REPORT 2016

Program for the maintenance and enhancement of biodiversity on Mount Royal's institutional lands

Université de Montréal

Submitted

to City of

Montréal

Content

REMINDER

Territory covered

The territory covered by this project is located on the campus of the Université de Montréal, on the one hand in the wooded area along Édouard-Montpetit Boulevard and on the other hand in the wooded area opposite the École polytechnique (Coulée verte).

Although the woodlands on the Université de Montréal campus cover a total area of 15.6 ha, an emphyteutic lease granted to the City of Montreal allowed the transfer to the latter of the management of 13.42 ha of wooded area, as part of the new Third Summit Park.

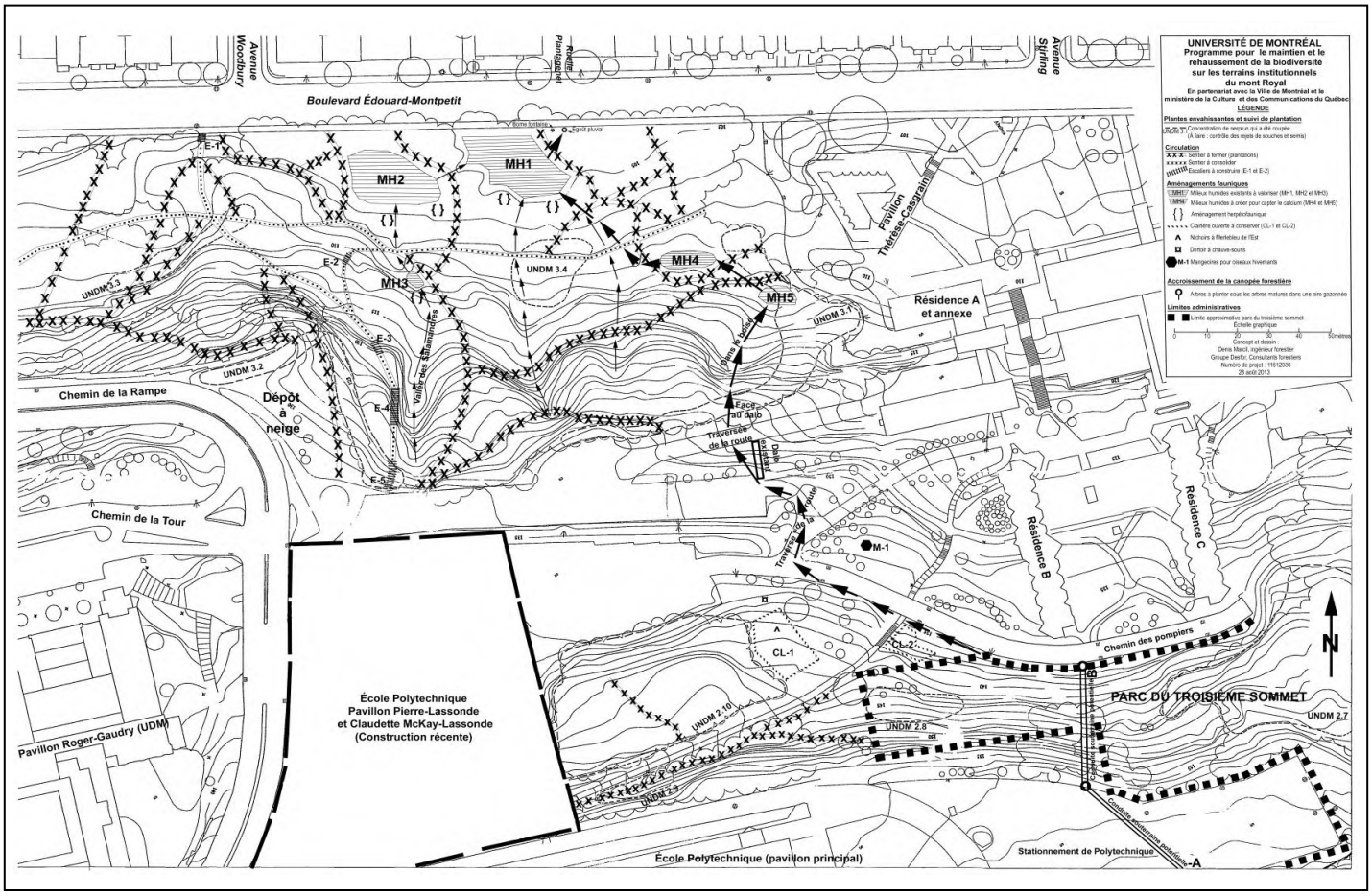
This leaves approximately 2.18 ha of wooded land on the Université de Montréal's lands that are eligible under the program to maintain and enhance biodiversity on Mount Royal's institutional lands.

This residual wooded area is divided between the primary core area of approximately 1.5 to 2.84 ha (Édouard-Montpetit woodland), including a sugar maple grove and an ash grove, a poplar grove and a red oak grove, and on the other hand, the small wooded area of the ecological corridor of approximately 0.65 to 0.68 ha (Coulée verte in front of the École polytechnique), including an ostry and a cottonwood grove.

Moreover, characterized by their mosaic forest stands, these two Université de Montréal woodlands mark a continuity between the woodlands of Jean-de-Brébeuf College and the forest adjacent to the beltway in the new Third Summit Park.

The quality of the biodiversity found on the site was the subject of a graduate study report (see *State of Biodiversity of the Université de Montréal Woodlands*). According to this study by Boivin et al. (2003), the two woodlots in question are a mosaic of poplar, ostrya, maple, ash and oak stands.

Although these woodlands fall within the ecoterritory of the peaks and flanks of Mount Royal, for a long time they were maintained in a minimal way, not so much because they were not a priority in the activities of the Université de Montréal as to avoid harming their protected status. Thus, despite the particular history of this mountainside and its almost ubiquitous urban context, the Université de Montréal's woodlands have managed to preserve their great environmental value.


UNIVERSITÉ DE MONTRÉAL
Programme pour le maintien et le rehaussement de la biodiversité sur les terrains institutionnels du mont Royal
En partenariat avec la Ville de Montréal et le ministère de la Culture et des Communications du Québec
LÉGENDE
Plantes envahissantes et suivi de plantation
Concentration de nerprun qui a été coupée. (A faire : contrôle des rejets de souches et semis)
Circulation
Sentier à fermer (plantations)
Sentier à consolider
Escaliers à construire (E-1 et E-2)
Aménagements fauniques
MH1 Milieux humides existants à valoriser (MH1, MH2 et MH3)
MH4 Milieux humides à créer pour capter le calcium (MH4 et MH5)
Aménagement herpétofaunique
Clairière ouverte à conserver (CL-1 et CL-2)
Nichoirs à Merlebleu de l'Est
Dortoir à chauve-souris
M-1 Mangeoires pour oiseaux hivernants
Accroissement de la canopée forestière
Arbres à planter sous les arbres matures dans une aire gazonnée
Limites administratives
Limite approximative parc du troisième sommet
Échelle graphique
0 10 20 30 40 50 mètres
Concept et dessin :
Denis Marcil, ingénieur forestier
Groupe Dendro, Consultants forestiers
Numéro de projet : 1161/2036
29 août 2013
Boulevard Édouard-Montpetit
Avenue Woodbury
Avenue Stirling
Chemin de la Rampe
Chemin de la Tour
Chemin des pompiers
Dépôt à neige
Pavillon Roger-Gaudry (UDM)
École Polytechnique
Pavillon Pierre-Lassonde
et Claudette McKay-Lassonde
(Construction récente)
École Polytechnique (pavillon principal)
Stationnement de Polytechnique
Résidence A et annexe
Résidence B
Résidence C
Pavillon Thérèse-Casgrain
PARC DU TROISIÈME SOMMET
MH1
MH2
MH3
MH4
MH5
CL-1
CL-2
M-1
E-1
E-2
E-3
E-4
E-5
UNDM 2.7
UNDM 2.8
UNDM 2.9
UNDM 2.10
UNDM 3.1
UNDM 3.2
UNDM 3.3
UNDM 3.4
N

Vision

The campus of the Université de Montréal is fortunate to be located in a unique place, the historic and natural district of Mount Royal. With this comes great responsibilities, such as the maintenance of the woodlands that are located there.

In its global vision of this responsibility, the Université de Montréal aims, among other things, to :

- Carry out its projects with a view to sustainable, educational and environmental management;
- Improve and take into account the quality of natural environments;
- Ensure the monitoring of the quality of its natural environments;
- Implement the entire action plan as soon as possible;
- Increase forest cover, in line with the targets proposed for the City of Montreal;
- Promote the maintenance and establishment of certain native species;
- To document methods and their successes in controlling invasive plants;
- Develop a forest / feeder city component;
- Integrate values of sustainable development and sound management of biodiversity;
- Inform and sensitize the university community to urban biodiversity issues;
- Include students from the university community in the development of the project from the outset;
- Promote social and humanitarian commitment and celebrate diversity;
- Raise awareness among the general public;
- Get adequate media coverage of its students' positive environmental actions;
- Put in place relevant awareness panels in the field;
- Provide users with new landscape perspectives;
- Offer users enriched ecosystems to discover during their visit.

The current project, which is considerable in scope, has taken the form of an action Certain actions that do not require preliminary studies have been prioritized so that measures can be undertaken as early as this year. The actions presented in this document have already been verified by the various project stakeholders and this set of tasks is in fact the result of a consensus between the Ministry, the City and the Université de Montréal.

In parallel with this project, the Université de Montréal has already begun major work at the foot of the *Université de Montréal* metro station as far as the main entrance to the Roger Gaudry Pavilion. This major project places great importance on biodiversity management and will consolidate our efforts. Overall, the entire sector would benefit from an improvement in the quality of the woodlands that can support a greater diversity of living organisms and greater abundance. Thus, Mount Royal could reaffirm its position as a well of

biodiversity by feeding nearby green spaces such as ecological corridors b would therefore be at the heart of all these projects.

The Université de Montréal believes in the power of actions carried out in the service of the common general improvement of society as the primary purpose of teaching and intellectual, cultural and scientific research. Its commitment to the community extends far beyond the boundaries of the campus (Bioblitz). In addition, it expects to achieve good accountability for the sake of good governance.

More information

The financial contribution agreement between the City of Montréal and the Université de Montréal was signed in April 2016.

Due to the LCOM, we were unable to begin any steps in the field before September 2016. We took advantage of the summer to make the individualized follow-up of the 180 forest trees whose DHP is higher than 25 cm. The bat shelter had been installed prior to this period. We hired a subcontractor for the hydrological study during the summer, the firm Vinci. This same firm allowed us to meet with the two other subcontractors: Biodiversité Conseil and AMEC. We also took advantage of the summer to begin a discussion with Les amis de la montagne so that they could contribute to the project. It was finally agreed that we would share a common human resource for the realization of forest and wildlife intervention work on the woodland as well as revegetation. This agreement was made in the the form of a sub-contract, see below in the text.

List of sub-projects

Forestry intervention

1 Updating species with precarious status

2 Monitoring the health status of butternuts

3 Invasive Alien Species (IAS) assessment and response

4 Inventory and numbering of "forest" trees

5 Intervention on the common reed (1 site)

Revegetation of trails

6 Improvement of plantations

7 Closing of 1170m of trail

8 Develop the official trails

Wildlife intervention

9 Creation of a bat shelter

10 Installation of bird feeders

11 Sèm'ail Project

12 Create a biodiversity awareness panel

Hydrological studies

13 Watershed Study

14 Feasibility study for the creation of wetlands

15 Hydrological Study

16 Satellite display on biodiversity in woodlands

List of budget items

Date	Description	Tooling	Plants	Miscellaneous	Human Resources (Watershed)	UdeM Contribution
		27 000$		**5870$**	**27 000$**	**10% = 6000$**
July 5th	Indigo Seeds		1457,94$			
July 6th	Floor accessories	137,58$				
September 20th	Intervention in the field				8800$ (approx. 476 hours)	1600$ (approx. 40 hours)
October 31st	Plant characterization				2810$	160$ (4 hours)
November 7th	Hydrology				5495,81$	120$ (3 hours)
November 14th	Watershed				2410$	40$ (1hre)
October 4th	Trees		3780,90$			900$ (approx. 60 hrs)
October 7th	Compost and substrate			210,13$		
October 7th	Tooling	1319,52$				
October 27th	Transport (tools)	121,13$				
November 2nd	tooling	25,71$				
November 17th	Feeder posts	730,09$				
November 23rd	Feeding and delivery	361,17$				
December 2nd	Transport	45,88$				
	Subtotals	**2741,08$**	**5238,84$**	**210,13$**	**19 515$**	**2820$**
Potential expenses		19 020,08$		5659,57$	7484,19$	3180$

Details :

Tools and Plants: should total $27,000 at term. Currently, there is $19,020 available, this is due to some invoices that we have not received to date or for consolidation or mortality replacement plantings that will take place in March-April 2017. A portion of this budget is planned to make the necessary corrections in the fall of 2017.

Miscellaneous: represents mainly expenses associated with the purchase of soil, gravel and compost. These are expenses that will be made when we develop the clearings, consolidate the trails and the green flow. These steps will take place in March-April 2017.

Human Resources: This position includes field work and watershed studies. For the time being, this consists mainly of service contracts awarded by the UdeM, since they involve specific external expertise (water management engineer, geological engineer, wetland biologist and forestry technician). Certain field interventions deserved more in-depth studies of the environment before taking action (e.g. planting in wetlands). All the expenditures related to the watershed project were made in the fall of 2016.

UdeM Contribution: These are expenses that are not included in the previously identified expense items. This contribution must represent 10% of the total amount obtained by this enhancement program.

Subcontracted mandates :

September 20: OdS - Les amis de la montagne

- Environmental stewardship and woodlot consolidation ($8800)
    - See Appendix B for detailed deliverables

October 31: OdS - BioDiversity Council (BC)

- Wetland characterization ($2810)

November 7: OdS - AMEC

- Hydrology ($5495.81)

November 14: OdS - Vinci consultants

- Watershed ($2410)

Intervention Biodiversity

- Control identified invasive plants (cathartic buckthorn, etc.);
- Monitoring populations of species with precarious status (mapping and periodic enumeration);
- Plant native trees, shrubs and perennials;
- Reintroduce floristic species that have disappeared into the undergrowth;
- Assess the health of butternuts;
- Improve habitats for avifauna and microfauna;
- Close unnecessary trails and consolidate trails to be preserved.

Inventory of plant species with precarious status

Tasks performed	Tasks to be completed
• List the plant species still visible in the fall (presence or absence in the different stands, photos)	• Complete data reporting and inventory protocol writing spring

Monitoring the health of the Butternut tree (*Juglans cinera*)

Tasks performed	Tasks to be completed
Monitoring the health of the Butternut tree (*Juglans cinera*) • Inventory of Ashy Walnut from the Édouard-Montpetit woodland and the casting • Health assessment	• Complete the report and proposal of a monitoring plan

Invasive species assessment and eradication

Tasks performed	Tasks to be completed
Invasive species assessment and eradication • Inventory of the Édouard-Montpetit woodlot and the coulee to determine affected areas • Counting the number of robinia false-acacia and location in the woodland, % surface area invaded • Drafting of the eradication protocol by species and size • Counting the number of individuals per class by sector • Harvesting of identifiable buckthorn and Norway maple seedlings • Cutting of Gauls and DHP trees ≤ 10cm of buckthorns and about 50% of Norway maples • Management of a hundred strains (geotextile overlay) • Locating common reed	• Pruning of 25 DHP trees ≥ 10cm • Shredding of branches and trunks of cut species • Complete the invasive species management report

Figure 1: Cathartic buckthorn size

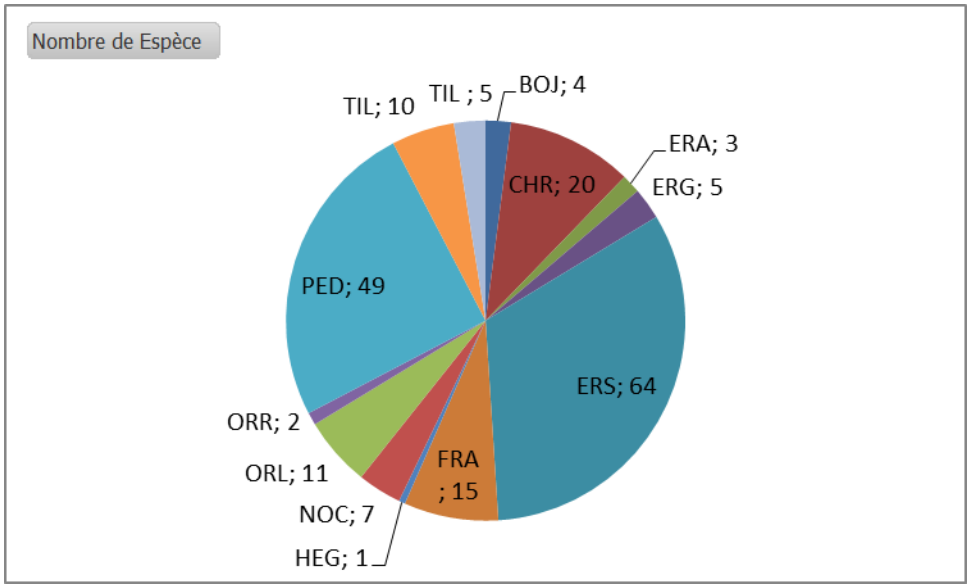
Figure 2: Felled buckthorn individuals are stored at the edge of the woodlot waiting to be shredded. Trees are then planted at the felling sites to compete indirectly with the invasive species.

Figure 3: Larger thalls were covered with a tarp on the ground after cutting to prevent stump rejection.

Figure 4: Another example of the use of canvas to prevent buckthorn recovery.

Inventory and numbering of "forest" trees

Below is a list of trees with more than 25 cm DBH. These trees now have an individualized monitoring sheet and will be identified in the spring of 2017.



Species	# GPS	Geographic coordinates	Circumference (cm)	DHP (cm)
ENG	657	N 45.50499 W073.61557	80,1	25,5
ERG	457	N 45.50625 W073.61585	80,2	25,5
ERS	465	N 45.50611 W073.61519	80,3	25,6
ENT	529	N 45.50432 W073.61654	81,5	25,9
ENT	608	N 45.50637 W073.61548	82,4	26,2
TIL	633	N 45.50518 W073.61527	82,6	26,3
NOC	554	N 45.50460 W073.61641	83,1	26,5
ERS	453	N 45.50568 W073.61588	83,6	26,6
ERS	498	N 45.50512 W073.61621	84,7	27,0
ENT	562	N 45.50475 W073.61642	86	27,4
PED	532	N 45.50436 W073.61660	86,3	27,5
ERS	471	N 45.50594 W073.61559	86,9	27,7
ENT	559	N 45.50470 W073.61667	88,1	28,0
PED	571	N 45.50495 W073.61619	88,2	28,1
ERS	458	N 45.50607 W073.61583	89,3	28,4
CHR	583	N 45.50529 W073.61680	89,6	28,5
ERS	505	N 45.50507 W073.61651	89,7	28,6
ENG	595	N 45.50618 W073.61602	90,4	28,8
ENG	616	N 45.50615 W073.61555	90,4	28,8
ERG	632	N 45.50525 W073.61514	91,1	29,0
ERG	449	N 45.50545 W073.61674	91,2	29,0
ERS	466	N 45.50614 W073.61519	91,5	29,1

ERS	463	N 45.50624 W073.61530	92,2	29,3
ERS	483	N 45.50510 W073.61532	93,5	29,8
ERS	508	N 45.50513 W073.61594	94,8	30,2
ENT	621	N 45.50617 W073.61472	95,3	30,3
PED	531	N 45.50433 W073.61651	95,6	30,4
CHR	519	N 45.50501 W073.61674	95,9	30,5
ERS	450	N 45.50535 W073.61625	96,1	30,6
NOC	553	N 45.50465 W073.61646	96,6	30,7
ORR	579	N 45.50518 W073.61683	97,9	31,2
ENG	618	N 45.50611 W073.61501	98,1	31,2
ENG	654	N 45.50594 W073.61556	98,4	31,3
PED	628	N 45.50547 W073.61514	99,2	31,6
NOC	635	N 45.50529 W073.61546	99,2	31,6
ENT	526	N 45.50453 W073.61674	99,4	31,6
ENG	634	N 45.50531 W073.61553	99,4	31,6
ERS	488	N 45.50511 W073.61577	99,6	31,7
ENT	550	N 45.50457 W073.61652	99,7	31,7
ENT	533	N 45.50457 W073.61649	100,7	32,1
PED	535	N 45.50457 W073.61643	100,9	32,1
ERS	513	N 45.50533 W073.61630	101	32,1
TIL	645	N 45.50612 W073.61558	101	32,1
PED	592	N 45.50607 W073.61594	101,3	32,2
ERS	480	N 45.50529 W073.61555	101,5	32,3
PED	552	N 45.50477 W073.61658	101,6	32,3
PED	572	N 45.50502 W073.61608	101,7	32,4
CHR	615	N 45.50588 W073.61510	101,9	32,4
ENG	522	N 45.50492 W073.61699	102,6	32,7
PED	543	N 45.50500 W073.61591	102,9	32,8
PED	557	N 45.50478 W073.61649	102,9	32,8
CHR	620	N 45.50596 W073.61472	103,2	32,8
ERS	494	N 45.50506 W073.61587	103,3	32,9
BOJ	609	N 45.50615 W073.61533	103,7	33,0
HEG	613	N 45.50609 W073.61506	103,7	33,0
NOC	564	N 45.50496 W073.61635	104,6	33,3
TIL	521	N 45.50515 W073.61659	105,1	33,5
PED	544	N 45.50513 W073.61597	105,3	33,5
ERS	485	N 45.50503 W073.61571	105,6	33,6
ORR	631	N 45.50530 W073.61518	106,1	33,8
PED	630	N 45.50549 W073.61514	106,9	34,0
PED	540	N 45.50496 W073.61584	107,1	34,1
PED	610	N 45.50638 W073.61488	107,7	34,3

ERA	456	N 45.50593 W073.61571	107,8	34,3
ENG	624	N 45.50578 W073.61493	107,8	34,3
ERG	448	N 45.50530 W073.61662	108,6	34,6
ERS	477	N 45.50538 W073.61566	109,2	34,8
ENG	584	N 45.50526 W073.61671	109,2	34,8
NOC	551	N 45.50462 W073.61656	109,4	34,8
PED	611	N 45.50624 W073.61475	109,8	35,0
PED	542	N 45.50504 W073.61595	109,9	35,0
ERG	530	N 45.50436 W073.61658	112,2	35,7
TIL	560	N 45.50485 W073.61647	112,2	35,7
PED	546	N 45.50501 W073.61604	113	36,0
ENT	629	N 45.50550 W073.61509	113	36,0
ERS	495	N 45.50514 W073.61601	113,4	36,1
ERA	454	N 45.50584 W073.61600	114,1	36,3
BOJ	586	N 45.50549 W073.61645	114,7	36,5
ERS	447	N 45.50529 W073.61651	115,4	36,7
ERS	512	N 45.50519 W073.61606	115,7	36,8
TIL	614	N 45.50600 W073.61511	116,1	37,0
ERS	491	N 45.50517 W073.61582	116,7	37,1
ENG	643	N 45.50590 W073.61561	117,1	37,3
PED	538	N 45.50510 W073.61566	117,2	37,3
ERS	473	N 45.50555 W073.61558	119	37,9
TIL	536	N 45.50489 W073.61514	119,2	37,9
ERS	452	N 45.50555 W073.61612	120,4	38,3
PED	545	N 45.50491 W073.61605	122,8	39,1
ENG	637	N 45.50508 W073.61534	123,4	39,3
PED	555	N 45.50464 W073.61633	124,2	39,5
ERS	499	N 45.50520 W073.61625	124,5	39,6
ERS	504	N 45.50504 W073.61675	124,6	39,7
PED	549	N 45.50465 W073.61649	126,5	40,3
PED	561	N 45.50477 W073.61633	128,7	41,0
PED	606	N 45.50614 W073.61557	129,4	41,2
NOC	534	N 45.50452 W073.61643	129,7	41,3
TIL	585	N 45.50528 W073.61658	129,9	41,3
ERS	460	N 45.50611 W073.61529	130,5	41,5
ENT	600	N 45.50606 W073.61602	131	41,7
ENG	646	N 45.50603 W073.61547	131	41,7
TIL	517	N 45.50518 W073.61696	133,1	42,4
PED	558	N 45.50475 W073.61650	134,3	42,7
ERS	503	N 45.50500 W073.61679	134,4	42,8
ERS	500	N 45.50502 W073.61663	134,9	42,9

CHR	575	N 45.50518 W073.61644	135,3	43,1
PED	573	N 45.50506 W073.61612	135,8	43,2
PED	539	N 45.50506 W073.61572	137,5	43,8
ERS	511	N 45.50500 W073.61504	138,5	44,1
PED	570	N 45.50500 W073.61623	140,1	44,6
TIL	647	N 45.50593 W073.61552	141,6	45,1
ERA	455	N 45.50606 W073.61623	141,9	45,2
PED	569	N 45.50506 W073.61622	142,1	45,2
ERS	496	N 45.50522 W073.61613	143,1	45,6
ERS	482	N 45.50522 W073.61543	144,1	45,9
ENG	636	N 45.50522 W073.61545	144,3	45,9
PED	528	N 45.50439 W073.61658	144,8	46,1
PED	593	N 45.50605 W073.61602	145,2	46,2
ERS	464	N 45.50625 W073.61511	145,4	46,3
ERS	451	N 45.50546 W073.61636	148,4	47,2
PED	601	N 45.50607 W073.61604	148,8	47,4
ERS	493	N 45.50512 W073.61607	148,9	47,4
CHR	565	N 45.50490 W073.61636	149,1	47,5
ERS	478	N 45.50540 W073.61562	149,3	47,5
ENG	566	N 45.50510 W073.61636	149,6	47,6
ERS	516	N 45.50541 W073.61609	150,2	47,8
PED	603	N 45.50621 W073.61590	150,3	47,8
ERS	468	N 45.50601 W073.61522	151,4	48,2
ERS	514	N 45.50524 W073.61629	152,3	48,5
TIL	638	N 45.50525 W073.61619	153,1	48,7
ERS	490	N 45.50522 W073.61580	153,5	48,9
PED	563	N 45.50480 W073.61629	154,2	49,1
ERS	497	N 45.50518 W073.61618	154,8	49,3
CHR	623	N 45.50582 W073.61494	155,9	49,6
ERS	469	N 45.50595 W073.61533	156,5	49,8
TIL	518	N 45.50471 W073.61684	157,2	50,0
CHR	578	N 45.50523 W073.61679	159,2	50,7
ERS	461	N 45.50619 W073.61521	160,6	51,1
CHR	520	N 45.50515 W073.61673	160,6	51,1
ERS	486	N 45.50508 W073.61558	161,2	51,3
PED	541	N 45.50504 W073.61594	161,2	51,3
ERS	509	N 45.50506 W073.61572	162,3	51,7
ERS	470	N 45.50594 W073.61530	162,8	51,8
ERS	479	N 45.50541 W073.61557	164,1	52,2
ERS	492	N 45.50515 W073.61601	164,1	52,2
CHR	625	N 45.50574 W073.61502	166,2	52,9

ENT	548	N 45.50454 W073.61682	166,8	53,1
PED	596	N 45.50611 W073.61596	167,2	53,2
ERS	459	N 45.50607 W073.61552	167,3	53,3
CHR	626	N 45.50575 W073.61526	168,8	53,7
BOJ	588	N 45.50581 W073.61592	169,2	53,9
BOJ	655	N 45.50542 W073.61620	169,7	54,0
CHR	622	N 45.50581 W073.61502	170,2	54,2
ERS	475	N 45.50543 W073.61556	170,6	54,3
ERS	484	N 45.50506 W073.61552	170,7	54,3
TIL	639	N 45.50562 W073.61584	171,5	54,6
ERS	487	N 45.50506 W073.61558	172,6	54,9
ERS	476	N 45.50537 W073.61549	176,5	56,2
ERS	507	N 45.50513 W073.61620	176,8	56,3
ERS	506	N 45.50526 W073.61616	183,4	58,4
PED	556	N 45.50465 W073.61642	184,4	58,7
ERS	525	N 45.50455 W073.61685	191,4	60,9
PED	598	N 45.50611 W073.61581	191,8	61,1
ERS	467	N 45.50608 W073.61518	196,8	62,6
PED	602	N 45.50623 W073.61602	197	62,7
PED	591	N 45.50606 W073.61618	199,6	63,5
PED	594	N 45.50614 W073.61595	200,6	63,9
ENG	582	N 45.50523 W073.61675	202,4	64,4
ERS	489	N 45.50509 W073.61574	202,6	64,5
TIL	547	N 45.50455 W073.61694	202,8	64,6
PED	604	N 45.50626 W073.61597	204,6	65,1
TIL	587	N 45.50545 W073.61636	205,2	65,3
CHR	568	N 45.50508 W073.61652	206,8	65,8
ERS	481	N 45.50528 W073.61546	209,2	66,6
PED	590	N 45.50601 W073.61615	212,4	67,6
PED	597	N 45.50608 W073.61586	216,2	68,8
CHR	574	N 45.50513 W073.61580	218,8	69,6
ERS	474	N 45.50547 W073.61552	220,4	70,2
NOC	524	N 45.50480 W073.61697	224,2	71,4
CHR	619	N 45.50583 W073.61501	226,4	72,1
CHR	627	N 45.50570 W073.61530	228,6	72,8
CHR	577	N 45.50526 W073.61671	231,8	73,8
TIL	640	N 45.505559 W073.61568	232,6	74,0
PED	599	N 45.50613 W073.61576	240,6	76,6
PED	537	N 45.50512 W073.61566	242,8	77,3
ERS	510	N 45.50504 W073.61553	252,6	80,4
PED	523	N 45.50488 W073.61672	252,6	80,4

CHR	612	N 45.50610 W073.61492	255,6	81,4
ERS	472	N 45.50549 W073.61565	256,4	81,6
ERS	515	N 45.50547 W073.61610	256,4	81,6
ERS	502	N 45.50498 W073.61680	262,4	83,5
ERS	462	N 45.50621 W073.61515	268	85,3
CHR	567	N 45.50506 W073.61629	268,4	85,4
CHR	617	N 45.50599 W073.61532	271,8	86,5
PED	605	N 45.50617 W073.61565	294,2	93,6
PED	607	N 45.50624 W073.61558	301,2	95,9
PED	589	N 45.50591 W073.61608	304	96,8

Common reed control (1 site)

Figure 5: Some areas of the woodland are highly disturbed due to the accumulation of worn snow, associated with an increase in soil salinity, the location of the lamp post in this photo is one such site.

Figure 6: This same area represents the only location where the common reed was seen.

Revegetation of woodland trails

Tasks performed	Tasks to be completed
• Native tree order • Planning of planting sites in trails to be closed and to prevent the regrowth of invasive species • Tree maintenance and watering (once a day) • Planting of 375 trees	• Repair closing posters and add 6 new posters • Complete the revegetation report and trail closures

Improvement of plantations

375 trees were planted in the fall of 2016 in the woodlot. Special attention was given to sites undergoing characterization to become wetlands. For information on the species planted, please refer to Appendix A.

Figure 7: 375 have been planted in the woodland to consolidate and densify the edges of the trail to force hikers to walk the trails.

Closing of 1170m of trail

Figure 8: In addition to the deterrent plantings, ropes with signs were installed in areas sensitive to the duplication and widening of trails.

Figure 9: Ropes accentuate the trail to encourage hikers to stay where traffic is allowed.

Figure 10: Other examples

Develop the official trails

Scheduled for March-April 2017.

Wildlife intervention

Creation of a bat shelter

Figure 11: The installation of the bat shelter was an... acrobatic intervention

Figure 12: Lampposts provide access to electricity to heat the shelters.

Purchase and installation of bird feeders

Tasks performed	Tasks to be completed
• Locate sites suitable for the installation of 2 anti-crushing feeders • Have the plans approved by the Planning and Archaeology Committee • Place the order and purchase the feeders • Installation of posts & ground fasteners	• Filling the feeders • Purchase of pole • Installing the side bars • Produce educational posters (weather permitting)

Figure 13: The location of the sites for installing bird feeders in winter was chosen by the UdeM's Direction des Immeubles in order not to interfere with operations.

Figure 14: The first site is located in the future honey meadow (CL-1) in order to limit the passage of hikers near the pole.

Figure 15: The second site is located near our current honey meadow, in the University's Green Coulee, providing a showcase for students living in residences.

Figure 16: Feeders installed on December 4, 2016

Sèm'ail Project

Tasks performed	Tasks to be completed
Sèm'Ail Project • Establish potential reintroduction areas for wild garlic. • Obtain permits to harvest seeds in the surrounding areas and to obtain bulbs	• Confirm with Ms. Nault the transfer of the file for 2017. • Delimit the planting area of sector 17.1 • Complete the drafting of the reintroduction

Create a biodiversity awareness panel

Awareness panel ideas

- ✓ Geological situation of Mount Royal: height (233m), rock type (sedimentary, intrusive igneous) and why this situation benefits biodiversity
- ✓ Most common plant species
- ✓ Awareness on artificial trails and trampling degradation
- ✓ Plant species with special status and explanation of what it brings to the woodland (sedge, bloodroot, white trillium, walnut)
- ✓ Raising awareness on the plant and animal species present in the past and explaining the causes of their disappearance (Fragmentation)
- ✓ Explain the decline of amphibians and reptiles and the importance of creating wetlands on the university campus.
- ✓ Close to the nesting boxes or chimney, sign indicating which birds can nest there

Hydrological studies

Watershed Study

- Coordination and information gathering ;
- Summary assessment of the watershed based on the information already available in the management plan ;
- Summary water balance (excluded to meet the client's budget) ;
- Recommendation on watershed runoff quality criteria (discharge objectives only, not measures to be put in place) ;
- Methodology of the study to be carried out (excluded to satisfy the client's budget) ;
- Technical Note ;
- Two meetings, one for start-up including a site visit and one for the final presentation (excluded to meet the client's budget).

Feasibility study for the creation of wetlands

- Determine the conditions necessary for the reintroduction of anurans in existing habitats or those to be created on the Université de Montréal grounds.
- Determine the steps in the realization of this project.
- Evaluate the potential for success of this venture based on the conditions
- Existing and the needs of the species.

Figure 17: Wetland in biological characterization (MH2)

Hydrological Study

- Realization of 6 drillings of 2 meters deep using a small drill to avoid damaging the site given the sensitivity of the environment (instead of a mini excavator).
- Included :
  - Verification of the soils present (with soil sampling).
  - Installation of tubes ('carlons') in 4 of the 6 boreholes to measure the water level (1 survey carried out as part of this mandate) sealed with bentonite on the surface.

- 3 granulometric analyses to confirm the nature of the soils present. To confirm the capacity of the soils to retain / contain water.

Coming soon...

During the month of January 2017, we expect the summary report on the watersheds including the plant characterization and the hydrological study. These conclusions will influence the order and type of interventions that we will complete in March-April 2017, both for trail consolidation and planting. The choice of the plants that we will order will take into consideration the type of soil, the natural flow of water and the height of the water table. We are also awaiting a complete report from Les amis de la montagne on the forestry and wildlife interventions carried out as well as recommendations on the actions to be taken to complete the consolidation of the trails. Based on these documents, we will be able to develop a new schedule that will focus mainly on the months of March and April 2017, while planning to keep a small portion of the budget for the corrections to be made before the winter of 2018. This document will propose subsequent interventions that we could carry out if we wish to invest more in the medium and long term on this space. We are currently thinking about the type of information that will be contained in the interpretation panels and we hope to install them at the end of the interventions, that is to say in the fall of 2017.

APPENDIX A

September 8th

Tree order for the University of Montreal

Species	Awards	Nb	Height	Volume
Hickory hickory	7,50 $	10	50 cm	2 gallons
Late cherry tree	6,00 $	10	100-125 cm	1G
Caroline's Charm	6,00 $	15	50 cm	1G
Paper birch	16,00 $	5	175 cm and +	3G
Big fruit oak	Soverdi	15	100 cm	1-2 g
Red Oak	Soverdi	15	100 cm	1-2 g
Sugar maple	12,50 $	40	60-80 cm	3 gallon
eastern hemlock	12,00 $	15	50-80 cm	3gall

125

Saskatoon berry bush	15,50 $	25	150-175 cm	5 gallons
Virginia Cherry	25,00 $	25	175-200 cm	7 gallons
Canada Gooseberry	1,40 $	10	50 cm	PFD
Dogwood stonoliferous	6,50 $	25	90-100 cm	3 gallon
Dierville honeysuckle	3,95 $	20	50 cm	1G
Mountain maple	1,40 $	10	70 cm	PFD
Pennsylvania Maple	1,60	10	50-75 cm	PFD
Long-billed hazelnut tree	1,40 $	10	40 cm	PFD
Fragrant bramble	3,95 $	25	50 cm	1G
Elderberry Canada	8,50 $	25	50-60 cm	3 gallon
Elderberry pubescent	3,95 $	20	60 cm	1G
Viorne lentago	8,50 $	25	70-120 cm	5 gallons

Three-lobed Viorne	6,50 $	20	30-60 cm	2 gallons

250

APPENDIX B - Details of Deliverables	Anticipated Timeline	Number of hours
Invasive species assessment and eradication • Inventory of the Édouard-Montpetit woodlot and the coulee to determine affected areas • Counting the number of robinia false-acacia and location in the woodland, % surface area invaded • Drafting of the eradication protocol by species and size • Harvesting and cutting of juveniles, shrubs, and gaulis, with DHP ≤ 10cm • Ratio of the number of species cut or uprooted and suggestions for managing other invasive species (mature trees, robinia) Target species: Cathartic buckthorn (*Rhamnus cathartica*) and burdock (*Frangula alnus)*, Norway maple (*Acer platanoides)*, Manitoba maple (*Acer platanoides), Manitoba* maple (*Frangula* alnus), Norway maple (*Acer platanoides)* (*Acer negundo*), *Robinia pseudoacacia* (*Robinia pseudoacacia*) and Reed common (*Phragmites communis*)	Sept. 11 to 17, 2016 Sept. 11 to 17, 2016 Sept. 16 to 22, 2016 Sept. 22 to Oct. 8, 2016 Nov. 13 to 26, 2016	105
Monitoring the health of the Butternut tree (*Juglans cinera*) • Édouard-Montpetit Woodland Ash Walnut Inventory and Health Assessment • Future monitoring plan	September 11 to 17 Nov. 27 to Dec. 3, 2016	35
Revegetation of woodland trails • Order native trees and shrubs • Planning of planting sites in trails to be closed and to prevent the regrowth of invasive species • Tree maintenance and watering (once a day) • Planting of trees and shrubs • Follow-up of plantation until winter	September 4 to 10 September 18 to 24 Sept. 27 to Oct. 22 Sept. 27 to Oct. 22 Sept. 27 to Dec. 22	200
Purchase and installation of bird feeders • Locate sites suitable for the installation of 2 anti- squirrel feeders • Have the plans approved by the Planning and Archaeology Committee • Place the order and purchase the feeders • Installation of feeders	September 11 to 17 Sept. 20 to Oct. 20 Oct. 30 to Nov. 15	50

	Oct. 30 to Nov. 15	
Inventory of plant species with precarious status • List the plant species still visible in the fall (presence or absence in the different stands, photos) • Drafting of a spring inventory protocol and report of species present	September 11 to 24 Dec. 4 to Dec. 10, 2016	50
Sèm'Ail Project • Establish potential reintroduction areas for wild garlic. • Obtain permits to harvest seeds in the surrounding areas and to obtain bulbs • Write the reintroduction protocol *THE PLANTATION WILL HAVE TO BE CARRIED OUT IN SPRING 2017*	September 11 to 24 September 4 to 20 Dec. 11 to 17, 2016 *Spring 2017 - offline*	40