



# Mixedwood Stands Management Strategy

Prepared by the Ministère des Forêts, de la Faune, et des Parcs (Ministry of Forest, Wildlife and Parks) in collaboration with the Cree Nation Government

2020



## Purpose of the Document

This document summarizes the full Management Strategy, which is available on request.

## Aim of the Strategy

Given the importance of mixedwood stands as wildlife habitats and their scarcity in the Territory, the Mixedwood Stands Management Strategy aims to maintain habitats that are associated with mixedwood stands, while allowing forest management. It is based on a trapline management approach.

## Maintenance of mature mixedwood stands in all traplines

Mature mixedwood stands must be maintained at all times in all traplines. The area to be maintained differs from one trapline to the next: it depends on the natural proportion of mature mixedwood stands estimated for each trapline.



## Why?

Mixedwood stands that are composed of hardwood and softwood species are of particular value within the boreal forest.

Stands such as these are very important as winter habitats for Moose and are also used by Snowshoe Hare and American Marten. In addition, they are essential for several other species, including woodpeckers.

Consultations with Cree communities reveal the importance of mixedwood stands. They provide food, shelter, and shade during the summer months, escape cover from wildfires, as well as breeding and nesting areas for many wildlife species. Hardwood is used for medicine, for traditional tool-making, as firewood, as smoking wood, and as a natural fire starter. It is also used for many traditional ceremonies and as building material for certain types of structures and camps.



## What is meant by “mature”?

For mixedwood stands in the territory in question, the age of maturity has been set at 60 years. At this age, mixedwood stands are favoured by the American Marten, woodpeckers and Moose.

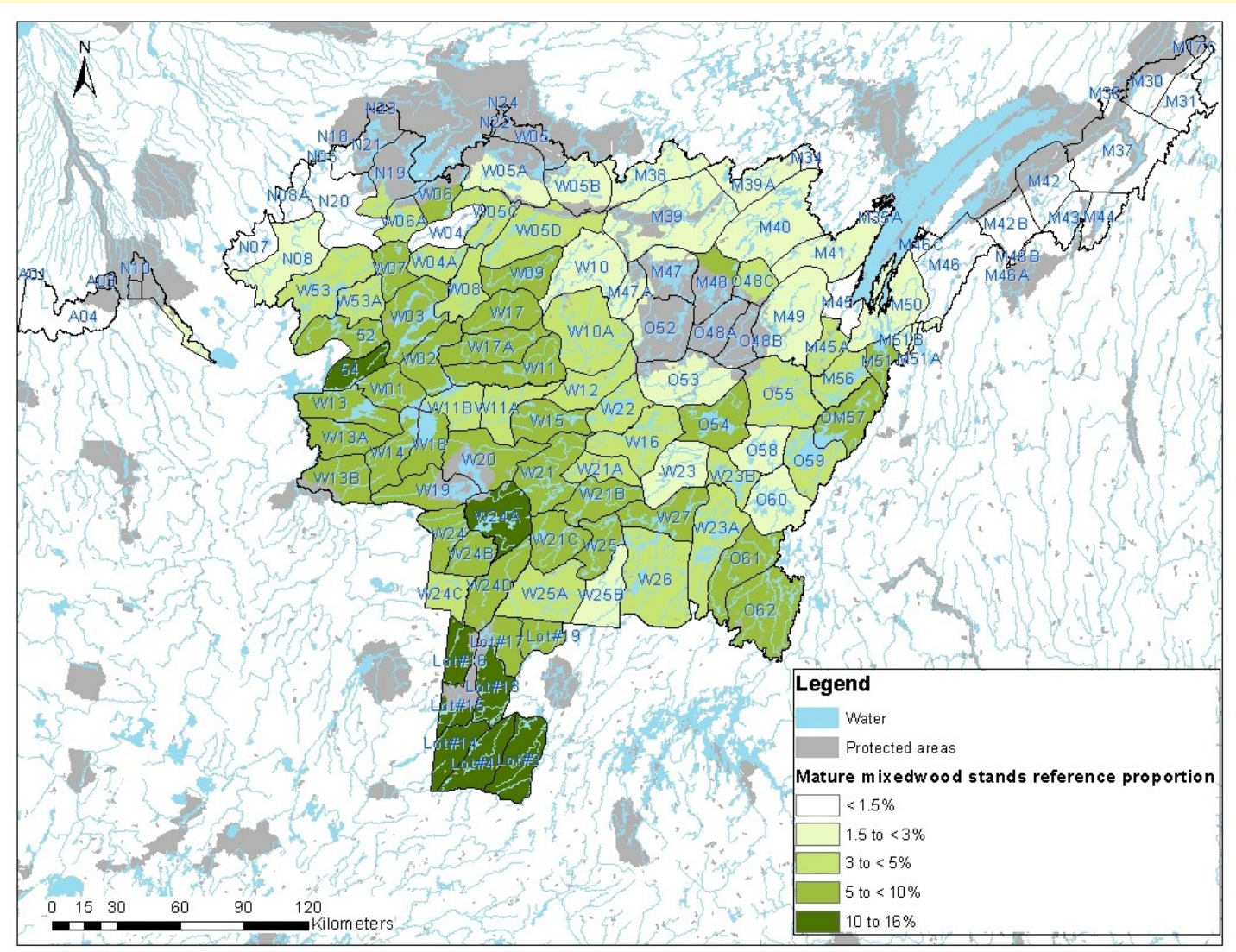
# How is the reference proportion of mature mixedwood stands estimated per trapline?

Mixedwood stands grow in specific environments, such as well-drained hills. They are not found in other environments, such as wetland forests.

The natural proportion of mature mixedwood stands is estimated using two main elements: (1) the percentage of environments that are conducive to the development of mixedwood stands in the trapline; and (2) the natural disturbance cycle (fire frequency).

In traplines where mature mixedwood stands were more abundant than the estimated natural proportion, the reference proportion was adjusted upward to correspond to the current state of the trapline. In other traplines, the natural proportion is used as the reference.

The following map shows the reference proportion of mature mixedwood stands in each trapline. Mixedwood stands are more abundant in the southwestern portion of the Territory and rarer in the north-eastern portion.



Map 1. Reference proportion of mature mixedwood stands in each trapline. It varies from 0.1% to 16% of the productive area, depending upon the trapline.

## What minimum area should be maintained per trapline?

The minimum area of mature mixedwood stands to maintain per trapline can be found in the appendix to this document (Table 2).



## How was this maintenance area calculated?

The minimum area of mature mixedwood stands to maintain is calculated using the reference proportion of these stands in each trapline, together with the critical habitat threshold concept.

Sufficient habitat must be maintained to sustain species that are sensitive to forest management. The critical habitat threshold for sensitive species varies between 30% and 40%. The Strategy provides for three (3) types of threshold (Table 1). The choice in threshold type is influenced by the relative scarcity of mixedwood stands in a given trapline.

*Table 1. Types of thresholds for mature mixedwood stands and associated trapline characteristics .*

Threshold type	Reference proportion in traplines
40% of reference proportion	3% and more
50% of reference proportion	1.5% to < 3%
Maintenance of mixedwood stands (until the reference proportion doubles)	< 1.5 %

Table 2 explains how the area to be maintained can be assessed in a trapline. First, multiply the reference proportion by the productive area of the trapline to obtain the reference area (a). Second, multiply this area by the appropriate threshold type (b). The area to be maintained at all times is obtained as (c).

*Table 2. Example of the minimum area of mature mixedwood stands to be maintained, based on a critical habitat threshold of 40% in a fictional trapline.*

Reference area of mature mixedwood stands (a)	Threshold type (b)	Minimum area of mature mixedwood stands to be maintained (c = a * b)
3,400 ha (8.5%)	40%	1,360 ha (3.4%)

## Would mixedwood stands be harvested?

A management strategy must allow mixedwood stands to be harvested. Whether or not harvesting is possible depends upon the condition of the trapline. If there are fewer mature mixedwood stands than the minimum that has been identified, mixedwood stands cannot be harvested in the trapline. Once young mixedwood stands have reached maturity, portions of them can be harvested provided that the minimum area required is maintained.

Table 2 describes the area of mature mixedwood stands that is required to maintain in each trapline. It also specifies whether or not harvesting is currently possible in each trapline. The following examples illustrate the various possible cases.

### **Case #1: Area of mature mixedwood stands above the minimum area to maintain**

Mixedwood stands can be harvested. However, the minimum area must be maintained at all times.

### **Case #2: Area of mature mixedwood stands below the minimum area to maintain**

Mixedwood stands cannot be harvested. Once young mixedwood stands have matured and the minimum area has been exceeded, some harvesting would be possible.

### **Case #3: Trapline in which mature mixedwood stands must be maintained**

In these traplines, where mixedwood stands are naturally scarce, harvesting is not permitted. However, should the proportion of mature mixedwood stands reach a level far greater than the reference proportion in the next decades, a portion of the surplus mixedwood stands could be harvested.

### **Operational exceptions**

Although harvesting cannot target mixedwood stands in cases #2 and #3, fragments of these stands can be harvested in some exceptional circumstances – for example, if avoiding a mixedwood stand would significantly constrain access to other areas. In all cases, the tally-men would be consulted and the situation explained by the forest manager.

## How will mixedwood stands renewal be ensured?

Silvicultural treatments may be carried out to help manage stand composition. In a trapline where there are not enough mixedwood stands, work may be done to maintain or increase their proportion. Where the level of young mixedwood stands is higher than the natural proportion, treatments may be applied to convert some mixedwood stands to softwood stands.



Table 3. Mature mixedwood stand thresholds per trapline.

Trap-line	Reference area (ha) and proportion (%) of mature mixedwood stands	Threshold type	Area (ha) and proportion (%) of mature mixedwood stands to be maintained	Area (ha) of mature mixedwood stands in the trapline (updated in 2019)	Mixedwood harvesting possible?	Mixedwood stands between 40- and 59-years-old
52	2247 ha (7.1%)	40%	899 ha (2.8%)	2195 ha	Yes	0 ha
54	2435 ha (11.6%)	40%	974 ha (4.7%)	2411 ha	Yes	32 ha
A01	2 ha (0.3%)	Maintain	13 ha (1.5%)	0 ha	No	0 ha
A04	402 ha (1.2%)	Maintain	804 ha (2.4%)	416 ha	No	23 ha
Lot#14	5421 ha (15.5%)	40%	2168 ha (6.2%)	3790 ha	Yes	2706 ha
Lot#15	2128 ha (14.8%)	40%	851 ha (5.9%)	1235 ha	Yes	162 ha
Lot#16	2685 ha (10.4%)	40%	1074 ha (4.2%)	1536 ha	Yes	40 ha
Lot#17	2005 ha (7.8%)	40%	802 ha (3.1%)	375 ha	No	61 ha
Lot#18	5162 ha (14.3%)	40%	2065 ha (5.7%)	3346 ha	Yes	724 ha
Lot#19	1344 ha (6.3%)	40%	537 ha (2.5%)	703 ha	Yes	32 ha
Lot#3	5796 ha (11.8%)	40%	2318 ha (4.7%)	3542 ha	Yes	2885 ha
Lot#4	4366 ha (10.1%)	40%	1746 ha (4%)	2395 ha	Yes	1078 ha
M30	162 ha (0.8%)	Maintain	325 ha (1.5%)	53 ha	No	6 ha
M31	408 ha (1%)	Maintain	817 ha (2%)	423 ha	No	45 ha
M34	69 ha (1.4%)	Maintain	138 ha (2.8%)	0 ha	No	120 ha
M35A	36 ha (0.8%)	Maintain	73 ha (1.6%)	2 ha	No	0 ha
M36	3 ha (0.1%)	Maintain	40 ha (1.5%)	9 ha	No	0 ha
M37	566 ha (0.7%)	Maintain	1269 ha (1.5%)	341 ha	No	35 ha
M38	758 ha (1.8%)	50%	379 ha (0.9%)	372 ha	No	6 ha
M39	1739 ha (1.9%)	50%	869 ha (1%)	439 ha	No	390 ha
M39A	1042 ha (2.5%)	50%	521 ha (1.2%)	243 ha	No	496 ha
M40	2536 ha (2.9%)	50%	1268 ha (1.4%)	891 ha	No	650 ha
M41	1271 ha (2.5%)	50%	635 ha (1.3%)	1049 ha	Yes	319 ha

<sup>1</sup> Maintenance is required when the natural proportion is low, i.e. below 1.5 %.

Table 3 (continued). Mature mixedwood stand thresholds per trapline.

Trap-line	Reference area (ha) and proportion (%) of mature mixedwood stands	Threshold type	Area (ha) and proportion (%) of mature mixedwood stands to be maintained	Area (ha) of mature mixedwood stands in the trapline (updated in 2019)	Mixedwood harvesting possible?	Mixedwood stands between 40- and 59-years-old
M42	170 ha (0.6%)	Maintain	431 ha (1.5%)	159 ha	No	28 ha
M42B	176 ha (0.5%)	Maintain	556 ha (1.5%)	150 ha	No	10 ha
M43	283 ha (1.4%)	Maintain	565 ha (2.7%)	0 ha	No	0 ha
M44	63 ha (0.3%)	Maintain	309 ha (1.5%)	0 ha	No	24 ha
M45	169 ha (0.9%)	Maintain	338 ha (1.8%)	167 ha	No	175 ha
M45A	623 ha (3.4%)	40%	249 ha (1.4%)	192 ha	No	100 ha
M46	305 ha (0.8%)	Maintain	610 ha (1.6%)	81 ha	No	19 ha
M46A	0 ha (0.2%)	Maintain	3 ha (1.5%)	0 ha	No	0 ha
M46B	6 ha (0.3%)	Maintain	27 ha (1.5%)	6 ha	No	0 ha
M47	217 ha (1.9%)	50%	108 ha (1%)	91 ha	No	21 ha
M47A	357 ha (2.4%)	50%	179 ha (1.2%)	181 ha	Yes	4 ha
M48	825 ha (5.3%)	40%	330 ha (2.1%)	825 ha	Yes	43 ha
M49	2078 ha (2.9%)	50%	1039 ha (1.4%)	1090 ha	Yes	186 ha
M50	122 ha (2.2%)	50%	61 ha (1.1%)	47 ha	No	22 ha
M51	952 ha (6.9%)	40%	381 ha (2.8%)	22 ha	No	23 ha
M51A	103 ha (1.5%)	50%	52 ha (0.8%)	22 ha	No	0 ha
M51B	98 ha (1.5%)	50%	49 ha (0.8%)	0 ha	No	16 ha
M56	1206 ha (4.2%)	40%	483 ha (1.7%)	524 ha	Yes	252 ha
N05	29 ha (3%)	40%	12 ha (1.2%)	0 ha	No	2 ha
N07	229 ha (1.3%)	Maintain	459 ha (2.6%)	11 ha	No	0 ha
N08	1446 ha (2.5%)	50%	723 ha (1.2%)	1361 ha	Yes	22 ha
N08A	127 ha (0.9%)	Maintain	253 ha (1.7%)	12 ha	No	18 ha
N18	0 ha (0.1%)	Maintain	0 ha (1.5%)	0 ha	No	0 ha

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Table 3 (continued). Mature mixedwood stand thresholds per trapline.

Trap-line	Reference area (ha) and proportion (%) of mature mixedwood stands	Threshold type	Area (ha) and proportion (%) of mature mixedwood stands to be maintained	Area (ha) of mature mixedwood stands in the trapline (updated in 2019)	Mixedwood harvesting possible?	Mixedwood stands between 40- and 59-years-old
N19	244 ha (3.1%)	40%	98 ha (1.2%)	244 ha	Yes	30 ha
N20	689 ha (1.2%)	Maintain	1379 ha (2.4%)	206 ha	No	42 ha
N21	15 ha (0.2%)	Maintain	125 ha (1.5%)	0 ha	No	0 ha
O48C	726 ha (3.4%)	40%	291 ha (1.4%)	254 ha	No	23 ha
O52	217 ha (2.5%)	50%	108 ha (1.3%)	38 ha	No	3 ha
O53	1068 ha (2.1%)	50%	534 ha (1%)	875 ha	Yes	328 ha
O54	1814 ha (5.5%)	40%	726 ha (2.2%)	1794 ha	Yes	115 ha
O55	2190 ha (3.8%)	40%	876 ha (1.5%)	878 ha	Yes	160 ha
O58	825 ha (2.5%)	50%	413 ha (1.3%)	679 ha	Yes	131 ha
O59	1081 ha (3.3%)	40%	433 ha (1.3%)	283 ha	No	747 ha
O60	1002 ha (2.4%)	50%	501 ha (1.2%)	312 ha	No	1112 ha
O61	3290 ha (5.9%)	40%	1316 ha (2.3%)	3253 ha	Yes	79 ha
O62	5379 ha (6.5%)	40%	2152 ha (2.6%)	2751 ha	Yes	1733 ha
OM57	2333 ha (5.5%)	40%	933 ha (2.2%)	997 ha	Yes	289 ha
W01	3355 ha (9.4%)	40%	1342 ha (3.7%)	2081 ha	Yes	107 ha
W02	3056 ha (7.6%)	40%	1223 ha (3.1%)	1748 ha	Yes	380 ha
W03	3173 ha (5.6%)	40%	1269 ha (2.3%)	2395 ha	Yes	58 ha
W04	321 ha (1.3%)	Maintain	641 ha (2.6%)	582 ha	No	4 ha
W04A	1079 ha (4.1%)	40%	432 ha (1.6%)	557 ha	Yes	0 ha
W05C	1396 ha (4.1%)	40%	558 ha (1.6%)	1235 ha	Yes	936 ha
W05D	2252 ha (3.4%)	40%	901 ha (1.4%)	1121 ha	Yes	68 ha
W06	944 ha (6%)	40%	378 ha (2.4%)	944 ha	Yes	255 ha

<sup>1</sup> Maintenance is required when the natural proportion is low, i.e. below 1.5 %.

Table 3 (continued). Mature mixedwood stand thresholds per trapline.

Trap-line	Reference area (ha) and proportion (%) of mature mixedwood stands	Threshold type	Area (ha) and proportion (%) of mature mixedwood stands to be maintained	Area (ha) of mature mixedwood stands in the trapline (updated in 2019)	Mixedwood harvesting possible?	Mixedwood stands between 40- and 59-years-old
W07	2152 ha (8.1%)	40%	861 ha (3.2%)	2152 ha	Yes	0 ha
W08	1535 ha (4.5%)	40%	614 ha (1.8%)	125 ha	No	373 ha
W09	2682 ha (6.3%)	40%	1073 ha (2.5%)	1264 ha	Yes	143 ha
W10	1310 ha (2.2%)	50%	655 ha (1.1%)	1310 ha	Yes	11 ha
W10A	4158 ha (5%)	40%	1663 ha (2%)	1471 ha	No	17 ha
W11	3271 ha (5.3%)	40%	1308 ha (2.1%)	1017 ha	No	179 ha
W11A	1772 ha (4.5%)	40%	709 ha (1.8%)	1072 ha	Yes	31 ha
W11B	1529 ha (4.5%)	40%	612 ha (1.8%)	173 ha	No	207 ha
W12	1759 ha (4.2%)	40%	703 ha (1.7%)	771 ha	Yes	21 ha
W13	4379 ha (9.6%)	40%	1752 ha (3.9%)	2238 ha	Yes	342 ha
W13A	3973 ha (9.1%)	40%	1589 ha (3.7%)	1519 ha	No	148 ha
W13B	3469 ha (7.7%)	40%	1388 ha (3.1%)	733 ha	No	82 ha
W14	2338 ha (6.4%)	40%	935 ha (2.6%)	1030 ha	Yes	144 ha
W15	1645 ha (5.8%)	40%	658 ha (2.3%)	1180 ha	Yes	109 ha
W16	1771 ha (3.2%)	40%	709 ha (1.3%)	1722 ha	Yes	173 ha
W17	2811 ha (6.3%)	40%	1124 ha (2.5%)	897 ha	No	521 ha
W17A	2641 ha (5.1%)	40%	1056 ha (2%)	256 ha	No	365 ha
W18	2662 ha (9%)	40%	1065 ha (3.6%)	1451 ha	Yes	784 ha
W19	2923 ha (8.1%)	40%	1169 ha (3.2%)	1146 ha	No	272 ha
W20	2030 ha (6.2%)	40%	812 ha (2.5%)	600 ha	No	228 ha
W21	4399 ha (8.8%)	40%	1759 ha (3.5%)	1692 ha	No	3264 ha

Table 3 (continued). Mature mixedwood stand thresholds per trapline.

Trap-line	Reference area (ha) and proportion (%) of mature mixedwood stands	Threshold type	Area (ha) and proportion (%) of mature mixedwood stands to be maintained	Area (ha) of mature mixedwood stands in the trapline (updated in 2019)	Mixedwood harvesting possible?	Mixedwood stands between 40- and 59-years-old
W21A	868 ha (3.1%)	40%	347 ha (1.2%)	292 ha	No	985 ha
W21B	3028 ha (7.1%)	40%	1211 ha (2.8%)	2684 ha	Yes	455 ha
W21C	2579 ha (6.1%)	40%	1031 ha (2.4%)	1940 ha	Yes	52 ha
W22	1284 ha (4.6%)	40%	514 ha (1.8%)	1180 ha	Yes	5 ha
W23	1269 ha (2.8%)	50%	635 ha (1.4%)	1219 ha	Yes	114 ha
W23A	2070 ha (3.5%)	40%	828 ha (1.4%)	2048 ha	Yes	218 ha
W23B	762 ha (3.5%)	40%	305 ha (1.4%)	762 ha	Yes	11 ha
W24	2857 ha (8.1%)	40%	1143 ha (3.2%)	1404 ha	Yes	539 ha
W24A	6838 ha (12.7%)	40%	2735 ha (5.1%)	6765 ha	Yes	1290 ha
W24B	2031 ha (6.8%)	40%	813 ha (2.7%)	2031 ha	Yes	232 ha
W24C	1201 ha (4.4%)	40%	481 ha (1.8%)	554 ha	Yes	55 ha
W24D	2514 ha (5.2%)	40%	1006 ha (2.1%)	635 ha	No	239 ha
W25	1807 ha (6.1%)	40%	723 ha (2.4%)	1798 ha	Yes	38 ha
W25A	2818 ha (4.5%)	40%	1127 ha (1.8%)	830 ha	No	17 ha
W25B	1017 ha (2.9%)	50%	509 ha (1.5%)	644 ha	Yes	9 ha
W26	3953 ha (4.2%)	40%	1581 ha (1.7%)	1800 ha	Yes	318 ha
W27	2042 ha (5%)	40%	817 ha (2%)	1320 ha	Yes	28 ha
W53	2565 ha (4.4%)	40%	1026 ha (1.8%)	916 ha	No	11 ha
W53A	955 ha (4.7%)	40%	382 ha (1.9%)	951 ha	Yes	0 ha

For additional information and complete scientific reference, see the *Mixedwood Stands Management Strategy*. This summary and the complete Strategy are accessible on the following website:

<https://mffp.gouv.qc.ca/les-forets/amenagement-durable-forets/planification-forestiere/plans-damenagement-forestier-integre/nord-du-quebec/>

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