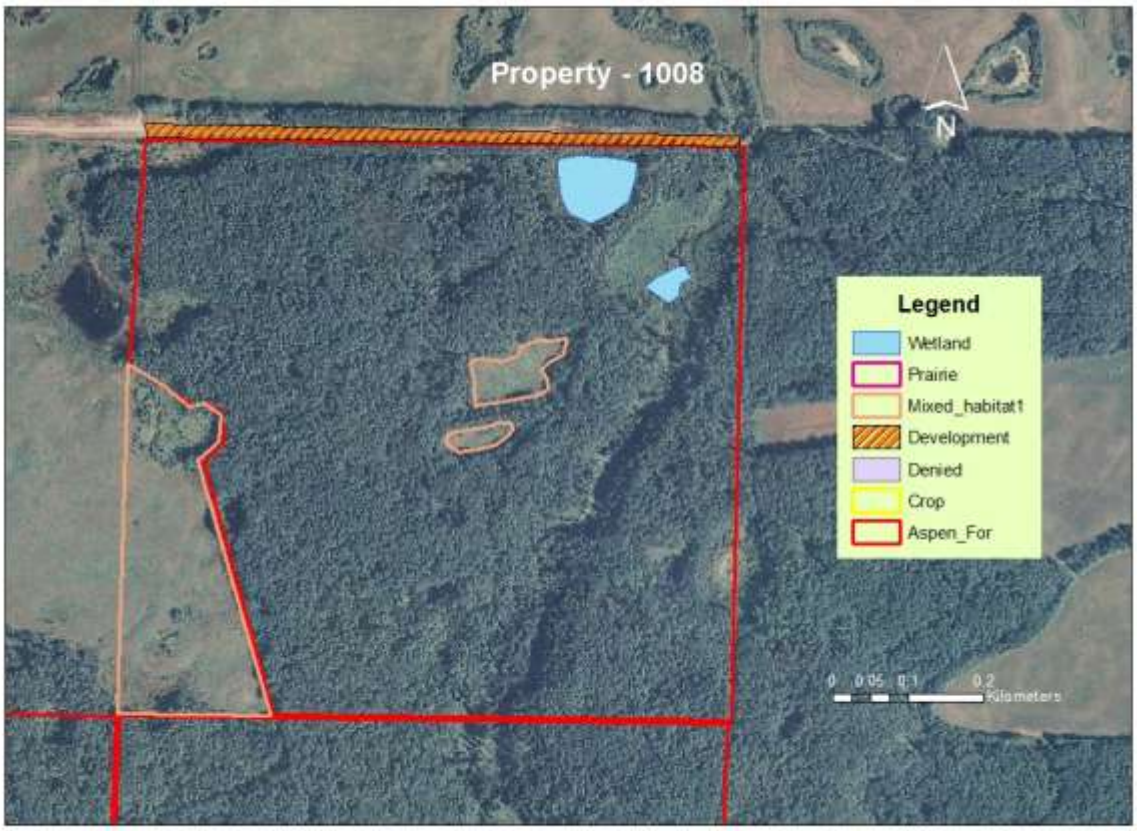
Future land use – Continuation of the same.

Fauna – Landowner observations included sightings of Black Bear, *(Ursus americanus)* North American Elk (*Cervus elaphus*), White Tail Deer *(Odocoileus virginianus),* Wolf (*Canis lupus),* Moose (*Alces alces)*,

Habitat and Grade - This quarter is a mixture of aspen forest and pasture land. The aspen area along the river has been fenced off so cattle cannot get into it making the grade for this area quite high. Also, the pasture land is rarely grazed. To the landowners note it is only grazed once a year with a few cattle. Over all this quarter received a grade of (A) because of the very low usage.

My onsite observations indicated signs of elk and deer.

1008



Past/present land use – Present landowner took ownership of the land three years ago. The land was previously used for cattle grazing. There is no current agriculture use on the land.

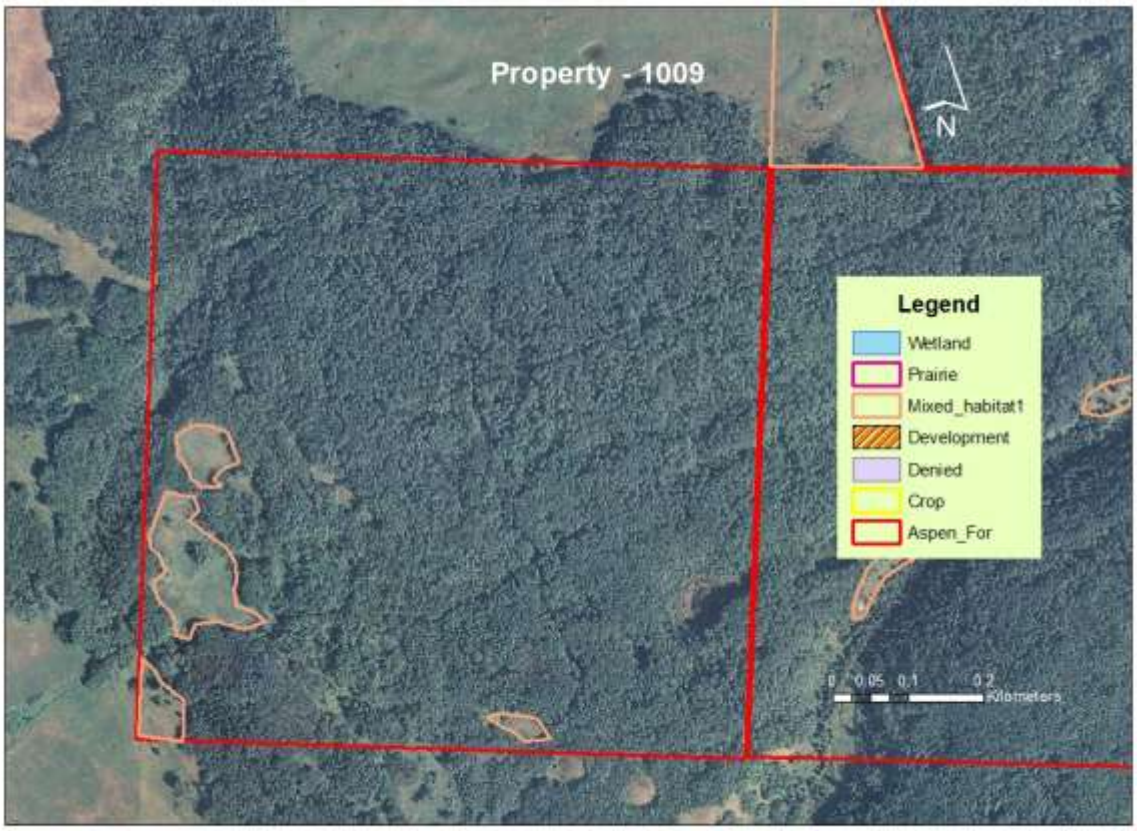
Future land use – The land may be utilized for horse pasture in the future.

Habitat and Grade – This land is mainly aspen forest with some grassland along the south west side and a small wetland in the north east corner. Currently the land is unused. There has been little disturbance. The grassland may have been used for pasture in the past. The lack of use has made this land have an overall grade of (A).

Fauna – White Tail Deer *(Odocoileus virginianus),* Striped Skunk *(Mephitis mephitis)*, Black Bear *(Ursus americanus)* and North American Elk (*Cervus elaphus*) sign.

Flora – Canada Thistle *(Cirsium arvense)*, Wild Strawberries *(Fragaria spp.)*, Prairie Smoke (*Geum triflorum*), northern wheat grass *(Agropyron dasystachyum),* Yarrow *(Achillea millefolium)*, Aster *(Aster spp.),* Purple Prairie Clover *(Petalostemum purpureum),* Smooth Brome*(Bromus inermis),*

1009



Past/present land use – Present landowner took ownership of the land three years ago. The land was previously used for cattle grazing. There is no current agriculture use on the land.

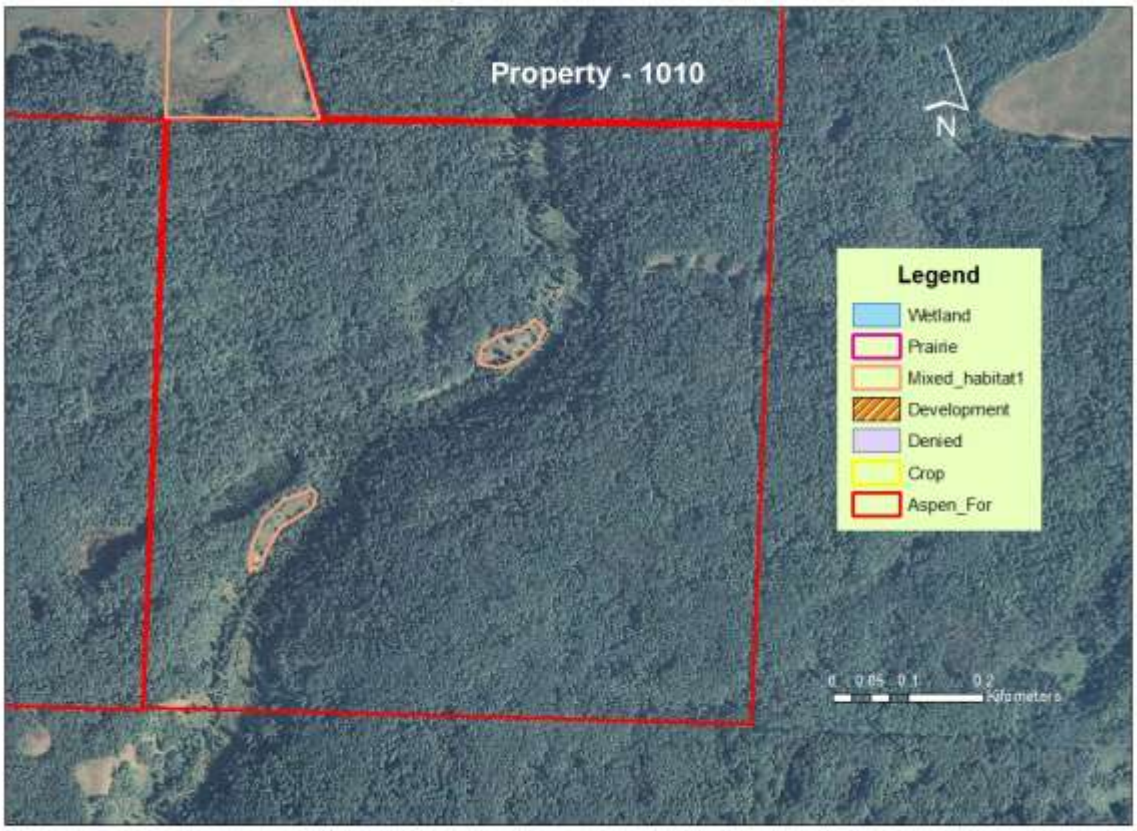
Future land use – Land may be utilized for horse pasture in the future.

Habitat and Grade – This land is dominated by aspen forest with some patches of grass in the south west corner. Currently the land is not being modified by anything. The low impact and use of this land gives it an overall grade of (A).

Fauna – White Tail Deer *(Odocoileus virginianus),* Black Bear *(Ursus americanus)* and North American Elk (*Cervus elaphus*) sign.

Flora - Canada Thistle *(Cirsium arvense)* , Wild Strawberries *(Fragaria spp.),* Yarrow *(Achillea millefolium),* June Grass *(Koeleria spp.)*, Vetchling *(Lathyrus spp.)* , Prairie Sage *(Atremisia ludoviciana)*, Smooth Brome*(Bromus inermis),*

1010



Past/present land use – Present landowner took ownership of the land three years ago. The land was previously used for cattle grazing. There is no current agriculture use on the land.

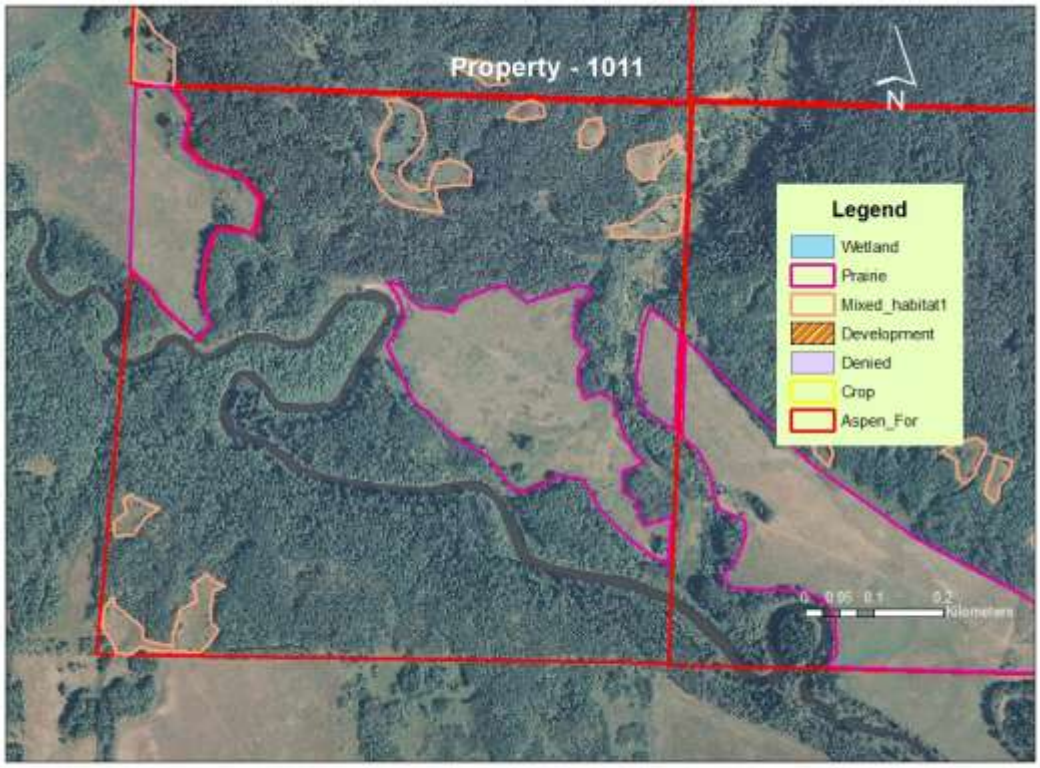
Future land use – Land may be utilized for horse pasture in the future.

Habitat and Grade – This quarter is dominated by aspen forest. Currently the land is not being modified by anything. The low impact and use of this land gives it an overall grade of (A).

Fauna – White Tail Deer *(Odocoileus virginianus),* Black Bear *(Ursus americanus)* and North American Elk (*Cervus elaphus*) sign.

Flora – Aspen forest

1011



Past/present land use – A rotational grazing system has been implemented allowing for proper management of grass species.

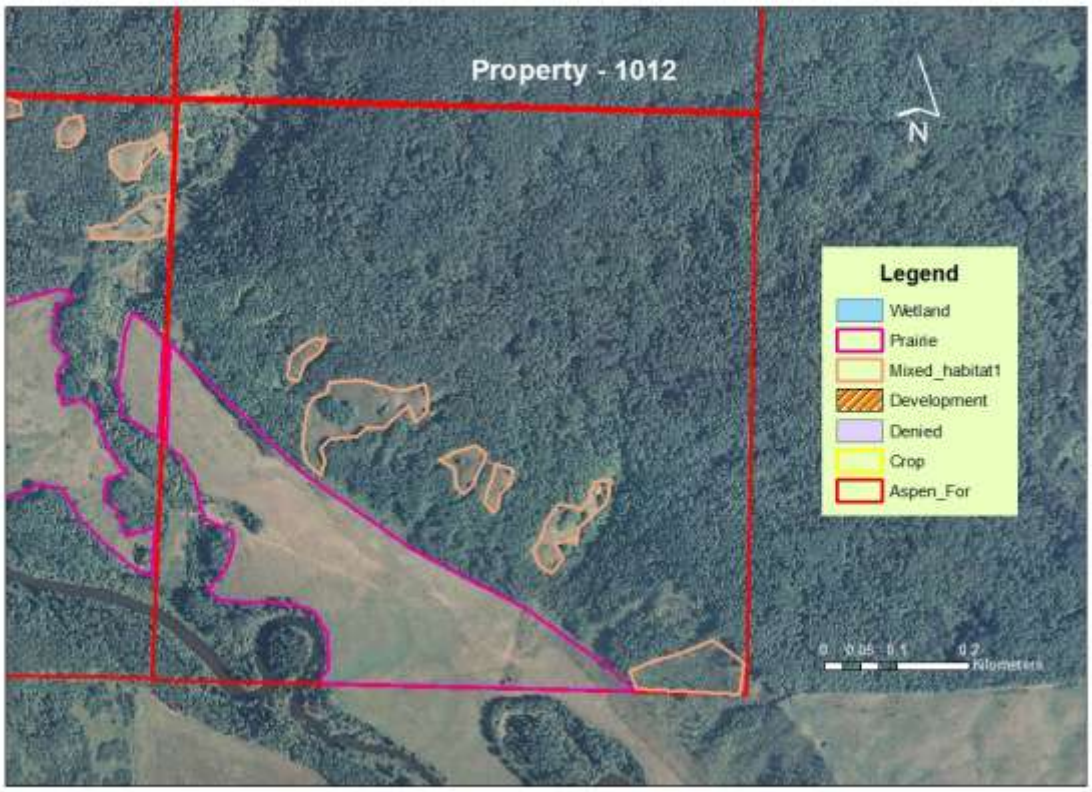
Future land use – Continuation of the same.

Habitat and Grade – The land consists of three main habitat types: mixed habitat, pasture, and aspen. The pasture land is moderately grazed. Many invasive species of plants are present throughout the pasture. The mixed habitat areas appear to be a grow-back situation that is becoming re-established with brome grass as the dominate species. The aspen forest on the north side of the river has been grazed while the south side is un-grazed. Over all this quarter received a score of (D) due to grazing and the presence of many invasive plants.

Fauna - White Tail Deer *(Odocoileus virginianus),* Black Bear *(Ursus americanus)* and North American Elk (*Cervus elaphus*), sign. Moose (*Alces alces)*

Flora - Canada Thistle *(Cirsium arvense)* , Wild Strawberries *(Fragaria spp.),* June Grass *(Koeleria spp.)*, Prairie Sage *(Atremisia ludoviciana)*, Smooth Brome*(Bromus inermis),* Prairie Smoke (*Geum triflorum*), Aster *(Aster spp.),* Purple Prairie Clover *(Petalostemum purpureum),* Needle and Thread*(Stipa comate),* Meadow blazing star *(Liatris ligulistulis),* Saskatoons (*Amelanchier alnifolia*), Ground Plum (Astragalus crassicarpus).

1012



Past/present land use – A rotational grazing system has been implemented allowing for proper management of grass species.

Future land use – Continuation of the same.

Habitat and Grade – This quarter consists of aspen forest, pasture and mixed habitat. The entire quarter has minimal impact from grazing. In previous years, the pasture and aspen forest was impacted by fire. Currently the pasture land, has a low impact from cattle, but is experiencing the impact of invasive plant species. Overall, this quarter section received a grade of (D).

Fauna - White Tail Deer *(Odocoileus virginianus),* Black Bear *(Ursus americanus)* and North American Elk (*Cervus elaphus*), sign, Moose (*Alces alces)* Northern Leopard Frog, *(Rana pipiens)*

Flora - Canada Thistle *(Cirsium arvense)* , Wild Strawberries *(Fragaria spp.),* June Grass *(Koeleria spp.)*, Prairie Sage *(Atremisia ludoviciana)*, Smooth Brome*(Bromus inermis),* Prairie Smoke (*Geum triflorum*), Aster *(Aster spp.),* Purple Prairie Clover *(Petalostemum purpureum),* Needle and Thread*(Stipa comate),* Meadow blazing star *(Liatris ligulistulis),* Saskatoons (*Amelanchier alnifolia*), Absinthe (*Artemisia absinthum*), Ground Plum (Astragalus crassicarpus).