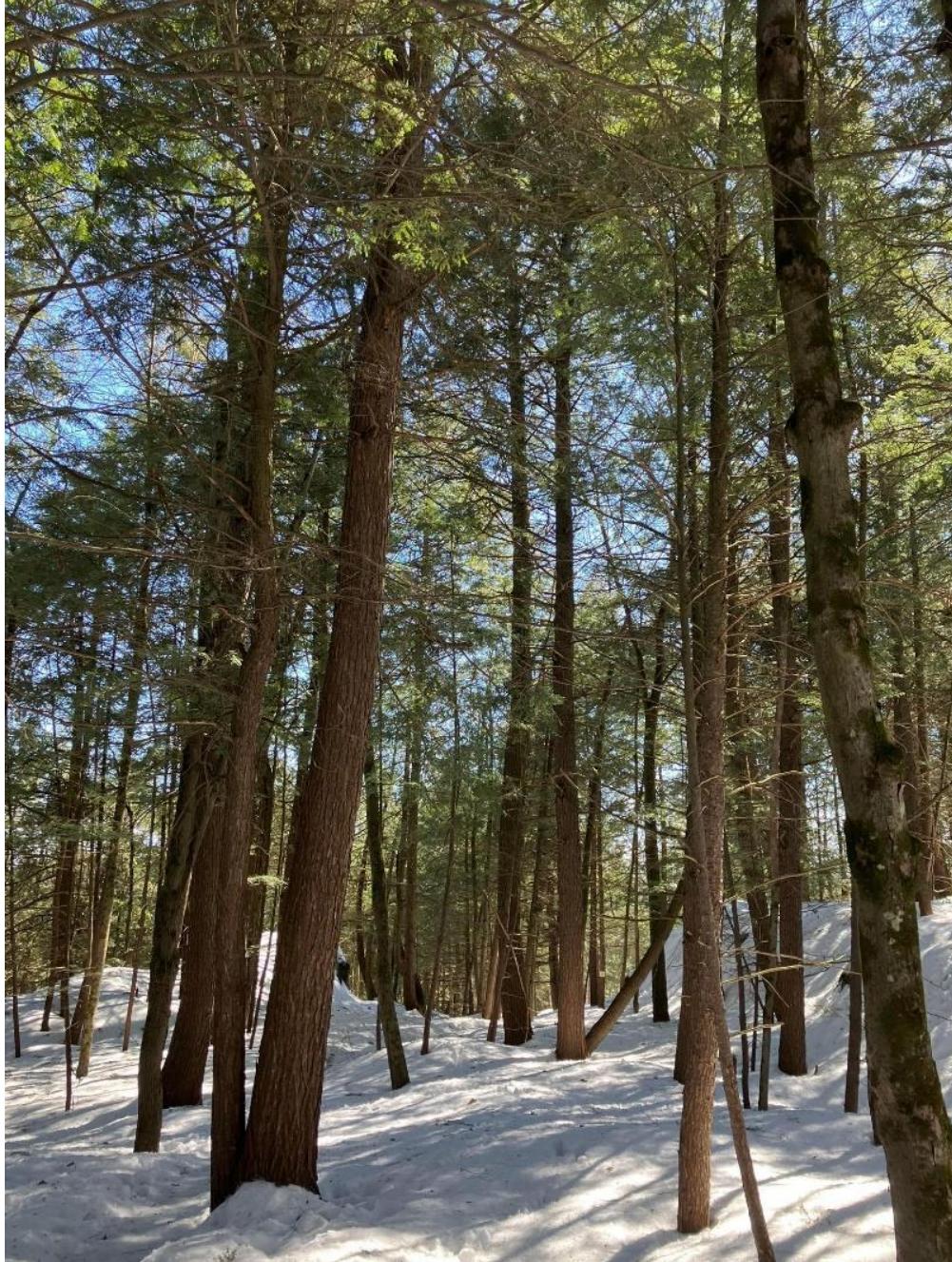




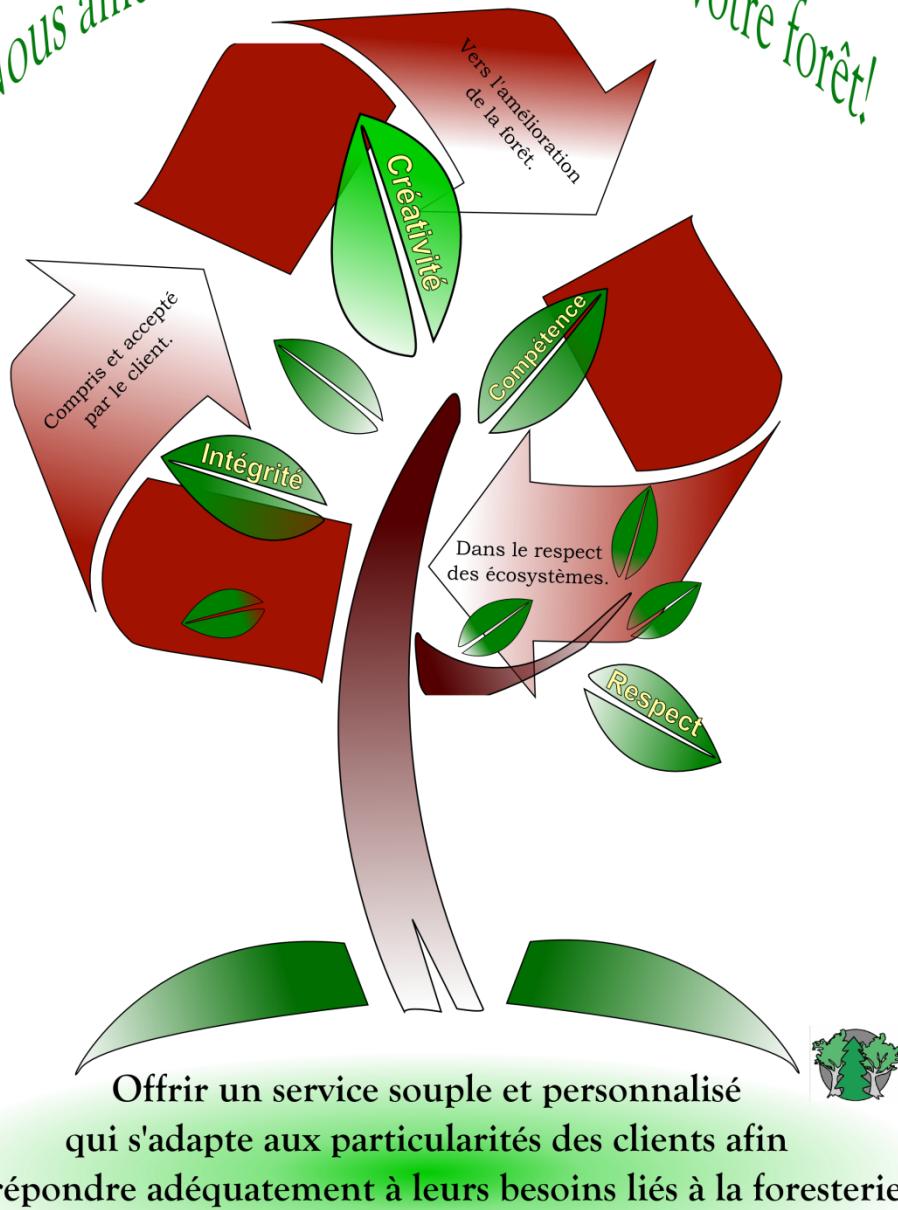
*Property of Minnes Corporation  
Represented by: M. Christopher Minnes*



*April 5 2023*



Nous améliorons la qualité et la santé de votre forêt!



**TO THE ATTENTION OF:**

Mr. Christopher Minnes

55, Chemin Larrimac

Chelsea, Quebec, J9B 2C4

Phone number: (819) 962-3064



## PROPERTY IDENTIFICATION

Lot 6 459 017

Range 1 (01)

District of Wakefield (2701)

Municipality of La Pêche (82035)

MRC of Collines de l'Outaouais (820)

Forest producer's number: MINN73997332

Evaluation units	# of lot or subdivision	Zoning *	Total area (hectare) **	Area intended for forest (hectare) **
4953-88-2031	6 459 017	White	18	23.1
		<b>Total</b>	<b>18</b>	<b>23.1</b>

\* White zoning: White (non-agricultural Zone)

\*\* Approximate area: determined from aerial photography and available maps

## FOREST PRODUCER'S OBJECTIVES AND REMARKS

The landlord wishes to manage his forest lot in the context of tree cutting.

## METHODOLOGY

- Step 1** Determine with the forest producer his objectives and his expectations with respect to the management of his forest lot.
- Step 2** Identify the forest lot on a (1: 20 000) forestry map and (1: 15 000) aerial photography.  
Interpret the aerial photography by grouping zone that are similar as to species, age, density and height.
- Step 3** Conduct a reconnaissance inventory in the forestry lot using a Prism parcel delimiter for the commercial timber and using a 2.82 meters radius parcel for the non-commercial timber. In each parcel, there is a visual evaluation of the quality of the timber using the recognized standard classification method.
- Step 4** Compiling and analyzing the data collected during the reconnaissance inventory. Correcting the aerial photography interpretation and updating cartographic information.
- Step 5** Drafting the management plan.
- Step 6** Meet with the client to present the management plan and to answer his questions.



## PHOTOGRAPHIE AÉRIENNE

Client: Minnes Coporation

Échelle : 1 cm : 40 m      1 po : 333 pi





## PROPERTY IDENTIFICATION

### Stand number 1

# HEMLOCK FOREST WITH RED MAPLE AND RED OAK

Area (ha) : 2.3

**Species (in order of importance):** Eastern hemlock (70%), Red maple (20%), Red oak (10%),

Density class: Very high

Life stage: Mature

Average height: 17 to 22 metres

Age class: 10 to 80 years

Vigor: Good

Management work: Selection cutting

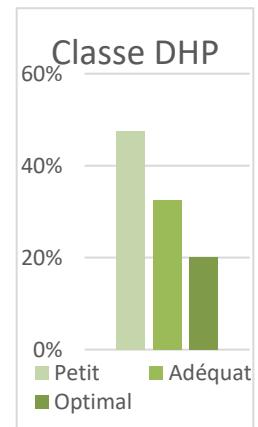
Suggested period: 1 to 5 years

#### Work description:

This is the periodic harvesting of selected individual or small groups of trees in a mature stand as a structural conservation measure. This method insures the establishment of the regeneration, harvesting and development of a stand without ever resorting to clear cutting. The concentration of the harvesting for this kind of operation is between 25 and 35% of the surface area of the stand. The aim of this method is the regular removal of trees coming to maturity and the promotion of their replacement. It allows the constant extraction of high-quality timber from mature stands.

General observation: The stand is difficult to access because there are many rocks.

	Hardwood	Intolerant	Fir and spruce	Other conifers	Competition
Commercial stems (m <sup>2</sup> /ha)	10	-	-	30	
Saplings regeneration (1 to 9 cm) (stems/ha)	-	-	750		-
Regeneration (stocking in %, 0 to 1 cm)	-	-	25%		-
Deposit / Drainage / Slope	R1A/(2) Good /(D) 16%-30%				





## Stand number 2

# RED OAK FOREST WITH MIXTED MAPLE

Area (ha) : 0.5

**Species (in order of importance):** Red oak (55%), Sugar maple (10%), Red maple (10%), Eastern white-cedar (5%), White ash (5%), American elm (5%) and White pine (5%).

Density class : High

Life stage: Mature

Average height : 17 to 22 metres

Age class: 20 to 70 years

Vigor: Moderate

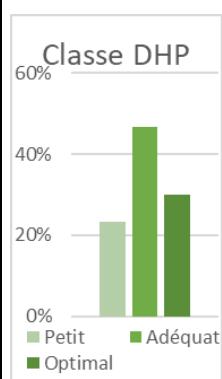
Management work: Selection cutting

Work description:

This is the periodic harvesting of selected individual or small groups of trees in a mature stand as a structural conservation measure. This method insures the establishment of the regeneration, harvesting and development of a stand without ever resorting to clear cutting. The concentration of the harvesting for this kind of operation is between 25 and 35% of the surface area of the stand. The aim of this method is the regular removal of trees coming to maturity and the promotion of their replacement. It allows the constant extraction of high-quality timber from mature stands.

General observation: There are many rocks.

	Hardwood	Intolerant	Fir and spruce	Other conifers	Competition
Commercial stems (m <sup>2</sup> /ha)	26	-	-	4	
Saplings regeneration (1 to 9 cm) (stems/ha)	750	-	-		900
Regeneration (stocking in %, 0 to 1 cm)	25%	-	-		25%
Deposit / Drainage / Slope	R1A/ (2) Good (D) 16%-30%				





## Stand number 3

# WHITE PINE FOREST AND INTOLERANT HARDWOOD

Area (ha): 1.3

**Species (in order of importance):** White pine (60%), Paper birch (15%), Trembling aspen (10%), American elm (5%), Red maple (5%) and Red oak (5%).

Density class: High

Life stage: Mature

Average height : 17 to 22 metres

Age class: 40 years

Vigor: Moderate

Management work: Thinning out

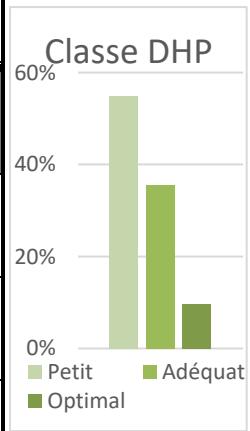
Suggested period : 1 to 5 years

Work description:

This is the harvesting of trees of low value or those that hinder the growth of high quality trees within a stand. The aim of this harvesting procedure is to accelerate the growth of the remaining trees and improve the quality of the stand. This method guarantees more light for the young trees selected for future harvests. This thinning is only done for dominant and codominant trees at the overstory level. Understory trees that shade the trunks of the selected trees should not be touched unless they are disease carriers. The removal rates for this kind of operation are between 20 and 40% of the surface area of the stand.

General observation: The pines don't have a beautiful structure because of the white pine blister rust.

	Hardwood	Intolerant	Fir and spruce	Other conifers	Competition
Commercial stems (m <sup>2</sup> /ha)	4	8	-	19	
Saplings regeneration (1 to 9 cm) (stems/ha)	400	150	400	750	
Regeneration (stocking in %, 0 to 1 cm)	15%	-	10%	10%	
Deposit / Drainage / Slope	5A/ (3) Moderate/(B) 4%-8%				





## Stand number 4

### WHITE PINE FOREST



Area (ha): 0.2

**Species (in order of importance):** White pine (95%) and White spruce(5%).

Density class: Very high

Life stage: Mature

Average height: 22 metres and +

Age class: 60 years

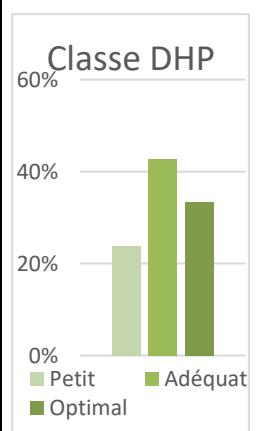
Vigor: Moderate

Management work: Let grow because the density is low

Suggested period: 5 to 10 years

General observation: The stand is too small to have a worthwhile intervention. It is possible to cut the trees that are sick.

	Hardwood	Intolerant	Fir and spruce	Other conifers	Competition
Commercial stems (m <sup>2</sup> /ha)	-	-	2	40	
Saplings regeneration (1 to 9 cm) (stems/ha)	750	0	0		500
Regeneration (stocking in %, 0 to 1 cm)	20%	-	-		30%
Deposit / Drainage / Slope	IAM/ (2) Good/ (C) 9%-15%				





## Stand number 5

# SUGARBUSH FOREST WITH RED OAK AND BUTTERNUT

Area (ha): 1.9

**Species (in order of importance):** Sugar maple (45%), Red oak (40%) and Butternut (15%).

Density class: Very high

Life stage: Mature

Average height : 17 to 22 metres

Age class: 20 to 80 years

Vigor: Moderate

Management work: Thinning out

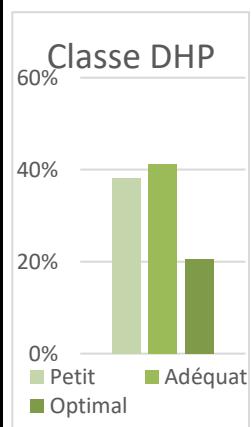
Suggested period: 5 to 10 years

Work description:

This is the harvesting of trees of low value or those that hinder the growth of high quality trees within a stand. The aim of this harvesting procedure is to accelerate the growth of the remaining trees and improve the quality of the stand. This method guarantees more light for the young trees selected for future harvests. This thinning is only done for dominant and codominant trees at the overstory level. Understory trees that shade the trunks of the selected trees should not be touched unless they are disease carriers. The removal rates for this kind of operation are between 20 and 40% of the surface area of the stand

General observation: Harvest dying butternut trees first because they are in decline due to canker. The density is variable, do not intervene where it is too weak.

	Hardwood	Intolerant	Fir and spruce	Other conifers	Competition
Commercial stems (m <sup>2</sup> /ha)	34	-	-	-	
Saplings regeneration (1 to 9 cm) (stems/ha)	1900	-	-		150
Regeneration (stocking in %, 0 to 1 cm)	40%	-	-		20%
Deposit / Drainage / Slope	IAM/ (2) Good/ (D) 16%-30%				





## Stand number 6

### CEDAR STAND

Area (ha): 1.3

**Species (in order of importance):** Eastern white-cedar(95%), White pine (5%).

Density class: Very high

Life stage: Mature

Average height: 17 to 22 metres

Age class: 60 years

Vigor: Good

Management work: Thinning out

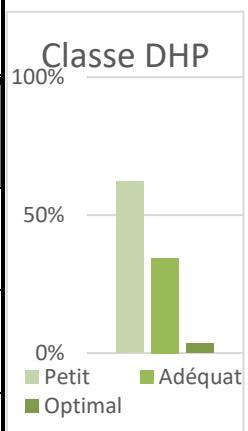
Suggested period : 1 to 5 years

Work description:

This is the harvesting of trees of low value or those that hinder the growth of high quality trees within a stand. The aim of this harvesting procedure is to accelerate the growth of the remaining trees and improve the quality of the stand. This method guarantees more light for the young trees selected for future harvests. This thinning is only done for dominant and codominant trees at the overstory level. Understory trees that shade the trunks of the selected trees should not be touched unless they are disease carriers. The removal rates for this kind of operation are between 20 and 40% of the surface area of the stand.

General observation: The stems grow in clumps. The average diameter is 22cm. It is an ideal wintering area for deer.

	Hardwood	Intolerant	Fir and spruce	Other conifers	Competition
Commercial stems (m <sup>2</sup> /ha)	-	-	-	58	
Saplings regeneration (1 to 9 cm) (stems/ha)	-	-	-	-	-
Regeneration (stocking in %, 0 to 1 cm)	-	-	-	-	-
Deposit / Drainage / Slope	1AM/ (3) Moderate / (C) 9%-15%				





## Stand number 7

# WHITE ELM FOREST WITH WHITE ASH AND CEDAR

Area (ha): 0.7

**Species (in order of importance):** White ash (35%), Eastern white-cedar (35%), American elm (30%).

Density class: Low

Life stage: Mature

Average height: 12 to 17 metres

Age class: 30 years

Vigor: Degraded

Management work: Let grow because this area is inaccessible

Suggested period : 5 to 10 years

General observation: The stand is partly on a steep slope, which limits operations. There are a lot of buckthorn, however it seems that staghorn is interfering with its dispersal.

	Hardwood	Intolerant	Fir and spruce	Other conifers	Competition
Commercial stems (m <sup>2</sup> /ha)	8	-	-	4	
Saplings regeneration (1 to 9 cm) (stems/ha)	-	-	-		3750
Regeneration (stocking in %, 0 to 1 cm)	-	-	-		70%
Deposit / Drainage / Slope	R1A/ (1) Fast / (E) 31%-40%				



## Stand number 8

# SUGARBUSH FOREST WITH AMERICAN ELM AND BASSWOOD

Area (ha): 0.1

**Species (in order of importance):** Sugar maple (45%), American elm (45%) and Basswood (10%).

Density class: High

Life stage: Intermediate

Average height: 12 to 17 metres

Age class: 30 years

Vigor: Good

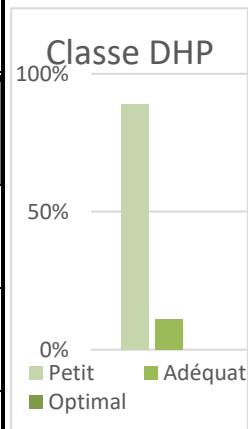
Management work: Intermediate thinning

Suggested period: 1 to 5 years

Work description:

This is the removal and harvesting of 35 to 40% of lower value dominant and codominant trees in order to accelerate the growth of the remaining trees and improve the quality of the stand. When the cutting is carried out the marketable wood should be harvested and 300 high quality young trees per hectare of the desired species should be conserved.

	Hardwood	Intolerant	Fir and spruce	Other conifers	Competition
Commercial stems (m <sup>2</sup> /ha)	18	-	-	-	
Saplings regeneration (1 to 9 cm) (stems/ha)	4000	-	-		500
Regeneration (stocking in %, 0 to 1 cm)	20%	-	-		-
Deposit / Drainage / Slope	1AM / (2) Good / (D) 16%-30%				





## Stand number 9

# SUGARBUSH FOREST WITH ASPEN AND BASSWOOD

Area (ha): 1.2

**Species (in order of importance):** Basswood (40%), Largetooth Aspen (25%), Sugar maple (20%) and Ironwood (15%).

Density class: High

Life stage: Mature

Average height : 17 to 22 metres

Age class: 20 à 50 years

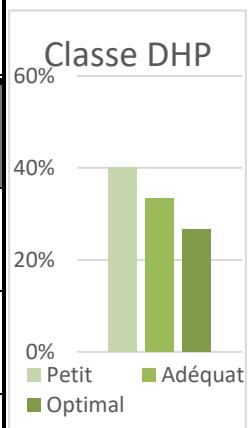
Vigor: Good

Management work: Let grow because the density is low

Suggested period: 5 to 10 years

General observation: The big aspen and basswood could be cut. The maples have been cleared.

	Hardwood	Intolerant	Fir and spruce	Other conifers	Competition
Commercial stems (m <sup>2</sup> /ha)	22	8	-	-	
Saplings regeneration (1 to 9 cm) (stems/ha)	1000	-	-	-	500
Regeneration (stocking in %, 0 to 1 cm)	-	-	-	-	-
Deposit / Drainage / Slope					1AM / (2) Good / (C) 9%-15%





## Stand number 10

### RED PINE PLANTATION

Area (ha) : 5.8

**Species (in order of importance):** Red pine (100%).

Density class: Low

Life stage: Young

Average height: 1.5 to 4 metres

Age class: 3 years

Vigor: Good

Management work: Brush cutting

Suggested period: 1 to 5 years

Work description:

This operation applies to stands that have not gone beyond the sapling stage, which means that the tree diameter at chest height is less than 10 cm. The aim is to promote an increase in the rate of natural regeneration. It consists of selecting high quality trees of the desired species, by removing malformed trees of the desired species as well as all those of the undesirable species. The release can be carried out by manual or mechanical means, by using a brush cutter, chain saw, pruning shears or other tools.

General observation: The plantation has been done in 2020. As soon as the herbaceous plants and the regeneration will have reached ¾ of the height or more of the stems it would be interesting to do a brush cutting.

	Hardwood	Intolerant	Fir and spruce	Other conifers	Competition	Classe DHP
Commercial stems (m <sup>2</sup> /ha)	-	-	-	2		150%
Saplings regeneration (1 to 9 cm) (stems/ha)	-	-	2000		-	100%
Regeneration (stocking in %, 0 to 1 cm)	-	-	-		-	50%
Deposit / Drainage / Slope	5A / (3) Moderate / (C) 9%-15%					0% Petit      Adéquat      Optimal



## Stand number 11

# BLACK MAPLE AND WHITE SPRUCE PLANTATION

Area (ha): 0.2

**Species (in order of importance):** Black maple (50%) and White spruce (50%).

Density class: Low

Life stage: Young

Average height: 1.5 to 4 metres

Age class: 3 years

Vigor: Moderate

Management work: Brush cutting

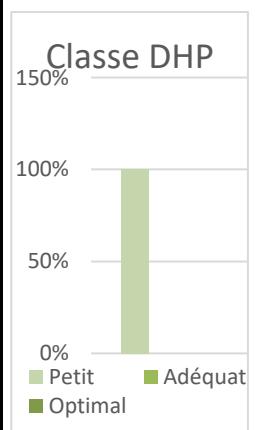
Suggested period: 1 to 5 years

Work description:

This operation applies to stands that have not gone beyond the sapling stage, which means that the tree diameter at chest height is less than 10 cm. The aim is to promote an increase in the rate of natural regeneration. It consists of selecting high quality trees of the desired species, by removing malformed trees of the desired species as well as all those of the undesirable species. The release can be carried out by manual or mechanical means, by using a brush cutter, chain saw, pruning shears or other tools.

General observation: The plantation has been done in 2020. As soon as the herbaceous plants and the regeneration will have reached  $\frac{3}{4}$  of the height or more of the stems it would be interesting to do a brush cutting. Replace dead trees could be interesting.

	Hardwood	Intolerant	Fir and spruce	Other conifers	Competition
Commercial stems (m <sup>2</sup> /ha)	2	-	2	0	
Saplings regeneration (1 to 9 cm) (stems/ha)	500	-	500		-
Regeneration (stocking in %, 0 to 1 cm)	-	-	-		-
Deposit / Drainage / Slope	5A / (3) Moderate / (C) 9%-15%				





## Stand number 12

# BLACK CHERRY, RED OAK AND BUR OAK PLANTATION

Area (ha): 1.5

**Species (in order of importance):** Bur oak (35%), Black cherry (35%) and Red oak (30%).

Density class: Low

Life stage: Young

Average height: 1.5 to 4 metres

Age class: 3 years

Vigor: Moderate

Management work: Brush cutting

Suggested period: 1 to 5 years

Work description:

This operation applies to stands that have not gone beyond the sapling stage, which means that the tree diameter at chest height is less than 10 cm. The aim is to promote an increase in the rate of natural regeneration. It consists of selecting high quality trees of the desired species, by removing malformed trees of the desired species as well as all those of the undesirable species. The release can be carried out by manual or mechanical means, by using a brush cutter, chain saw, pruning shears or other tools.

General observation: The plantation has been done in 2020. A brush cutting has been done in 2022. We should continue to follow-up to decide if yes or no another treatment should be done.

	Hardwood	Intolerant	Fir and spruce	Other conifers	Competition	Classe DHP
Commercial stems (m <sup>2</sup> /ha)	6	-	-	-		
Saplings regeneration (1 to 9 cm) (stems/ha)	1500	-	-	-	-	
Regeneration (stocking in %, 0 to 1 cm)	-	-	-	-	-	
Deposit / Drainage / Slope	5A / (3) Moderate / (C) 9%-15%					

Classe DHP

150%

100%

50%

0%

Petit

Adéquat

Optimal



## Stand number 13

### TOLERANT HARDWOOD



Area (ha): 0.2

**Species (in order of importance):** Ironwood (35%), American elm (20%), Black cherry (20%), Sugar maple (10%), Basswood (10%) and Red oak (5%).

Density class: High

Life stage: Mature

Average height : 17 to 22 metres

Age class: 20 to 50 years

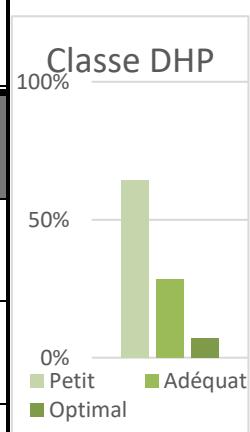
Vigor: Moderate

Management work: Let grow because the density is low

Suggested period: 5 to 10 years

General observation: The dead and dangerous stems have been harvested.

	Hardwood	Intolerant	Fir and spruce	Other conifers	Competition
Commercial stems (m <sup>2</sup> /ha)	28	-	-	-	
Saplings regeneration (1 to 9 cm) (stems/ha)	750	-	-		2500
Regeneration (stocking in %, 0 to 1 cm)	40%	-	-		50%
Deposit / Drainage / Slope	1AM / (2) Good / (C) 9%-15%				





## Stand number 14

# TOLERANT HARDWOOD AND WHITE SPRUCE PLANTATION

Area (ha): 1

**Species (in order of importance):** Bur oak (20%), Yellow birch (20%), Red maple (20%) and Black cherry (20%) and White spruce (20%)

Density class: Low

Life stage: Young

Average height: 1.5 to 4 metres

Age class: 3 years

Vigor: Good

Management work: Brush cutting

Suggested period: 1 to 5 years

Work description:

This operation applies to stands that have not gone beyond the sapling stage, which means that the tree diameter at chest height is less than 10 cm. The aim is to promote an increase in the rate of natural regeneration. It consists of selecting high quality trees of the desired species, by removing malformed trees of the desired species as well as all those of the undesirable species. The release can be carried out by manual or mechanical means, by using a brush cutter, chain saw, pruning shears or other tools.

General observation: The plantation has been done in 2020. A brush cutting has been done in 2022. We should continue to follow-up to decide if yes or no another treatment should be done.

	Hardwood	Intolerant	Fir and spruce	Other conifers	Competition
Commercial stems (m <sup>2</sup> /ha)	8	-	2	-	
Saplings regeneration (1 to 9 cm) (stems/ha)	1500	-	500	-	
Regeneration (stocking in %, 0 to 1 cm)	-	-	-	-	
Deposit / Drainage / Slope	5A / (3) Moderate / (B) 4%-8%				

Classe DHP

0%	100%	150%
Petit	Adéquat	Optimal



## Stand number 15

# WHITE SPRUCE PLANTATION

Area (ha): 4

**Species (in order of importance):** White spruce (100%).

Density class: Low

Life stage: Young

Average height: 1.5 to 4 metres

Age class: 3 years

Vigor: Good

Management work: Brush cutting

Suggested period: 1 to 5 years

Work description:

This operation applies to stands that have not gone beyond the sapling stage, which means that the tree diameter at chest height is less than 10 cm. The aim is to promote an increase in the rate of natural regeneration. It consists of selecting high quality trees of the desired species, by removing malformed trees of the desired species as well as all those of the undesirable species. The release can be carried out by manual or mechanical means, by using a brush cutter, chain saw, pruning shears or other tools.

General observation: The plantation has been done in 2020. As soon as the herbaceous plants and the regeneration will have reached ¾ of the height or more of the stems it would be interesting to do a brush cutting.

	Hardwood	Intolerant	Fir and spruce	Other conifers	Competition	Classe DHP
Commercial stems (m <sup>2</sup> /ha)	-	-	2	-		
Saplings regeneration (1 to 9 cm) (stems/ha)	-	-	2000	-		
Regeneration (stocking in %, 0 to 1 cm)	-	-	-	-		
Deposit / Drainage / Slope	5A / (3) Moderate / (B) 4%-8%					0% Petit Adéquat Optimal



## Stand number 16

# HYBRIDE POPLAR PLANTATION

Area (ha): 0.7

**Species (in order of importance):** others intolerant hardwoods (100%)

Density class: Low

Life stage: Young

Average height: 1.5 to 4 metres

Age class: 3 years

Vigor: Degraded

Management work: Fill planting

Suggested period : 1 to 5 years

Work description:

This is the planting for reforestation in areas where regeneration has been insufficient and for the purpose of increasing the proportion of commercial species. Fill planting may be undertaken where natural regeneration of the desired species is insufficient or within an established plantation that has had some die off.

	Hardwood	Intolerant	Fir and spruce	Other conifers	Competition
Commercial stems (m <sup>2</sup> /ha)	-	2	-	-	
Saplings regeneration (1 to 9 cm) (stems/ha)	-	500	-	-	
Regeneration (stocking in %, 0 to 1 cm)	-	-	-	-	
Deposit / Drainage / Slope	5A / (3) Moderate / (B) 4%-8%				

Classe DHP

0%	Petit	Adéquat
50%		
100%		Optimal
150%		



**Stand number 17**

## HERBACEOUS LAND



Area (ha) : 1.5

**Stand number 18**

## FIELD



Area (ha) : 1.3

**Stand number 19**

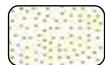
## CLEARED SECTOR



Area (ha) : 0.6

**Stand number 20**

## ROAD



Area (ha) : 0.1

**Stand number 21**

## BUILDING AND ADJACENT LAND



Area (ha) : 0.7



## ACCEPTATION AND SIGNATURE

The work suggested in this plan is only intended as a guide to help the owner make choices for the improvement of his property and are not mandatory. Additional information may be required before carrying out the work in question. It is recommended for the owner to:

1. Consult his forest counsellor and check municipality bylaws before starting any work.
2. Note each treatment realized on the property to keep the real figure of its evolution.

In addition the forest producer certifies and undertakes to:

1. Engage in appropriate forest practices or carry out operations in accordance with his management plan. The works indicated in this plan are not mandatory except for plantation maintenance as long as subsidies are available for this treatment;
2. Protect areas where subsidized work has been carried out for a period of 20 years in the case of afforestation work or reforestation work and 10 years for all other subsidized work.
3. Accept, should an infestation break out, the implementation of protective programs set up by the ministry of natural resources, if they do not conflict with his own objectives.

I, Mr. Christopher Minnes, certify that I have read this document.

---

Landlord's Signature or that of an authorised representative

date

This forest management plan is for the following property and is valid until June 21<sup>st</sup>, 2033.

Lot 6 459 017

Range 1

District of Wakefield

Municipality of La Pêche

MRC of Collines de l'Outaouais

This plan was prepared in collaboration with Janie Dambremont, forest technician.

I certify that this forest management plan complies with the regulations as set down by the Agence Régionale de mise en valeur des forêts privées Outaouaises (Regional Agency).

Pascal Audet, ing.f. 96-008

---

Name, permit number and forest engineer's signature

date



## CONVERSION FACTORS

<b>Height:</b>	1 po	= 2,54 cm	<b>Volume:</b>	1 m <sup>3</sup> apparent (app)	= 0.28 cord (cd)
	1 meter (m)	= 3.28 feet		1 m <sup>3</sup> app/ha	= 0.11 cd/ac
	1 foot	= 0,3048 m		1 cord of 8 feet	= 1,8 cord de 4 feet
	1 mile	= 1,609 km			= 800 pmp
	1 verge	= 0,9144 m			= 2,41 m <sup>3</sup> solid
	1 chain	= 66 pi			= 3,625 m <sup>3</sup> app
	1 arpent	= 191,835 pi		1 cord/ac	= 8,95647 m <sup>3</sup> app/ha
<b>Area:</b>	1 hectare (ha)	= 2.47 acres (ac)			
	1 acre	= 1.184 arpent <sup>2</sup>			
	1 arpent <sup>2</sup>	= 0.8448 ac			

## LEGEND

**H:** Hardwood (ex : maple, oak, ash ...)

**I:** Intolerant (paper birch and poplar...)

**C:** Coniferous (fir, hemlock, spruce, tamarak, pine, cedar...)

**ND :** Unwanted species (ex : Ironwood, beech, red maple...)

**NC :** Non commercial species (striped maple, mountain maple, ...)

### DENSITY :

The density class of a populating corresponds to the percentage of its surface covered by the projection on the ground of the tops which it contains. We consider generally only the stalks the height of which is 7 meters and more to estimate it.

Naming	Description	Classes
<b>Very high</b>	Stand where the percentage of place setting is upper at 80%	A
<b>High</b>	Stand where the percentage of place setting is 61% to 80%	B
<b>Average</b>	Stand where the percentage of place setting is 41% to 60%	C
<b>Low</b>	Stand where the percentage of place setting is 25% to 40%	D

### VIGOR :

Naming	Description
<b>Very good</b>	Stand where the quality is superior to 75%
<b>Good</b>	Stand where the quality is situated between 50% to 75%
<b>Average</b>	Stand where the quality is situated between 30% to 50%
<b>Weak</b>	Stand where the quality is lower than 30%



## CALORIFIC VALUE OF THE WOOD

SPECIES	MILLION OF BTU PER CORD (4' x 4' x 8')	NUMBER OF KWH PER CORD (4' x 4' x 8')	NUMBRE OF CORD AMOUNTING TO 100 GALLONS OF OIL
<b>White Oak</b>	30,6		0,89
<b>Bitternut hickory</b>	29,2		0,92
<b>Sugar maple</b>	29,0	4,675	0,93
<b>Bur oak</b>	28,2		0,95
<b>American beech</b>	27,8	4,485	0,97
<b>Red oak</b>	27,3	4,400	0,99
<b>Yellow birch</b>	26,2	4,225	1,03
<b>Red ash</b>	25,0		1,08
<b>White elm</b>	24,5		1,10
<b>Red maple</b>	24,0	3,865	1,12
<b>Tamarak</b>	24,0	3,515	1,23
<b>Paper birch</b>	23,4	3,775	1,15
<b>Black ash</b>	22,6		1,19
<b>Silver maple</b>	21,7		1,24
<b>Red pine</b>	19,7	2,890	1,50
<b>Largetooth poplar</b>	18,2		1,48
<b>Aspen</b>	17,7		1,52
<b>Butternut</b>	17,4		1,55
<b>Balsam poplar</b>	17,2		1,56
<b>American basswood</b>	17,0		1,58
<b>Poplar</b>	16,8	2,710	1,60
<b>White spruce</b>	16,2	2,375	1,83
<b>Fir</b>	15,5	2,275	1,91

The heating of a house (bungalow) takes on average 22 000 KWH a year.

Soft wood have no calorific value and are only good for strating a fire. Furthermore, conifers loosen important quantities of resins during the consumption favoring the formation of creosote in the chimney. Hard true wood are thus recommended as fuels.

## CARACTÉRISTIQUE DU BOIS

SPECIES	COMBUSTION	IGNITION	SPARK	SMELL
<b>Maple</b>	Excellent	Inferior	Very poor	Good
<b>Red oak</b>	Excellent	Inferior	Poor	Satisfying
<b>Yellow birch</b>	Excellent	Inferior	Poor	Excellent
<b>Beech</b>	Good	Inferior	Poor	Poor
<b>Ash</b>	Good	Satisfying	Poor	Poor
<b>Elm</b>	Good	Satisfying	Very poor	Satisfying
<b>Paper birch</b>	Good	Good	Moyen	Poor

Sources :

Guide de façonnage du Syndicat des Producteurs de bois de la région de Montréal.

« Ce qu'il y a d'important à savoir sur le bois de chauffage » du Syndicat des producteurs de bois de l'Estrie.

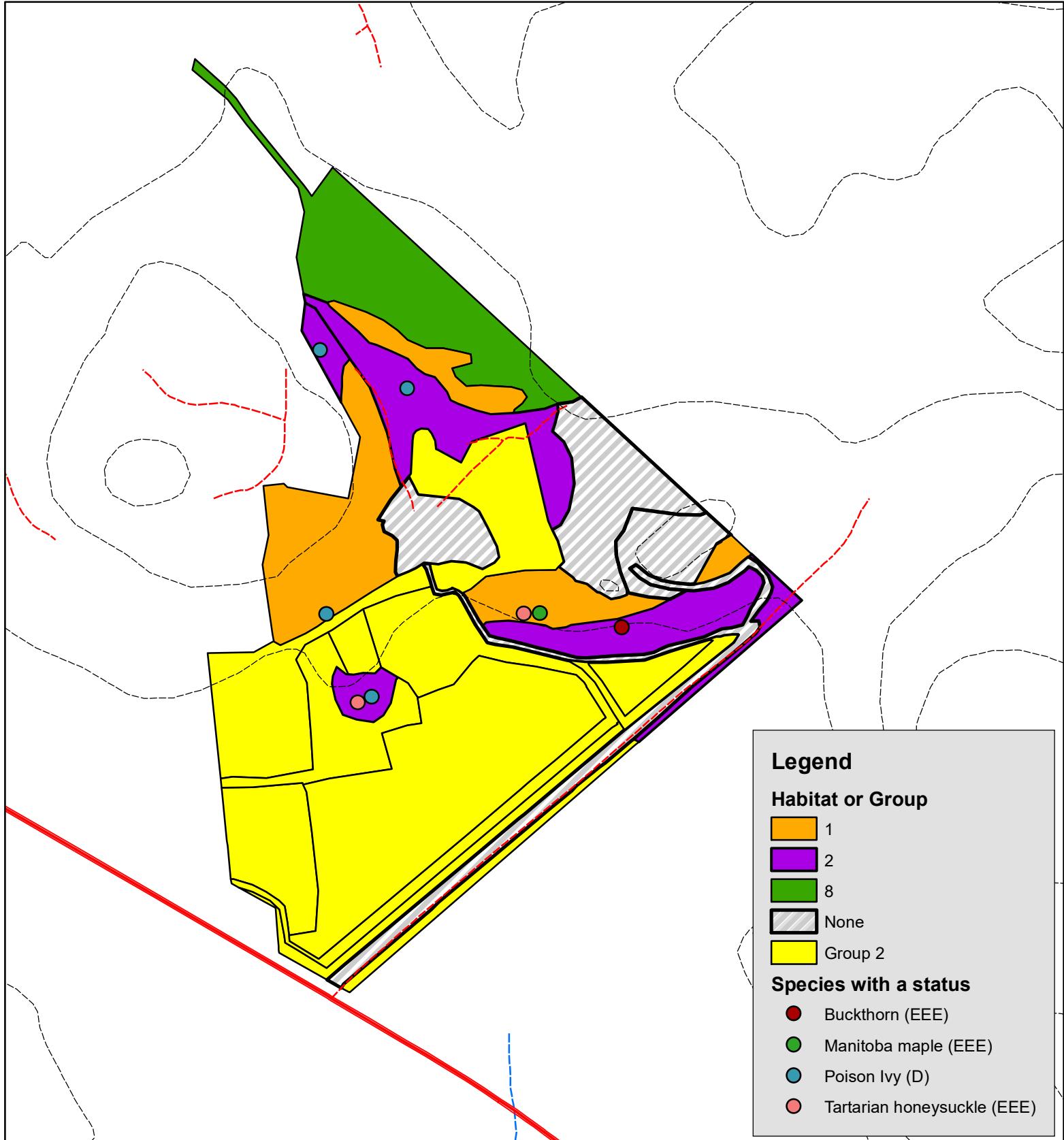


# Map of the forest habitats of plants with status and groups of non-forest plants with status

Client: Minnes corporation

Scale : 1 cm : 50 m      1 po : 417 pi

For the list of plants, refer to the appendix 4



## **Annex 1**

---

### **Wildlife sheet**

Ruffed grouse

Wild turkey

The snowshoe hare

White-tailed deer

Moose

The Black Bear

The Red Fox

The Great Woodpecker

Small mammals

## The habitat of the ruffed grouse



The grouse needs three habitat elements: winter food composed of kittens and buds (trembling aspen, white birch, yellow birch, ironwood, willows), summer food composed of fruit shrubs (mountain ash, hazelnut, serviceberries...), softwood shelter and hardwood scrub rearing habitat. The periphery of the fields represents an interesting area for the rearing of young broods while the quality of young brush will deteriorate as these stands grow. For this reason, future cutting operations could generate new areas in regeneration to meet grouse farming needs.

## Wild turkey habitat



Wild turkey habitat consists of mature deciduous and mixed forests interspersed with natural clearings, agricultural area and old fields. Hardwoods of oak, beech, hickory and cherry trees between 50 and 100 years old provide an important food resource for wild turkey and ideal perch sites.

They frequent forests whose vegetation on the ground is not too abundant, allowing them to see far enough and fly quickly between the trees. Berry shrubs such as dogwood and sumac are important sources of food. Wild turkeys are omnivorous and opportunistic. They eat nuts, berries, fruits, seeds, herbaceous, worms, insects and small amphibians. Poult depend on insects, but adults generally rely on plant food sources. In extreme winter conditions, wild turkeys seek protection in conifers.

Glades are valuable sites for breeding, nesting and feeding. Open herbaceous areas provide insects and seeds for chicks and provide adults with room to laze around, strut and dust baths. They usually require a permanent water source and isolation from human disturbance.

## The habitat of the snowshoe hare



The hare is considered a keystone species in a forest. It plays an important role as prey for several predators. Its presence therefore promotes greater animal biodiversity.

The hare needs a multi-storey cover to protect it from terrestrial and aerial predators. Its summer diet is varied and includes green plants such as clover, dandelion, grasses, etc. As well as leaves of various species. In winter, it feeds mainly on buds and twigs. During this season, he will seek the protection of softwood cover. As with ruffed grouse, hare needs a protective canopy consisting of coniferous stands between 10 and 30 years old and between 2 and 5 meters high. In addition, it is recommended that 10% of the area developed in the herbaceous stage be maintained to meet the summer nutrient requirements of the hare.

## White-tailed deer habitat



Winter is the critical season for white-tailed deer. Deer must expend large amounts of energy in order to move through the snow and fight the cold. In winter, the deer will choose to winter in a place where the climate is less harsh and where it can find shelter and food. A devastated site is the site where white-tailed deer take refuge during the winter season to protect themselves more effectively against cold, wind and snow.

Shelter stands help reduce energy losses in deer in two ways. First, they reduce the accumulation of snow on the ground, which makes it easier for deer to move. Secondly, they limit the cooling effect of the wind. Softwood stands over 30 years old provide excellent shelter stands. Softwood islands 50 meters in diameter can be quality shelters. Hemlock (hemlock) and cedar (cedar) have the best shelter criteria, followed by spruce (spruce) and fir (fir). Pine forests (pine) are less good sheltered stands since the needles of these conifers retain little snow.

White-tailed deer feed is provided by a wide variety of trees and shrubs that offer twigs or young branches at a height between 25 centimeters and 2 meters (1 and 6 feet). When forestry activities are carried out in winter, cutting waste is a significant input of food in quantity and quality. A medium-weight deer should rely on 1 kg of twig per day. The main plant species consumed by deer are: mountain maple, beaked hazel, balsam fir, eastern hemlock, western cedar, red maple, sugar maple, dogwood, honeysuckle, yellow birch.

## Moose habitat



The original has a large home range that can vary between 25 and 100 km<sup>2</sup>. The summer season is very important for this deer, in order to accumulate the fat necessary for winter. The main food sources are leaves, buds and twigs of the following species: red maple, mountain maple, Pennsylvania maple, alderleaf viburnum, poplar sp., aspen, cherry sp., mountain ash, etc. Moose also feed on aquatic plants such as water lilies, emerged pondweed, Sagittarius, marsh calla. These provide it with certain essential mineral salts, mainly sodium. Moose will

also appreciate the presence of water bodies and old coniferous stands during this time of year to escape harassment from biting insects and lower their body temperature.

During the winter, moose need dense coniferous stands to protect them from wind and snow. The density of coniferous foliage makes it possible to retain snow and therefore facilitate the movement of the animal

## Black bear habitat



The black bear is omnivorous and feeds on just about anything that falls under its mouth. Plants form the bulk of its diet, especially in late summer and fall when berries and nuts abound. His favorite fruits are blueberries, strawberries, shepherdia, serviceberries and elderberry berries, black cherries and apples. It also likes acorns, hazelnuts and ridges (beech). It also feasts on certain insects, such as ants and grasshoppers. He sometimes even turns over tree trunks, old stumps and stones to find some. Black bear prefers mature forests where berries grow in abundance.

## The habitat of the red fox



The red fox mainly consumes small mammals such as voles, mice, lemmings, squirrels and hares. Its diet also includes a wide variety of foods, including plants, varying from season to season depending on availability. In autumn and winter, it can feed on small mammals. In spring, it targets nesting waterfowl, insects and berries in summer. It also likes wooded areas, especially edges. From autumn to March, foxes hide in thickets and dense brush even during the harshest days of winter.

## The Great Woodpecker



Woodpeckers play an important role in forest dynamics. Indeed, the cavities they dig in trees can shelter a very diverse fauna. They will serve as a nesting site for the woodpecker, as well as shelters for owls, raccoons, martens, fishers and many other species. The snags in which the holes are dug can also serve as perches for several raptors. In fact, owls and raptors can be of great help to maple farm owners. Indeed, these birds will hunt small mammals that could cause nuisance to the tubing by nibbling them. It is therefore strongly advised to keep snags of varying height and diameter, about 10 to 12 per hectare, in order to have greater biodiversity on the property.

## American woodcock



As soon as he arrives in spring, the male appropriates a parade ground. This land is simply an abandoned field, an opening in a young woodlot, a wasteland or a recent logging in a deciduous forest where the male performs songs and flights at sunrise and sunset. The area of the parade grounds varies from 2000 to 8000 m<sup>2</sup> and the height of the peripheral vegetation is less than 10 meters. The presence of shrub is necessary and provides the woodcock with protection from aerial and terrestrial predators. On the other hand, too high a density of shrubs hinders the display.

### Breeding habitat

The egg-laying site is usually located near the parade ground. The nest is located less than 20 meters from an opening or border. Nesting habitat is fairly open. The percentage of recovery is less than 50%, which allows woodcock to flee quickly in case of disturbance.

### Feeding habitat

The American woodcock particularly appreciates young alder and poplar groves of early succession, where it finds, among other things, its food. Indeed, soils rich in humus and organic matter ensure greater availability of food. Earthworms make up 60% of the woodcock's diet.

## **Small mammals**

Small fauna plays an essential role in ecology, in fact, they are the prey of several species, which can therefore have an impact on forest animal populations.

It is possible to set up artificial structures, built by man, to favor the small fauna present in its woodland. These structures make it possible to compensate for certain deficiencies in the natural environment.

Shelters can be built on a base made of good-sized logs, rocks, or both. Thereafter it is enough to cover this basic structure with tree branches. Note that all tree species can be used to develop these structures and that just about all tree parts and cutting waste are usable.

Several species such as ruffed grouse (partridge), snowshoe hare and other mammals, birds, reptiles and amphibians take refuge under piles of branches or stones and under toppled tree trunks to escape predators or to protect themselves from bad weather and disturbance.

A great diversity of bird and mammal species benefit from the presence of fruit trees. It would be advantageous to promote the presence of fruit trees, in particular by preserving seed trees by avoiding, for example, hammering late cherry trees and protecting Pennsylvania cherry. You can also collect acorns, ridges and other fruits and disperse them manually on the territory.

## Annex 2

---

---

### **Elements evaluated during the preparation of the biodiversity component**

**Composition:** it is evaluated in a sampling plot of 10m radius for shrubs and 5m radius for herbaceous plants.

**Lateral obstruction:** Associated with the composition of the lower stratum, lateral obstruction is one of the most useful elements for describing the quality of habitat for several species. It makes it possible to anticipate the use of the stand by wildlife.

**Woody debris** (stumps, trunks and dead branches on the ground): Are habitat features characteristic of old forests. They are needed as shelters for several animal species.

**Snags** (dead trees that are standing): The evaluation of the size, number and quality of snags makes it possible to estimate the carrying capacity of the stand for species that depend on these structures. They make it possible to identify the stands that have the most characteristics of old-growth forests.

**Wildlife potential:** refers to the habitat characteristics observed and illustrates the different needs (shelter, food, reproduction) of different animals, without the use of the habitat necessarily being confirmed.

**Invasive alien species:** Their presence in large numbers indicates a loss of biodiversity, as they take the place of native species. The list of Quebec IAS can be found on Sentinelle, a website of the Government of Quebec.

## Annex 3

### Definition of an invasive alien species and dangerous species

An invasive alien species (IAS) is a plant, animal or microorganism (virus, bacterium or fungus) that is introduced outside its natural range. Its establishment or spread can pose a threat to the environment, the economy, society and human health. (*Source: Government of Quebec*)

Dangerous plants (D) are plants that can affect human health. These can cause severe burns as well as cause allergies and/or asthma.

Here are the plant-type IAS and D that is most likely to be found on your property:

- Common reed.....Page 2
- Purple loosestrife.....Page 3
- Japanese knotweed.....Page 4
- Giant Hogweed..... Page 5
- Eurasian water-milfoil .....Page 6
- Glossy buckthorn..... Page 7
- European buckthorn..... Page 8
- Poison ivy.....Page 9
- Poison parsnip.....Page 10
- Ragweed.....Page 11

## Common reed

(*Phragmites australis*)

The common reed is a large perennial grass that can reach up to five meters in height. Although the plant grows in all wetlands, it is frequently found in roadside ditches. Native to Europe and Asia, the Common Reed has invaded many wetlands in eastern North America. This species can displace native wetland vegetation and poses a serious threat to biodiversity.

Once the plant is introduced into an environment, its roots extend up and down beneath the wetlands, forming an abundant network of rhizomes. Its seeds are easily spread by the wind, allowing it to invade even more habitats.

Its seeds are easily spread by the wind, allowing it to invade even more habitats.

(Source, *Nature Conservancy of Canada*)



Photo de Wikimedia commons

## Purple loosestrife

(*Lythrum salicaria*)

Since its introduction to North America, loosestrife has become an important invasive plant in wetlands, roadsides and disturbed areas. The plant forms dense stands on thick root mats that can extend over a large area. Stands reduce nutrients and space available to native plants and degrade wildlife habitat. Each plant can develop up to 30 flower stems that can produce up to 2.7 million seeds per year. Tiny seeds disperse easily through water, wind, wildlife and humans. (Source: Ontario Invasive Species Awareness Program)



Photo de Wikimedia commons

## Japanese knotweed

(*Fallopia japonica*)

Japanese knotweed is a vigorous semi-woody plant native to East Asia. Japanese knotweed is often mistaken for bamboo; However, it is easy to distinguish it by herselfs Wide Leaves Japanese knotweed is particularly persistent due to its vigorous root system, which can extend within 10 m of the parent stem and grow through concrete and asphalt. It disperses rapidly and forms dense halliers that deteriorate wildlife habitats. It reduces plant biodiversity by competing with native vegetation. The thick layers of decaying stems and leaves on the soil make



it difficult to establish native plant species. This invasive plant is very persistent; Once established, it is extremely difficult to suppress it. (Source: Ontario Invasive Species Awareness Program)

*Photo de Wikimedia commons*

## Giant hogweed

(*Heracleum mantegazzianum*)

Giant hogweed is a large plant that can grow up to 5.5 m tall. The stem of the plant is covered with purple-red speckles and hard hairs filled with sap. Sap can also accumulate at the base of hollow stems. The sap of giant hogweed contains a toxin that can cause severe burns, symptoms appear within forty-eight hours and consist of painful blisters. Giant hogweed blooms only once in its lifetime, unless the flower clusters are damaged before they open. Once the plant has produced seeds, it dies. Each plant can produce up to 120,000 winged seeds (usually 50,000).

Seeds that fall into a stream can float for three days. They can travel long distances in the water of ditches and streams. The seeds can also be dispersed within a radius of 10 m by wind. (Source:

*Ontario Invasive Species Awareness Program*)



Photo de Wikimedia commons

## Eurasian water-milfoil

(*Myriophyllum spicatum*)

This invasive exotic aquatic plant is found in various habitats: lakes, rivers, ponds, drainage ditches. It represents a nuisance by forming dense stands that hinder the growth of native species and make the practice of leisure and resort activities difficult or impractical. The leaf of the Eurasian Watermilfoil, which has the appearance of a feather, has 12 to 24 pairs of leaflets. Implanted by their roots in the substrate, the stems reach the surface of the water where they branch and intertwine to form real floating and very dense mats. The flowers and fruits are present on a reddish terminal spike emerging from the water. The species is present between 1 and 10 meters deep.

Very prolific, Eurasian water-milfoil can count on several modes of reproduction, the main one being fragmentation. During the summer, stem fragments naturally detach from the parent plant and float to a new site to colonize. Roots develop on the fragments, which promotes the successful establishment of the plant. And this spread is accentuated by the fragmentation of stems and the movement of fragments by boats, equipment and animals. (Source: *Conseil régional de l'environnement de l'Estrie*



*Photo de Wikimedia commons*

*Myriophyllum spicatum* L.

## Glossy buckthorn

(*Rhamnus frangula*)

The buckthorn is a shrub, even a small tree, because it can reach 9 m in height. It produces small berries that will change from green, to red, and then to black. The fruits are visible from July to September. It grows very quickly, up to 1 m of growth in height per year. Its leaves are present on the branches longer than any other plant, which promotes its growth and slows that of others. It can reproduce by its very abundant fruits, but also by its roots. Its seeds can survive in the soil for several years. If it is cut, it promotes the growth of new stems. It can grow in all types of environment and it prevents natural vegetation, plants and trees, from growing in several places. (*Source: Southern Quebec Forestry Association*)



Photo de Wikimedia commons

## European buckthorn

(*Rhamnus Cathartica*)

European buckthorn is a shrub or small tree native to Eurasia. European buckthorn adapts well to a wide variety of soils and light conditions, allowing it to invade a wide variety of habitats. It can change the nitrogen content of the soil to create better conditions for its own growth and to discourage that of native species. It produces large quantities of seeds that germinate quickly and prevent the natural growth of native trees and shrubs. Buckthorn stands can invade roadsides, shorelines, mature forests, agricultural fields and hydroelectric corridors, forming dense stands under which few other plants can grow. The



Photo de Wikimedia commons

buckthorn can disperse over large areas thanks to birds and animals, which eat its fruit, transport its seeds over long distances and deposit them with their droppings. In addition, it is host to several insects harmful to agriculture. (Source: *Ontario Invasive Species Awareness Program*)

## Poison ivy

(*Toxicodendron radicans*)

D

Poison ivy is a creeping (10 to 80cm tall) or climbing (6 to 10 m tall) woody plant. It grows in colonies in clearings, woodland edges and along roads. It has three leaflets, the petiolule of the central leaflet is longer than the other two. The leaves of poison ivy are shiny and the toothed margin is irregular.

All parts of this plant are poisonous, including the roots. Any contact can cause a reaction that can vary according to the sensitivity of each individual. Often, blisters form which leads to intense itching. It is not necessary to have direct contact with the plant to have a reaction. Contact with clothing or dog hair that has touched the plant can also cause a reaction.



Photo: Quebec City

To get rid of poison ivy, it is possible to remove it manually, while wearing protective clothing to avoid contact with skin and eyes. The sap can stay on clothes for a long time, so they must be washed well in warm, soapy water and dried outside for several days. It is also possible to use herbicide (be careful with municipal regulations). However, do not burn the plant, as inhaling smoke can cause an extremely painful rash in the lungs that can lead to death. (*Source: Government of Canada*)

## Poison parsnip

(*Parsnip sativa*)

D

Wild parsnip is a biennial plant that can grow up to 2m tall. It forms large colonies in disturbed environments such as wastelands and ditches. This plant spreads thanks to its seeds that are easily transported by the wind.

The leaves are composed of leaflets that divide in turn, they are alternate and measure about 40 cm. The yellow flowers are grouped first into umbellules, then into umbels.

The sap of wild parsnips can cause dermatitis to the skin. In addition, the sap contains photosensitizing toxins. When activated by light, they make the skin particularly sensitive to reactions and these can be really painful. In case of contact, wash the affected area with soap and rinse with clean water. Keep your skin away from light.

To get rid of wild parsnips, it is possible to pull it manually, while wearing protective clothing to avoid contact with skin and eyes. It is also possible to mow the plant or cover the area with a geotextile after cutting the stems and roots. (Source: Government of Quebec *Sentinels* and Quebec City)



Photo credit: R.Néron, MAPAQ

Photo taken on the Quebec City website

## Ragweed

(*Ambrosia psilostachya*)

D

The leaves of ragweed are opposite, deeply cut and pubescent. Green flowers in spikes are at the top of the plant, they appear from mid-July. This plant grows in disturbed environments such as wastelands, roadsides and bike paths.

Ragweed pollen causes hay fever, chronic sinusitis or asthma in people who are allergic to it.

To get rid of ragweed, it is possible to pull it out or mow it.

(Source: Quebec City website)



Photo: Quebec City website

## Espèces à risque

1 – Nombre total d'occurrences pour cette requête : 2

Espèce - (no d'occurrence)	Rang de priorité G / N / S	Caractérisation	Latitude / Longitude
Nom commun			Dernière observation
Statut de l'espèce au Québec		Qualité - Précision	
Statut au Québec recommandé			
Status canadiens (COSEPAC / LEP)		Statut hydrique	
Localisation			

### FLORE

<i>Goodyera pubescens</i> - (8123)	G5 / N4N5 / S2	(1) : Sous les pruches au sommet de la montagne. 1997 : Un seul clone. (2) : Pinède mixte mature, tout près du sentier. 2018 : Au moins 100 plants.	45,58 / -75,925
Goodyéerie pubescente			2018

Vulnérable C (Passable) - S (Seconde, 150 m)

X (Aucun) / X (Aucun)

FACT

MRC Les Collines-de-l'Outaouais, municipalités de Chelsea et de Pontiac, parc de la Gatineau, occurrence divisée en 2 sous-populations. (1) : Secteur de Farm-Point, petite montagne à l'ouest du chemin entre le hameau de Farm-Point et le pont couvert du ruisseau Meach et à l'est de la piste d'aviation. (2) : À environ 1 km au nord-est du ruisseau Flynn. / (1) : Sous les pruches au sommet de la montagne. 1997 : Un seul clone. (2) : Pinède mixte mature, tout près du sentier. 2018 : Au moins 100 plants.

Meilleure source : Savignac, C. 2018. Communication personnelle de Carl Savignac au Centre de données sur le patrimoine naturel du Québec du 7 décembre 2018, contenant les données brutes d'inventaires floristiques de Dendroica pour l'année 2018. .

### FLORE

<i>Ulmus thomasii</i> - (81768)	G5 / NNR / S2	Forêt perturbée dans le passé mais plus maintenant. 2020 : 90 tiges.	45,6 / -75,913
Orme liège			2020-12-15

Menacée

C (Passable) - S (Seconde, 150 m)

X (Aucun) / X (Aucun)

NI

MRC Les Collines-de-l'Outaouais, municipalité de Chelsea, parc de la Gatineau, à environ 300 m au sud-est du lac Carman. / Forêt perturbée dans le passé mais plus maintenant. 2020 : 90 tiges.

Meilleure source : FORMTER 2001 -. Banque de données sur les formulaires de terrain, active depuis 2001; continuellement mise à jour. Centre de données sur le patrimoine naturel du Québec (CDPNQ). Gouvernement du Québec, ministère de l'Environnement et des Parcs, Direction de la protection des espèces et des milieux naturels. Québec, Québec.



**2 – Nombre total d'espèces pour cette requête :** **2**

**Nom latin**

Nom commun Statut canadien Cosepac / Lep	Rangs de priorité			Statut	Total Requête	Nombre d'occurrences dans votre sélection									Nombre au Québec**	
	G	N	S			A	B	C	D	X	H	F	E	I	Autres*	
<b>FLORE</b>																
<i>Goodyera pubescens</i>	G5	N4N5	S2	Vulnérable	1	0	0	1	0	0	0	0	0	0	0	57
Goodyéries pubescentes																
X (Aucun) / X (Aucun)																
<i>Ulmus thomasii</i>	G5	NNR	S2	Menacée	1	0	0	1	0	0	0	0	0	0	0	70
Orme liège																
X (Aucun) / X (Aucun)																
				Totaux:	2	0	0	2	0	0	0	0	0	0	0	

\* Cette colonne compile les occurrences introduites, réintroduites et/ou restaurées pour chaque espèce suivie au CDPNQ.

\*\* Les occurrences de qualités F, H, X ou compilées dans la colonne «Autres» ne sont pas comptabilisées dans ce nombre.

## Signification des termes et symboles utilisés

Espèce : Le mot espèce est employé dans un sens très large, comprenant les sous-espèces, variétés et populations. Le symbole P (population) suivi d'un chiffre correspondant au numéro de la région administrative du Québec (ministère des Ressources naturelles, 1997) et inscrit après le nom d'une espèce indique une espèce menacée ou vulnérable dans cette partie seulement de son aire de répartition québécoise : P01 : Bas-Saint-Laurent; P05 : Estrie; P07 : Outaouais; P09 : Côte-Nord; P11 : Gaspésie–Îles-de-la-Madeleine, P12 : Chaudière–Appalaches; P15 : Laurentides

Espèces menacées ou vulnérables : Cette expression comprend les espèces désignées et celles susceptibles d'être ainsi désignées légalement selon la Loi sur les espèces menacées ou vulnérables (L.R.Q., c. E-12.01)

Rang de priorité : Rang décroissant de priorité pour la conservation (de 1 à 5), déterminé selon trois échelles : G (globale; l'aire de répartition totale) N (nationale; le pays) et S (subnationale; la province ou l'État) en tenant compte principalement de la fréquence et de l'abondance de l'élément.

- 1: En danger critique
- 2: En danger
- 3: Vulnérable
- 4: Apparemment sûre
- 5: Sûre

Seuls les rangs 1 à 3 traduisent un certain degré de précarité. Dans certains cas, les rangs numériques sont remplacés ou nuancés par les cotes suivantes : B: population animale reproductrice (breeding); H: historique, non observé au cours des 20 dernières années (sud du Québec) ou des 40 dernières années (nord du Québec); M: population animale migratrice; N: population animale non reproductrice; NA: présence accidentelle / exotique / hybride / présence potentielle / présence rapportée mais non caractérisée / présence rapportée mais douteuse / présence signalée par erreur / synonymie de la nomenclature / existant, sans occurrence répertoriée; NR: rang non attribué; Q: statut taxinomique douteux; T: taxon infra-spécifique ou population isolée; U: rang impossible à déterminer; X: éteint ou extirpé; ?: indique une incertitude

Statut au Québec : Statut défini selon la Loi sur les espèces menacées ou vulnérables (L.R.Q., c. E-12.01). Menacée: espèce désignée menacée (dont la disparition est appréhendée); Vulnérable: espèce désignée vulnérable (dont la survie est précaire, sans que la disparition soit appréhendée); Susceptible d'être désignée: espèce susceptible d'être désignée menacée ou vulnérable, figurant sur la liste publiée à la Gazette officielle du Québec. Il existe également d'autres statuts utilisés à l'intérieur du CDPNQ, à des fins administratives : non suivie, retirée, candidate, disparue

Statut au Québec recommandé : Statut recommandé par le Comité avisoir pour une désignation à venir en vertu de la Loi sur les espèces menacées ou vulnérables (L.R.Q., c. E-12.01). Menacée: espèce désignée menacée (dont la disparition est appréhendée); Vulnérable: espèce désignée vulnérable (dont la survie est précaire, sans que la disparition soit appréhendée); Susceptible d'être désignée: espèce susceptible d'être désignée menacée ou vulnérable.

Statut COSEPAC (COSEWIC) : Les catégories de risque au Canada, définis selon le Comité sur la situation des espèces en péril au Canada (COSEPAC; Committee on the Status of Endangered Wildlife in Canada (COSEWIC)). C: candidate; D: disparue; DI: données insuffisantes; DP: disparue du pays; M: menacée; NEP: non en péril; P: préoccupante; VD: en voie de disparition; X: aucun

Statut LEP : Les catégories de risque au Canada, définis selon la Loi sur les espèces en péril (L.C. 2002, ch. 29). DP: disparue du pays; M: menacée; P: préoccupante; VD: en voie de disparition; X: aucun

Qualité des occurrences : Rangs de base caractérisant la viabilité des espèces. A: excellente; B: bonne; C: passable; D: faible; E: existante, à caractériser; F: non retrouvée; H: historique; X: extirpée; U: impossible à attribuer; NR: non attribué; ?: indique une incertitude; AB (=A): excellente à bonne; AC (=B): excellente à passable; BC (=B): bonne à passable; CD (=C): passable à faible; R: réintroduite ou restaurée; I: introduite

Précision des occurrences : Indique le niveau de précision de la localisation de l'occurrence. S: <= 150 m de rayon; M: <= 1,5 km de rayon; G: <= 8 km de rayon; U: > 8 km de rayon

Statut hydrique : Indique l'affinité avec les milieux humides chez les plantes vasculaires. OBL: Presque exclusivement restreintes aux milieux humides; FACH : Généralement restreintes aux milieux humides; FAC: Se trouvent autant dans les milieux humides que les milieux terrestres; FACT : Facultative des milieux terrestres; TER: Terrestre; NI : Non indicatrice.

Acronymes des herbiers : BL : MARCEL BLONDEAU; BM : Natural history museum; CAN : Musées nationaux; CCO : Université de Carleton; DAO : Agriculture Canada; DS : California academy of sciences; F : Field museum of natural history; GH : Gray; GR : Christian Grenier; ILL : University of Illinois; JEPS : Jepson herbarium; K : kew; LG : Université de Liège; MI : Université du Michigan; MO : Missouri; MT : MLCP (fusionné à MT); MT : Marie-Victorin; MTMG : Université McGill; NB : University of New Brunswick; NY : New York; OSC : Oregon state university; PM : Pierre Morisset; QFA : Louis-Marie; QFB-E : Forêts Canada; QFS : Université Laval; QK : Fowler; QSF : SCF; QUE : Québec; SFS : Rolland-Germain; TRTE : Toronto; UC : University of California; UQTA : Université du Québec; US : Smithsonian; V : Royal British Columbia museum; WAT : Waterloo university; WS : Washington state

# Signification des termes et codes utilisés

## Espèce

Le mot espèce est employé dans un sens très large, comprenant les sous-espèces, variétés et populations. Le symbole P (population) suivi d'un chiffre correspondant au numéro de la région administrative du Québec (ministère des Ressources naturelles, 1997) et inscrit après le nom d'une espèce indique une espèce menacée ou vulnérable dans cette partie seulement de son aire de répartition québécoise : P01 : Bas-Saint-Laurent; P05 : Estrie; P07 : Outaouais; P09 : Côte-Nord; P11 : Gaspésie–Îles-de-la-Madeleine, P12 : Chaudière–Appalaches; P15 : Laurentides

## Espèces menacées ou vulnérables

Cette expression comprend les espèces désignées et celles susceptibles d'être ainsi désignées légalement selon la Loi sur les espèces menacées ou vulnérables (L.R.Q., c. E-12.01)

## Rang de priorité

Rang décroissant de priorité pour la conservation (de 1 à 5), déterminé selon trois échelles : G (globale; l'aire de répartition totale) N (nationale; le pays) et S (subnationale; la province ou l'État) en tenant compte principalement de la fréquence et de l'abondance de l'élément.

- 1: En danger critique
- 2: En danger
- 3: Vulnérable
- 4: Appareillement sûre
- 5: Sûre

Seuls les rangs 1 à 3 traduisent un certain degré de précarité. Dans certains cas, les rangs numériques sont remplacés ou nuancés par les cotes suivantes : B: population animale reproductrice (breeding); H: historique, non observé au cours des 20 dernières années (sud du Québec) ou des 40 dernières années (nord du Québec); M: population animale migratrice; N: population animale non reproductrice; NA: présence accidentelle / exotique / hybride / présence potentielle / présence rapportée mais non caractérisée / présence rapportée mais douteuse / présence signalée par erreur / synonymie de la nomenclature / existant, sans occurrence répertoriée; NR: rang non attribué; Q: statut taxinomique douteux; T: taxon infra-spécifique ou population isolée; U: rang impossible à déterminer; X: éteint ou extirpé; ?: indique une incertitude

## Statut au Québec

Statut défini selon la Loi sur les espèces menacées ou vulnérables (L.R.Q., c. E-12.01). Menacée: espèce désignée menacée (dont la disparition est appréhendée); Vulnérable: espèce désignée vulnérable (dont la survie est précaire, sans que la disparition soit appréhendée); Susceptible d'être désignée: espèce susceptible d'être désignée menacée ou vulnérable, figurant sur la liste publiée à la Gazette officielle du Québec. Il existe également d'autres statuts utilisés à l'intérieur au CDPNQ, à des fins administratives : non suivie, retirée, candidate, disparue

## Statut au Québec recommandé

Statut recommandé par le Comité aviseur pour une désignation à venir en vertu de la Loi sur les espèces menacées ou vulnérables (L.R.Q., c. E-12.01). Menacée: espèce désignée menacée (dont la disparition est appréhendée); Vulnérable: espèce désignée vulnérable (dont la survie est précaire, sans que la disparition soit appréhendée); Susceptible d'être désignée: espèce susceptible d'être désignée menacée ou vulnérable.

## Statut COSEPAC (COSEWIC)

Les catégories de risque au Canada, définis selon le Comité sur la situation des espèces en péril au Canada (COSEPAC; Committee on the Status of Endangered Wildlife in Canada (COSEWIC)). C: candidate; D: disparue; DI: données insuffisantes; DP: disparue du pays; M: menacée; NEP: non en péril; P: préoccupante; VD: en voie de disparition; X: aucun

## Statut LEP

Les catégories de risque au Canada, définis selon la Loi sur les espèces en péril (L.C. 2002, ch. 29). DP: disparue du pays; M: menacée; P: préoccupante; VD: en voie de disparition; X: aucun

## Qualité des occurrences

Rangs de base caractérisant la viabilité des espèces. A: excellente; B: bonne; C: passable; D: faible; E: existante, à caractériser; F: non retrouvée; H: historique; X: extirpée; U: impossible à attribuer; NR: non attribuée; ?: indique une incertitude; AB (=A): excellente à bonne; AC (=B): excellente à passable; BC (=B): bonne à passable; CD (=C): passable à faible; R: réintroduite ou restaurée; I: introduite

## Précision des occurrences

Indique le niveau de précision de la localisation de l'occurrence. S: <= 150 m de rayon; M: <= 1,5 km de rayon; G: <= 8 km de rayon; U: > 8 km de rayon

## Statut hydrique

Indique l'affinité avec les milieux humides chez les plantes vasculaires. OBL: Presque exclusivement restreintes aux milieux humides; FACH : Généralement restreintes aux milieux humides; FAC: Se trouvent autant dans les milieux humides que les milieux terrestres; FACT : Facultative des milieux terrestres; TER: Terrestre; NI : Non indicatrice.



#### Indice de biodiversité

Attribué aux occurrences, seules ou regroupées, indique les territoires qui peuvent être considérés importants pour la ou les espèces représentées et la pertinence de protection de la ou des populations concernées (actualité de la ou des données, nombre d'individus évalué et significatif). B1: Exceptionnel; B2: Très élevé; B3: Élevé; B4: Modéré; B5: Marginal. Les territoires avec un indice de biodiversité de B1 à B3 sont considérés comme d'intérêt le plus significatif pour la conservation

#### Critères pour l'attribution d'un indice de biodiversité appliquée à une unique occurrence

Indice	Sous- indice	Critères
B1	.01	Unique occurrence au monde d'espèce G1
	.02	Unique occurrence au Québec d'espèce G1
	.03	Unique occurrence au Québec d'espèce G2
	.04	Unique occurrence au Québec d'espèce G3
	.05	Occurrence d'excellente qualité d'espèce G1
	.07	Unique occurrence au Québec d'espèce S1
B2	.01	Occurrence autre que d'excellente qualité d'espèce G1
	.02	Occurrence d'excellente à bonne qualité d'espèce G2
	.03	Occurrence d'excellente qualité d'espèce G3
	.04	Occurrence d'excellente qualité d'espèce S1
B3	.01	Occurrence de qualité passable d'espèce G2
	.02	Occurrence de bonne qualité d'espèce G3
	.03	Occurrence de bonne qualité d'espèce S1
	.05	Occurrence d'excellente qualité d'espèce S2
	.11	Occurrence de bonne qualité d'espèce S2
B4	.01	Occurrence de qualité passable d'espèce G3
	.02	Occurrence de qualité passable d'espèce S1
	.03	Occurrence d'excellente qualité d'espèce S3
	.07	Occurrence de bonne qualité d'espèce S3
B5	.01	Occurrence de qualité passable d'espèce S2
	.03	Occurrence de qualité passable d'espèce S3
	.04	Occurrence parmi les cas suivants : qualité faible, historique, présence contrôlée (existant)

