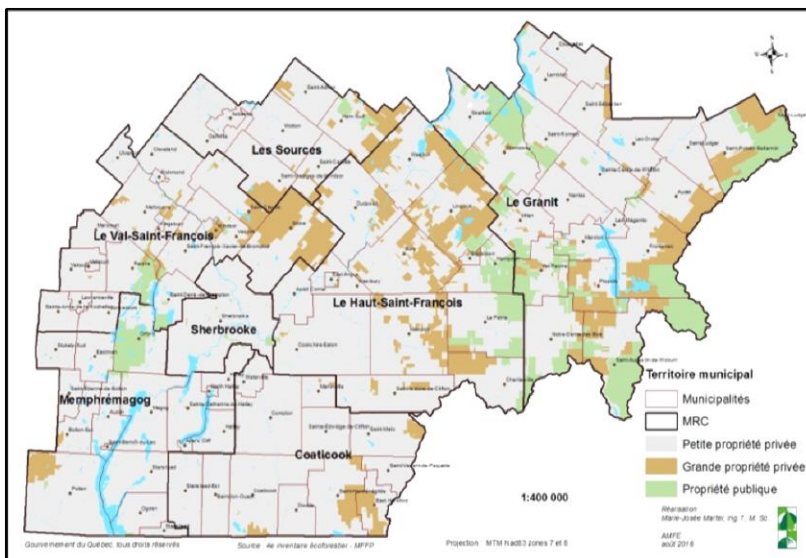


Private Forest Protection Plan and Development Overview for the Estrie Region - summary -

Mandate

The Agence de mise en valeur de la forêt privée de l'Estrie (AMFE) is a non-profit organization established in September 1996 under the Forest Act (R.S.Q, chapter F-4.1) to guide the management and development of the private forest in its area, i.e., the administrative region of Estrie, with a view to sustainable development.

To fulfil this mandate, the AMFE has two instruments at its disposal. The first is a Private Forest Protection and Development Plan (PPMV) that the agency must develop and implement. The second is a financial assistance program administered by the AMFE in order to enable woodlot owners to hire an AMFE-accredited forestry advisor so that they can receive technical and financial support for silvicultural activities aimed at protecting and developing private forest areas. In fulfilling its mandate, the AMFE relies on the concerted support of its four regional founding partners, namely municipal stakeholders, woodlot owner representatives (forest groups and woodlot owner unions), the forestry industry, and the Ministère des Forêts, de la Faune et des Parcs.



Building on the findings of the first PPMV (2002), the 2017 plan updates the previous portrait of the region's forest characteristics. It also refocuses forest management and development according to new or adjusted goals pertaining to sustainable ecosystem use and integrated resource management and protection.

Private Forest in the Estrie Region

A diversity of uses

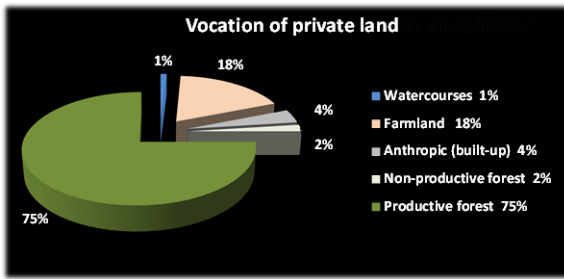
Estrie offers a rich diversity of potential territorial uses. Renowned for its beautiful landscapes and recreational and touristic appeal, charmingly rustic towns and villages, vibrant farming and forest sectors, and environmental quality, the region is exploited by numerous individuals and organizations for an array of purposes.

The use of the region's land is governed by management and development guidelines and objectives, which are set out in a "land use and development plan." It is through this plan that each of the region's six MRCs, together with the City of Sherbrooke, express their vision of the territory's use.

Territorial structure

The Estrie region stretches out over a total 1,050,922 hectares, 91% of which is privately owned and managed. The region's forest area (privately and publicly owned), productive and non-productive, accounts for 77% (811,853 ha) of the region's land—a fact that highlights the region's forestry vocation. Ninety percent of this forest (732,375 ha) is privately owned, with the owners varying in land ownership size.

Territory by ownership structure									
Privately owned						Publicly owned		Estrie	
Small property		Large property		Total private					
ha	% of the total	ha	% of the total	ha	% of the total	ha	% of the total	ha	% of the total
829,303	79%	124,067	12%	953,370	91%	97,552	9%	1,050,922	100%



This privately owned land is composed of 75% productive forest area (716,454 ha), less than 2% non-productive forest area, 18% farmland, 4% anthropogenic (built-up) area, and 1% watercourses.

The region counts six integrated management areas per drainage basin. Most of these areas have a forestry vocation, i.e., they are dedicated to forestry.

The average woodlot owner in Estrie

The average local woodlot owner (one of the region’s 9,200 individuals who own four or more hectares) is male, generally above 55 years old, and either a retiree, executive or farmer. He owns an average 94 hectares (median of 42 ha), which he visits frequently and has owned for over two decades. The average woodlot owner derives little or no supplemental income from his forest.

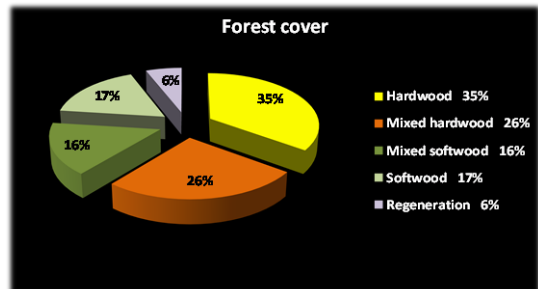
The reasons for owning a woodlot vary, but enjoyment and use of the forest rank as the major factors. This includes the enjoyment of owning a natural area and managing/developing the forest, but also being able to use it for firewood collection and outdoor family activities.

The average woodlot owner’s decision to harvest wood is mainly based on forest development considerations (e.g., improving the forest and taking down mature trees), having the time to collect firewood, enjoying working in the forest, and requiring firewood, which amounts to less than 25 m³ (eleven 16-inch cords of wood) per owner. Owners who harvest timber for the wood-processing industry collect a solid volume of less than 100 solid cubic metres, or 3 truckloads.

The owner’s intentions for the coming years are typically to continue to work on improving his woodlot, maintain his property’s forestry vocation, and carry out multi-resource activities. Today’s owner thus shows an interest in having a multi-purpose forest.

The forest cover

The productive private forest area is largely dominated by hardwood (35%) and mixed hardwood canopies (26%), with maple being the most abundant species. The hardwood cover is mostly made up of sugar maple, whereas the mixed hardwood cover is primarily composed of red maple, along with conifers. The mixed softwood and softwood cover respectively account for 16% and 17% of the forest. The mixed softwood is largely dominated by firs with some deciduous trees whereas the softwood canopies are essentially firs.



The private forest is relatively young, given that 73% of the tree stands are 30–80 years old and 16%, less than 20 years old. Old-growth forest (80+ years), which plays a key role in biodiversity preservation, makes up 11% of the productive private forest. The old-growth forest is mainly comprised of sugar maple.

Wildlife

The forest mosaic features a diversity of habitats that contain the essentials required by wildlife species for food, shelter and reproduction. The main species of socio-economic interest are white-tailed deer, moose, wild turkey, ruffed grouse, snowshoe hare, various fur-bearing animals, and fish.

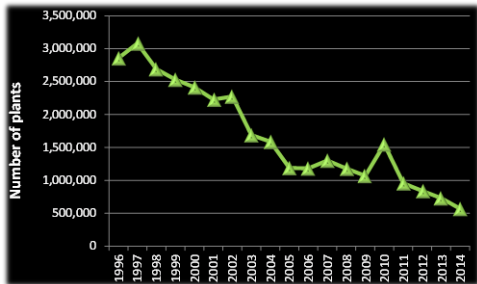


Forest development

As of 2016, Estrie counted 3,618 recognized forestry producers (40% of woodlot owners) exploiting a total of 339,962 hectares of land dedicated to forestry (47% of the productive private forest area). These recognized forestry producers have access to financial assistance programs to develop their woodlots.

From 1996 to 2014, a total of 49,215 silvicultural treatments were funded by the AMFE via the private forest development program, over 80,022 ha, for investments amounting to almost \$70.5 million.

Following the intensive reforestation of abandoned farmlands



in the 1980s, the number of plants

destined primarily for the creation of coniferous plantations has continually declined. Today, fewer than one million seedlings are planted annually, for a 200–360 ha land area, according to the figures in recent years. For the period 1996–2014, the portion of investments devoted to planting and related silvicultural treatments (land preparation and maintenance) came to 38%. The total area devoted to planting for timber production

purposes is estimated at 6% (43,350 ha) of the productive private forest.

Many hectares fall under the commercial silvicultural treatment forest group—almost 35,600 ha for the period 1996–2014. These treatments, now highly mechanized, are geared toward timber harvesting. Partial cutting (such as commercial thinning and selection cutting) is the main funded treatment. The portion of the annual budget allocated to this group has continued to rise over the years. In 2014, almost two thirds (64%) of investments were for commercial work.

Forest potential

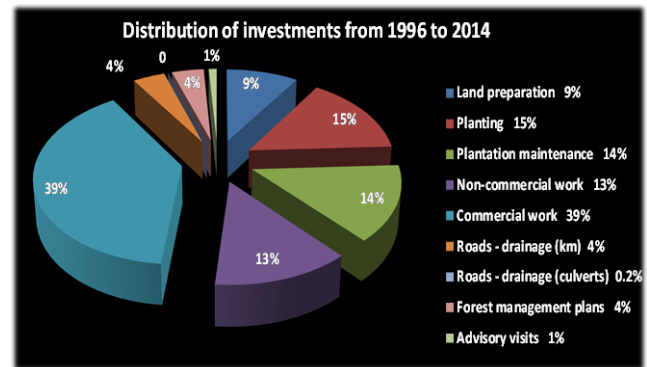
The standing gross merchantable volume of accessible small private forest, estimated at 72.2 million m³ (57% hardwood and 43% softwood), has risen nearly 15% since 1998. The average standing volume for all forest strata is 122 m³/ha—an 11% increase compared to 1998. The main species are fir, red maple and sugar maple, which account for 52% of the total standing volume.

Timber harvesting potential is defined by the maximum threshold of timber collection in order to avoid over-exploiting the forest. The harvesting potential of small private forest in Estrie, established in 2014, is an estimated 1,824,487 m³/year, all species combined, i.e., an average annual harvest of 3.2 m³/ha/year.

This timber harvesting potential is also divided between softwood and hardwood species. Fir, spruce, red maple, and sugar maple are the main species available for harvest.

A recent analysis, dealing exclusively with small private forest, shows strong potential for stand tending (silvicultural tasks geared toward timber harvesting). A land area of 366,000 hectares, i.e., 62% of the productive forest area of small private forest, holds potential for tending. This area is mainly composed of tolerant hardwood stands and mixed stands primarily made up of relatively dense tolerant trees.

The potential for commercial thinning in private forest plantations, over the coming decade, is substantial. The surface



Forest certification
 Forest certification involves an assessment process which demonstrates to customers and consumers that the wood products they purchase are sourced from forests managed and exploited responsibly and in compliance with recognized sustainable forest management standards.

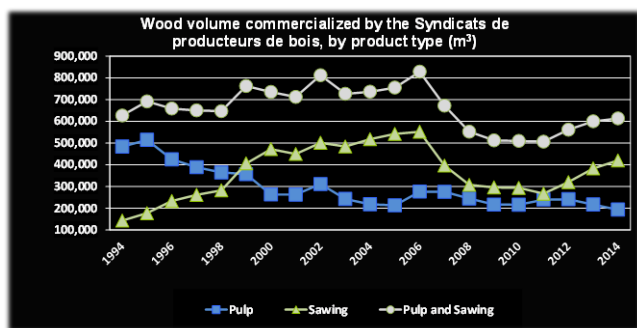
In 2015, Estrie stood out with 2,423 woodlot owners having FSC (Forest Stewardship Council) certification—accounting for more than one third of the private forest area (244,500 ha)—under five different certificates.

area of tree plantations over 16 years old (year of reference: 2015) is estimated at 31,027 ha. This represents a challenge to be taken up by regional stakeholders. Factors such as the limited market for small-sized wood, going prices, owners' level of interest, the low yield of some tree plantations, the availability of the financial assistance program budget, the shortage of workers, and the likely epidemic of spruce budworm will all shape the activities carried out in tree plantations suitable for commercial thinning.

The forestry industry and commercialization

The regional primary processing industry (pulp and paper, sawing and veneering, etc.) counted 34 companies in 2015 and employed 2,412 workers. These jobs are concentrated in the MRC du Granit (34%) and the MRC du Val-St-François (34%). The secondary and tertiary processing industries, for their part, employed 2,662 workers across 108 companies. The City of Sherbrooke (29%) and the MRC du Granit (27%) and MRC de Coaticook (20%) in particular stand out for their job figures.

MRC	Primary processing		Secondary/tertiary processing		Total	
	companies	jobs	companies	jobs	companies	jobs
Granit	15	817	15	715	30	1532
Sources	1	5	4	60	5	65
Haut-Saint-François	3	236	22	289	25	525
Val-Saint-François	4	824	6	191	10	1015
Sherbrooke	4	306	35	766	39	1072
Coaticook	5	201	10	536	15	737
Memphrémagog	2	23	16	105	18	128
Total	34	2412	108	2662	142	5074



The timber from private forest is put on the market in compliance with the joint plans of the Syndicats de producteurs forestiers (wood producers unions). From 1994 to 2014, the total volume of commercialized wood—nearly 14 million m³—fluctuated in step with the cyclical markets for forestry products. Over this period, softwood represented 61% of the volume traded.

The hardwood volume harvested in the region is essentially destined for pulp and paper (78%) whereas softwood (77%) is primarily destined for sawmilling.

The timber harvested in Estrie is sold to processing plants within the region, but also to other nearby regions and to the United States.

Non-timber forest products

Maple syrup production is a significant economic activity in Estrie, which ranks as Quebec's third leading maple-producing region. In 2014, Estrie counted 820 maple businesses totalling 7 million tapholes.

The cultivation of medicinal and edible plants, mushrooms, small fruits, and nut trees holds potential for diversifying forest development efforts. This emerging sector is attracting more and more interest among woodlot owners.

Recreation and tourism

The region's main recreation/tourism attractions, which are closely bound up with their respective forestry management frameworks, are lakes and rivers, parks, beaches, campsites, golf courses, alpine skiing centres, outdoor leisure centres, climbing, bike trails, hiking trails (for pedestrians, snowshoers, cross-country skiers, and mountain bikers), motorized vehicle trails (snowmobiles, ATVs, etc.), birdwatching, and hunting and fishing activities.

Sensitive components of the forest environment

Out of a concern to address the potential impacts of silvicultural work on species listed as threatened, vulnerable, or likely to be so designated, in 2003, the AMFE introduced a "biodiversity clause" in the assistance program (involving accredited forestry advisors). The clause states that the AMFE grants no financial assistance which may destroy, alter or modify sites that are home to specific biodiversity features, including the vulnerable species mentioned above. As of the time of writing, 67 such plant and 32 such wildlife species have been identified across the region's private and public land. The clause also applies to exceptional forest ecosystems (EFE)—numbering 65 (1,965 ha)—and designated wildlife habitats.

The delimitation and characterization of wetlands represent a major issue in the Estrie region, as their surface area varies considerably depending on the cartographic sources consulted. Their estimated area is highly variable (20,000 ha, 58,000 ha, or 69,000 ha) and very likely underestimated. However, new characterization studies are under way in certain parts of the territory.

Conservation organizations are playing an active role in voluntary stewardship programs for private settings. Thus, owners can choose between several different options, i.e., a conservation easement, an ecological donation or sale, a natural forest reserve, or a forest easement. Estrie reportedly counts 110 protected areas located on private lands, amounting to a total of almost 14,000 hectares (2016), or 2% of the productive private forest area.

Dangers facing the private forest

Glossy buckthorn is an invasive alien shrub species whose presence in the region's woodlands is a growing concern. Its degree of pervasiveness across the region is still little-known. The plant appears to take root in a wide variety of settings. However, tree stands with an open canopy, whether of natural or anthropic origin, and located on poorly draining soils, appear to be most vulnerable to glossy buckthorn invasions. The plant prevents natural regeneration and the establishment of understory plants, thus representing a medium-to long-term threat to the biodiversity and evolution of the forest cover.

In addition, spruce budworm is a pest that must be monitored in the coming years, especially since the region's softwood and mixed forests, largely composed of old firs growing on poorly draining sites, are respectively vulnerable (3%) and very vulnerable (26%) to this insect. These forests are at the highest risk for mortality. The older white spruce plantations located in impoverished, overly dry or humid areas, and characterized by sparse treetops, may also be vulnerable to the defoliation resulting from spruce budworm.

The emerald ash borer, for its part, attacks all species of ash, healthy and vulnerable, regardless of diameter, and requires only three to five years to kill off the trees it colonizes. It is impossible to predict when this insect might infest ash trees in Estrie, and what their dispersal pattern will look like. However, the neighbouring region of Montérégie is part of the zone regulated by the Canadian Food Inspection Agency. The insect's main dispersal vector is the transportation of infested materials, such as firewood or stems destined for lumber.

Strategic Planning

VISION

Regional woodlot owners actively engaged in developing their forests and protecting forest ecosystems, with the support of partners who are motivated to further enhance a collective wealth and to ensure resource sustainability.



Issue A The engagement of woodlot owners and other private-forest stakeholders

Orientation	1. Motivating owners to develop their forest property
Goal	1.1 To support woodlot owners in their development projects 1.2 To intensify the forestry activities of FMP (forest management plan) holders 1.3 To recruit new owners
Orientation	2. Fostering owners' competence and autonomy
Goal	2.1 To pursue knowledge transfer to woodlot owners and forestry advisors
Orientation	3. Placing value on private forests and their economic, social, environmental and cultural roles
Goal	3.1 To raise community awareness of the importance of developing the forest and maintaining the area's forestry vocation

Issue B Sustainable private forest development

Orientation	4. Taking into account the environmental concerns associated with ecosystem management in the development of forest resources
Goal	4.1 To adapt silvicultural practices in order to maintain the attributes of old-growth forests in the development of natural forest stands 4.2 To favour the regeneration and growth of species that are becoming scarce, especially hardwood 4.3 To favour good-sized and long-lived species 4.4 To attenuate the negative impacts of exotic invasive species, epidemics, and natural disturbances
Orientation	5. Optimizing private forest development
Goal	5.1 To increase the productivity and added value of timber capital 5.2 To respect the forest's production capacity 5.3 To protect sensitive forest areas 5.4 To document the effects of the new management methods under the development strategies assistance program
Orientation	6. Increasing timber production while preserving the forest cover and ecosystems
Goal	6.1 To ensure consistency between the municipal by-laws pertaining to forest areas 6.2 To financially support forestry work in order to increase timber production

Issue C Sustaining biodiversity

Orientation	7. Preserving wildlife habitats in the development of forest resources
Goal	7.1 To adapt silvicultural practices in order to preserve the attributes specific to terrestrial wildlife habitats
Orientation	8. Preserving ecological processes and endangered species in the development of forest resources
Goal	8.1 To apply measures in order to protect plants and wildlife listed as threatened, vulnerable or likely to be so designated 8.2 To maintain the specific values of exceptional forest ecosystems

Issue D Sustaining other resources and uses

Orientation	9. Promoting the adoption of rules of thumb that guarantee the protection and preservation of soils and water resources
Goal	9.1 To adopt operational practices aiming to minimize erosion and sediment input in water environments 9.2 To preserve the ecological features of wetlands
Orientation	10. Preserving the potential to develop forest activities involving resources other than timber
Goal	10.1 To demonstrate compatibility between forest development and other uses (non-timber forest products, recreation, etc.) 10.2 To preserve the quality of the landscape

Action Plan

Issue	Orientation	Goals	No.	Proposed actions
A. The engagement of woodlot owners and other private-forest stakeholders	1. Motivating owners to develop their forest property	1.1 To support owners in their development projects	1	Offer technical and financial assistance
			2	Diversify the offer of services to owners
			3	Contribute to forest certification processes
	4		Enhance forest management plans in accordance with owners' goals	
	1.2 To intensify the forestry activities of owners with FMPs (forest management plans)	5	Demonstrate the benefits and economic spinoffs of silvicultural activities geared toward timber harvesting	
		6	Offer advisory visits	
		7	Distribute an informative leaflet on various potential ways to develop forests	
		8	Continue to encourage owners to develop their woodlots	
	1.3 To recruit new owners	6	Offer advisory visits	
		7	Distribute an informative leaflet on various potential ways to develop forests	
8		Continue to encourage owners to develop their woodlots		
9		Take part in regional forestry events (workshop, conference, trade show, etc.)		
2. Fostering owners' competence and autonomy	2.1 To continue knowledge transfer to woodlot owners and forestry advisors	10	Hold virtual tours or make videos	
		6	Offer advisory visits	
		11	Offer training to owners	
		12	Create a Facebook page	
3. Promoting private forests' economic, social, environmental and cultural roles	3.1 To raise community awareness of the importance of developing the forest and maintaining the area's forestry vocation	13	Update the AMFE website	
		14	Provide training to forestry advisors	
		15	Participate in various regional and local collaborative forums	
B. Sustainable private forest development	4. Taking into account environmental concerns associated with ecosystem management in the development of forest resources	4.1 To adapt silvicultural practices in order to maintain the attributes of old-growth forests in the development of natural forest stands	16	Support forest conservation easement processes
			17	Provide information and raise awareness
			18	Establish technical and silvicultural directives in order to preserve residual structures (longer rotations, retention patches, complete riparian buffers, etc.)
			11	Offer training to owners
	4.2 To favour the regeneration and growth of species that are becoming scarce, especially hardwood	4.2 To favour the regeneration and growth of species that are becoming scarce, especially hardwood	19	Promote owners' membership to forest certification
			20	Allow an exemption procedure for the provincial technical guidelines of the assistance program
			21	Perform well-adapted silvicultural treatments in order to prioritize species that are representative of the region
			22	Allow an exemption procedure for the provincial technical guidelines of the assistance program
	4.3 To favour good-sized and long-lived species	4.3 To favour good-sized and long-lived species	23	Identify and set up a special development strategy for rare forests
			24	Incorporate environmental (ecological) data into planning
			25	Reintroduce increasingly scarce species via planting, enrichment and seeding
			26	Establish technical and silvicultural directives with a view to preserving large-diameter and long-lived species
	4.4 To attenuate the negative impacts of exotic invasive species, epidemics, and natural disturbances	4.4 To attenuate the negative impacts of exotic invasive species, epidemics, and natural disturbances	11	Offer training to owners
			27	Pursue knowledge acquisition on glossy buckthorn
			28	Experiment with methods to control glossy buckthorn
			29	Update the management strategy to curb the invasion of glossy buckthorn
4.4 To attenuate the negative impacts of exotic invasive species, epidemics, and natural disturbances	4.4 To attenuate the negative impacts of exotic invasive species, epidemics, and natural disturbances	30	Monitor the spread of the emerald ash borer	
		30	Carry out silvicultural treatments in order to improve tree stands' resiliency against spruce budworm (spruce plantations)	

Issue	Orientation	Goals	No.	Proposed actions	
B. Sustainable private forest development	5. Optimizing private forest development	5.1 To increase the productivity and added value of timber capital	1	Offer technical and financial assistance	
			31	Reforest the fallow land available for forest development	
			32	Maintain (care for) plantations	
			33	Increase the proportion of treatments to tolerant hardwood and mixed (mainly tolerant hardwood) stands	
				34	Prioritize the thinning of plantations and of pre-commercial forests
				35	Prioritize treatments for areas with strong growth potential
				23	Incorporate environmental data and cartographic analyses (forest tract, ecological review, potential production, etc.) into planning
				36	Incorporate recognition of ecological types in the field in order to help choose the silvicultural scenario
				37	Recruit new owners
				38	Participate in the Groupe de mobilisation des bois de l'Estrie
		5.2 To respect the forest's production capacity		29	Compile the volumes harvested (follow-up)
				40	Update the firewood estimate
		5.3 To protect sensitive forest areas		17	Provide information and raise awareness
			11	Offer training to owners (best practices guide)	
			19	Promote owners' membership to forest certification	
	5.4 To document the effects of the new management measures under the management strategies assistance program		41	Compile and analyze program-related statistics, take stock of the situation	
			42	Survey the forestry advisors and propose improvements	
C. Sustaining biodiversity	6. Increasing timber production while preserving the forest cover and ecosystems	6.1 To ensure consistency between the municipal by-laws pertaining to forest areas	43	Take part in the MRCs' by-law revision process	
			44	Promote application and follow-up by the MRCs	
				38	Participate in the Groupe de mobilisation des bois de l'Estrie
		6.2 To financially support forestry work with a view to increasing timber production		1	Offer technical and financial assistance
				33	Increase the proportion of treatments to tolerant hardwood and mixed (mainly tolerant hardwood) stands
				34	Prioritize the thinning of plantations and of pre-commercial forests
				45	Develop new markets and/or improve existing markets for harvested wood (non-certified and certified)
				23	Incorporate environmental data and cartographic analyses (forest tract, ecological review) into planning
				8	Continue to encourage owners to develop their woodlots
				17	Provide information and raise awareness
7. Preserving wildlife habitats in the development of forest resources	7.1 To adapt silvicultural practices in order to preserve the attributes specific to terrestrial wildlife habitats		2	Diversify the offer of services to owners	
			4	Enhance forest management plans in accordance with owners' goals	
			10	Hold virtual tours or make videos	
			18	Establish technical and silvicultural directives in order to preserve residual structures (longer rotations, retention patches, complete riparian buffers, etc.)	
			20	Allow an exemption procedure for the provincial technical guidelines of the assistance program	
			25	Establish technical and silvicultural directives with a view to preserving large-diameter and long-lived species	
			23	Incorporate wildlife habitat quality into planning	

Issue	Orientation	Goals	No.	Proposed actions	
C. Sustaining biodiversity	7. Preserving wildlife habitats in the development of forest resources	7.1 To adapt silvicultural practices in order to preserve the attributes specific to terrestrial wildlife habitats	46	Apply the “biodiversity” clause in the context of the assistance program	
			47	Provide a database to accredited forestry advisors (designated wildlife habitats)	
			11	Offer training to owners (forest-wildlife)	
			48	Assess white-tailed deer depredation	
			49	Assess habitat quality	
C. Sustaining biodiversity	8. Preserving ecological processes and endangered species in the development of forest resources	8.1 To apply measures in order to protect plants and wildlife listed as threatened, vulnerable or likely to be so designated	50	Carry out wildlife-forest management projects	
			51	Develop follow-up methods for species sensitive to forest development	
			46	Apply the “biodiversity” clause in the context of the assistance program	
			47	Provide accredited forestry advisors with a database of occurrences of endangered species	
			52	Obtain knowledge on endangered species	
	C. Sustaining biodiversity	8. Preserving ecological processes and endangered species in the development of forest resources	8.2 To preserve the specific values of exceptional forest ecosystems (EFE)	53	Assess the possibility of creating a regional database of occurrences
				54	Draw up a list of potential endangered species by habitat type
				55	Inventory the 6 endangered plant species (follow-up)
				46	Apply the “biodiversity” clause in the context of the assistance program
				56	Take stock of the condition of EFEs
D. Sustaining other resources	9. Promoting the adoption of rules of thumb that guarantee the protection and preservation of soils and water resources	9.1 To adopt operational practices in order to minimize erosion and sediment input in water environments	57	Propose new EFEs	
			58	Create a list of EFEs of regional interest	
			11	Provide training to owners (water crossings, guide to counter the erosion of forest paths, best practices guide)	
			59	Apply best practices	
			23	Incorporate environmental and geospatial (ecological synthesis, LIDAR-derived product) data into planning	
	D. Sustaining other resources	9. Promoting the adoption of rules of thumb that guarantee the protection and preservation of soils and water resources	9.2 To preserve the ecological features of wetlands	60	Develop characterization projects for forest paths by sub-basin
				19	Promote owners’ membership to forest certification
				59	Apply best practices
				61	Develop a management strategy for treed swamps
				11	Provide training to owners
	D. Sustaining other resources	10. To preserve the potential to develop activities involving resources other than timber	10.1 To demonstrate compatibility between forest development and other purposes (non-timber forest products [NTFPs], recreation)	62	Characterize the region’s wetlands
				63	Take part in regional collaboration geared toward wetland protection
				4	Enhance forest management plans in accordance with owners’ goals
				11	Provide training to owners (NTFP, sugar bushes, etc.)
		D. Sustaining other resources	10. To preserve the potential to develop activities involving resources other than timber	10.2 To preserve the quality of the landscape	23
64					Develop collaborative projects between various organizations
16					Support forest conservation easement processes
65					Incorporate MRC-identified landscapes of interest into forest planning
D. Sustaining other resources	10. To preserve the potential to develop activities involving resources other than timber	10.2 To preserve the quality of the landscape	66	Favour partial-cutting scenarios	
			17	Provide information and raise awareness	