



Young-Forest Wildlife Habitats in New Brunswick

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INTRODUCTION

The New Brunswick *Crown Lands and Forests Act* (1980) provides for the integrated management of the resources of Crown land, which includes habitat for the maintenance of fish and wildlife populations. The *New Brunswick Biodiversity Strategy* identifies healthy and resilient native ecosystems and viable populations of native species among its conservation outcomes (PNB 2009). Goals for the management of the New Brunswick Crown forest include maintaining the natural diversity and ecological characteristics of the Acadian forest and providing the habitat necessary to support populations of native wildlife at desired levels.

Young forest stands vary widely in a number of characteristics, including vegetative composition, tree height and diameter, stem density, and canopy closure. Tree height ranges from 2 to 10 m, and diameter (DBH) from 3 to 10 cm. Stand density ranges from 2K to 15K stems/hectare, and is strongly inversely related to tree diameter. Canopy closure is incomplete in the youngest stands, and complete in the older ones. Young stands generally lack characteristics considered typical of old forest, such as large-diameter trees with complex crowns, large woody debris, and senescence-induced canopy openings. Nonetheless, they provide conditions that are suitable for a wide variety of plant and animal species, and that are necessary for many.

Forest Communities (FC) are the building blocks for identifying forest habitats. Eighteen communities, described at the stand level by tree species composition, encompass the full range of naturally-occurring forest conditions. Young and Mid-age Forest Wildlife Habitats are groups of communities that are further described by stem density, mean tree diameter and maximum residual overstorey basal area. Density and diameter ranges were gleaned from the literature and modified as necessary to accommodate known ranges of those characteristics in New Brunswick forest. Habitat attributes are used to develop habitat yield relationships used in forest management planning, to identify habitats from forest inventory data, and for operational assessments.

This document presents our current understanding of the habitat relationships of vertebrates in young and mid-age forest in New Brunswick. It is intended as a tool to assess habitat abundance across broad spatial and temporal scales and to help establish management targets for these ecosystems. The habitat requirements of old-forest species can be found in the companion document *Old Forest Communities and Old-forest Wildlife Habitats in New Brunswick* (NB ERD 2017a).

FOREST COMMUNITIES

Forest Communities (FC) are defined at the stand level by tree species composition (Table 1). They are named for the most abundant tree species (or group of species) and are composed of at least 35% of that species (or group). The terms “tolerant” and “intolerant” in group names refer to tolerance of low light conditions. Tolerant species tend to be long-lived and regenerate well under themselves, allowing stands to persist with little change well beyond the life span of individual trees. Intolerant species require full light and establish themselves quickly after major disturbances, such as fire or clearcut harvesting. They exhibit rapid growth but have relatively short lifespans and, in the absence of major disturbances, tend to be replaced over time by more tolerant species. FCs also form the basis for *Old Forest Communities*, which in turn are used to define Old-Forest Wildlife Habitats (NB ERD 2017a).

Forest Communities named for softwood species contain at least 50% softwood. The Black Spruce community (BS) is the most abundant and occupies a wide range of site conditions, from very wet and poor through to intermediate in both moisture and productivity. The other common, tolerant softwood communities are Red Spruce (RS) and Balsam Fir (BF). Tolerant softwood communities of intermediate abundance are White Spruce (WS) and Cedar (CE), and the uncommon ones are Hemlock (HE) and Larch (TL). Red Pine and White Pine (RP, WP) are uncommon FCs of intermediate tolerance, and Jack Pine (JP) is shade-intolerant and of intermediate abundance. The softwood-dominated mixed groups are Softwood-Tolerant Hardwood (SWTH), an uncommon mixed condition of spruce or balsam fir with tolerant hardwood species, Tolerant Softwood (TOSW), a moderately common mix of shade-tolerant species such as red spruce, cedar and hemlock, and Softwood Mix (SWMX), a moderately common softwood type with no single dominant species and which frequently also contains some hardwood.

The hardwood FCs contain at least 50% hardwood species. Tolerant Hardwood Pure (THP) is a moderately common mix of sugar maple, yellow birch and American beech, with local contributions of ironwood, red oak, basswood, silver maple and the ashes. Red maple is considered a tolerant hardwood when other tolerant hardwoods are present. Tolerant Hardwood-Softwood (THSW) is a moderately common mix of tolerant hardwood species with red and white spruce and balsam fir. Tolerant hardwood-Intolerant Hardwood (THIH) is moderately common and is usually the result of significant disturbance, whether natural or anthropogenic. Intolerant Hardwood Mix (IH) is a common FC that is usually the result of significant disturbance; it encompasses a variety of conditions and is usually dominated by white birch or trembling aspen.

Table 1. Composition of Forest Communities.

Forest Community	Primary Species	Primary Species %	SW%	HW%	TH%	TH+RM %
Hemlock (HE)	HE	≥ 25	≥ 25	--	--	--
Cedar (CE)	CE	≥ 35	≥ 50	--	--	--
Red Spruce (RS)	RS	≥ 35	≥ 50	--	--	--
Tamarack (TL)	TL	≥ 35	≥ 50	--	--	--
Black Spruce (BS)	BS	≥ 35	≥ 50	--	--	--
White Spruce (WS)	WS	≥ 35	≥ 50	--	--	--
Softwood-Tolerant Hardwood (SWTH)	RS, WS, BF, TH	--	≥ 50	--	≥ 20	≥ 35
Balsam Fir (BF)	BF	≥ 35	≥ 50	--	--	--
Tolerant Softwood (TOSW)	HE, CE, RS	≥ 35	≥ 50	--	--	--
Red Pine (RP)	RP	RP ≥ WP	WP + RP ≥ 50	--	--	--
White Pine (WP)	WP	WP > RP		--	--	--
Jack Pine (JP)	JP	≥ 35	≥ 50	--	--	--
Softwood Mix (SWMX)	SW	--	≥ 50	--	--	--
Tolerant Hardwood Pure (THP)	TH	--	--	--	≥ 50	≥ 75
Tolerant Hardwood - Softwood (THSW)	TH, RS, WS, BF	25-50	--	--	≥ 30	≥ 35
Tolerant Hardwood-Intolerant Hardwood (THIH)	TH, IH	--	--	≥ 50	≥ 20	≥ 35
Intolerant Hardwood (IH)	IH	--	--	≥ 50	≥ 20	--

YOUNG AND MID-AGE FOREST WILDLIFE HABITATS

The goal of forest habitat management is to ensure that management activities on Crown land produce a forest that can support vertebrate populations at desired levels. For most species, this translates to providing sufficient habitat to maintain viable populations across the area of Crown land to which they are indigenous.

Forest habitat management is about supplying particular forest conditions in particular locations at particular times. It functions as a component of a larger strategic planning process for multiple forest values that is applied at a large spatial extent and over a long time horizon. Inclusion in that process allows forest habitats to be tracked and directed across space and time. The process is best suited to species that are sufficiently common and widespread that habitat is a reasonable predictor of occurrence.

There are 159 vertebrates that use New Brunswick's forest for some or all of their breeding, migrating or over-wintering requirements. Fifty-eight of them make use of young or mid-age forest conditions; the full range of their habitat associations are given in Appendix 1. Young and mid-age forest habitats were identified and defined based on the requirements of the species that utilize them; however, priority was given to the 32 species that meet the criteria of being relatively common, of not also having their needs met in old forest, and of not requiring that forest be in close proximity to other habitat classes, such as non-forested uplands, wetlands and watercourses. Habitat descriptions were developed for each species, and these were used to generate a set of young and mid-age forest habitats with sufficiently broad definitions to encompass the requirements of all 32 species.

The resulting 7 young and mid-age forest habitats are Young Hardwood (YHWH), Mid-Age Hardwood (MHWH), Young Spruce-fir (YSFH), Young Black Spruce (YBSH), Mid-Age Jack Pine (MJPH), Young Mixedwood (YMWH) and Young Forest (YFH). With the exception of YMWH, each habitat is explicitly composed of nested Forest Communities (see Table 1) and further defined by ranges of quadratic mean diameter (Curtis and Marshall 2000) and stem density. YHWH/MHWH, YSFH and MJPH are mutually exclusive and range from pure hardwood or softwood to mixes of almost 50%. YMWH occurs when softwood (or hardwood) is between 25% and 75% and always meets the stand-level criteria for at least one other young-forest habitat. YBSH is always nested within YSFH. YFH is a broadly defined young-forest condition with stand-level criteria that encompass those of all the other types.

Young Hardwood Habitat and Mid-Age Hardwood Habitat

Young Hardwood Habitat (YHWH) and Mid-age Hardwood Habitat (MHWH) together provide habitat for at least 35 vertebrate species. Most of them have fairly broad habitat requirements, preferring young forest of any type or hardwood forest of any stage. However, 2 of those species require YHWH, 5 require MHWH, and 2 require either type (Table 2).

YHWH and MHWH are defined in terms of forest community, mean stem diameters (quadratic mean diameter), minimum stem densities and maximum basal areas of stems larger than expected means (Table 3). Landscape structure is defined in terms size and shape of habitat patches (Table 4).

Table 2. Species assigned to Young and Mid-Age Hardwood Habitats.

Habitat Type	Species
Young Hardwood	Meadow jumping mouse
	Chestnut-sided warbler
Mid-Age Hardwood	Ruffed grouse
	Eastern whip-poor-will
	Philadelphia vireo
	American redstart
	Rose-breasted grosbeak
Young or Mid-Age Hardwood	American woodcock
	Veery

Table 3. Structural characteristics of Young and Mid-Age Hardwood Habitats.

Habitat Type	Forest Community	QM Diameter (cm)	Stem Density (stems/ha)	Basal Area Stems > 15 cm (m ² /ha)
YHWH	IHMX, THIH, THP, THSW	< 4	NA	< 2
MHWH	IHMX, THIH, THP, THSW	4-15	≥ 2000	< 2

Table 4. Landscape structure of Young and Mid-Age Hardwood Habitats.

Habitat Type	Criteria Set ¹	Habitat Area in Patch ²	Proportion of Patch in Habitat ³
YHWH	Chestnut-sided warbler	10	≥ 0.75
MHWH	American redstart	10	≥ 0.75
	Philadelphia vireo	20	≥ 0.75
	Ruffed grouse	50	≥ 0.75

¹ Set named for principal species for which structure defined.

² Area in each patch that must meet stand structure criteria.

³ Proportion of each patch, regardless of size, that must meet stand structure criteria.

Young Black Spruce Habitat and Young Spruce-Fir Habitat

The young and mid-age stages of black spruce forest are not distinguishable from the perspective of the vertebrates that occupy them, and hence were combined into a single habitat type – Young Black Spruce Habitat (YBSH). For the same reason, young and mid-age spruce-fir stages were also combined into Young Spruce-Fir Habitat (YSFH). Combined, YBSH and YSFH provide habitat for 38 vertebrate species, most of which have fairly broad habitat preferences for softwood-dominated stands of any age or young stands of any composition. Nine species, however, depend on the occurrence of one or both of these habitat types (Table 5).

The structure of YBSH and YSFH are given in terms of forest community, mean stem diameters, minimum stem densities and maximum basal areas of stems larger than expected (Table 6). Landscape structure is defined in terms size and shape of habitat patches (Table 7).

Table 5. Species assigned to Young Black Spruce and Young Spruce-fir Habitats.

Habitat Type	Species
Young Black Spruce	Palm warbler
	Lincoln's sparrow
Young Spruce-Fir or Young Black Spruce	Red squirrel
	Tennessee warbler
	Magnolia warbler
	Blackpoll warbler
	Yellow-rumped warbler
	Fox sparrow
	Pine grosbeak

Table 6. Structural characteristics of Young Black Spruce and Young Spruce-Fir Habitats.

Habitat Type	Forest Community	QM Diameter (cm)	Stem Density (stems/ha)	Basal Area Stems > 10 cm (m ² /ha)
YBSH	BS	3-10	≥ 2000	< 5
YSFH	BF, CE, HE, RS, BS, SWMX, SWTH, TL, TOSW, WS	3-10	≥ 2000	< 5

Table 7. Landscape structure of Young Black Spruce and Young Spruce-fir Habitats.

Habitat Type	Criteria Set ¹	Habitat Area in Patch ²	Proportion of Patch in Habitat ³
YBSH	Palm warbler	15	≥ 0.75
YSFH	Magnolia warbler	10	≥ 0.75

¹ Set named for principal species for which structure defined.

² Area in each patch that must meet stand structure criteria.

³ Proportion of each patch, regardless of size, that must meet stand structure criteria.

Mid-Age Jack Pine Habitat

Jack pine forest is relatively poor in vertebrate species, with none being assigned to either young or old stands. Mid-age jack pine, however, provides good habitat for 2 species: red squirrel and spruce grouse (Table 8). Structural criteria for MJPH are given in Table 9. Landscape structure is defined in terms size and shape of habitat patches (Table 10).

Table 8. Species assigned to Mid-Age Jack Pine Habitat.

Habitat Type	Species
Mid-Age Jack Pine	Red squirrel
	Spruce grouse

Table 9. Structural characteristics of Mid-Age Jack Pine Habitat.

Habitat Type	Forest Community	QM Diameter (cm)	Stem Density (stems/ha)	Basal Area Stems > 10 cm (m ² /ha)
MJPH	JP	3-10	≥ 2000	< 10

Table 10. Landscape structure of Mid-Age Jack Pine Habitat.

Criteria Set ¹	Habitat Area in Patch ²	Proportion of Patch in Habitat ³
Red squirrel	10	≥ 0.75
Spruce grouse	50	≥ 0.75

¹ Set named for principal species for which structure defined.

² Area in each patch that must meet stand structure criteria.

³ Proportion of each patch, regardless of size, that must meet stand structure criteria.

Young Mixedwood Habitat

Young and mid-age stages of mixedwood were combined into Young Mixedwood Habitat (YMWH). It provides critical habitat for American woodcock and Philadelphia vireo (Table 11), though is used by many other young-forest species. YMWH stands are composed of between 25% and 75% hardwood, and always also meet the definition of at least one other young or mid-age habitat (Table 12). Landscape structure is defined in terms size and shape of habitat patches (Table 13).

Table 11. Species assigned to Young Mixedwood Habitat.

Habitat Type	Species
Young Mixedwood	American woodcock
	Philadelphia vireo

Table 12. Structural characteristics of Young Mixedwood Habitat.

Habitat Type	Hardwood Percent	Overlapping Habitat Types
YMWH	25-75	YSFH, YHWH, MHWH

Table 13. Landscape structure of Young Mixedwood Habitat.

Criteria Set ¹	Habitat Area in Patch ²	Proportion of Patch in Habitat ³
Philadelphia vireo	20	≥ 0.75
American woodcock	50	≥ 0.75

¹ Set named for principal species for which structure defined.

² Area in each patch that must meet stand structure criteria.

³ Proportion of each patch, regardless of size, that must meet stand structure criteria.

Young Forest Habitat

Young Forest Habitat (YFH) provides important habitat for 8 young-forest species that do not require a particular overstorey composition, i.e., species that are not strongly associated with one of the previously-identified habitat types (Table 14). YFH stands are composed of any of the other young or mid-age habitats (Table 15). Landscape structure is defined in terms size and shape of habitat patches (Table 16).

Table 14. Species assigned to Young Forest Habitat.

Habitat Type	Species
Young Forest Habitat	Snowshoe hare
	Ermine
	Cedar waxwing
	Nashville warbler
	Mourning warbler
	Common yellowthroat
	Wilson's warbler
	White-throated sparrow

Table 15. Structural characteristics of Young Forest Habitat.

Habitat Type	Nested Habitat Types
YFH	YSFH, YHWH, MHWH, YMWH

Table 16. Landscape structure of Young Forest Habitat.

Criteria Set ¹	Habitat Area in Patch ²	Proportion of Patch in Habitat ³
White-throated sparrow	10	≥ 0.75
Wilson's warbler	20	≥ 0.75
Ermine	100	≥ 0.75

¹ Set named for principal species for which structure defined.

² Area in each patch that must meet stand structure criteria.

³ Proportion of each patch, regardless of size, that must meet stand structure criteria.

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Appendix 1. Habitat relationships of species associated with young or mid-age forest. Old-forest, wetland and coastal habitats are described in the documents *Old Forest Communities and Old-forest Wildlife Habitats in New Brunswick* (NB ERD 2017a) and *Wetland and Coastal Wildlife Habitats in New Brunswick* (NB ERD 2017b). Upland, Freshwater and Marine habitat types are not fully described.

Species	Population	Not Common ¹	Habitat Class	Forest Juxtaposition ²	Habitat	
					Type	Stage or Sub-type ³
LITTLE BROWN BAT	Breeding	✓	Forest		Spruce-fir	Mid / Old
			Upland		Any Upland	
			Wetland		Any Wetland	
			Freshwater		Any Open Freshwater	
TRI-COLORED BAT	Breeding	✓	Forest		Any Forest	Mid / Old
			Upland		Any Upland	
			Wetland		Any Wetland	
			Freshwater		Any Open Freshwater	
RED BAT	Breeding		Forest		Hardwood	Mid / Old
					Mixedwood	Mid / Old
			Upland		Hardwood Woodland	
HOARY BAT	Breeding		Forest		Any Forest	Mid / Old
			Upland		Softwood Woodland	
					Hardwood Woodland	
			Wetland		Any Wetland	
			Freshwater		Any Open Freshwater	
SNOWSHOE HARE	Breeding		Forest		Any Forest	Old / Young
RED SQUIRREL	Breeding		Forest		Spruce-fir	Mid
					Jack Pine	Mid

¹ Not Common: Species with populations that are rare or uncommon.

² Forest Juxtaposition: Species that use forest that must be in close proximity to other habitat classes.

³ Stage or Sub-type: Successional stage of forest habitats, or sub-type of wetland habitats. Multiple successional stages are equivalent.

Species	Population	Not Common ¹	Habitat Class	Forest Juxtaposition ²	Habitat		
					Type	Stage or Sub-type ³	
MEADOW JUMPING MOUSE	Breeding		Forest		Hardwood	Young	
			Upland		Grassland		
			Wetland		Wet meadow / Tidal marsh		
					Emergent Shallow Marsh		
					Bog		Sedge
					Alder or Shrub Wetland		
					Floodplain Forest		
RED FOX	Breeding		Forest		Any Forest	Young	
			Upland		Any Upland		
			Wetland		Wet meadow / Tidal marsh		
					Bog		
					Alder or Shrub Wetland		
					Wetland Margin		
			Coastal		Salt Marsh		
					Beach		
					Dune		
ERMINE	Breeding		Forest		Any Forest	Young	
			Upland		Softwood Woodland		
					Hardwood Woodland		
					Upland Shrub		
					Grassland		
					Open Low Vegetation		

Species	Population	Not Common ¹	Habitat Class	Forest Juxtaposition ²	Habitat	
					Type	Stage or Sub-type ³
ERMINE (Continued)	Breeding (Continued)		Wetland		Wet meadow / Tidal marsh	
					Bog	Sedge
					Bog	Shrub
					Bog	Partially Treed
					Bog	Fully Treed
					Alder or Shrub Wetland	
					Wetland Margin	
					Floodplain Forest	
					Cedar Swamp	
WHITE-TAILED DEER	Breeding		Forest		Spruce-fir	Old
					Hardwood	Young
					Mixedwood	Young
			Wetland		Cedar Swamp	
MOOSE	Breeding		Forest		Spruce-fir	Old
					Hardwood	Young
					Mixedwood	Old
					Mixedwood	Young
			Wetland		Cedar Swamp	
			Freshwater		Any Wetland	
RUFFED GROUSE	Breeding		Forest		Hardwood	Mid
SPRUCE GROUSE	Breeding		Forest		Spruce-fir	Mid / Old
					Jack Pine	Mid

Species	Population	Not Common ¹	Habitat Class	Forest Juxtaposition ²	Habitat	
					Type	Stage or Sub-type ³
GREAT BLUE HERON	Breeding		Forest	✓	Any Forest	Mid / Old
			Wetland		Wet meadow / Tidal marsh	
					Emergent Shallow Marsh	
					Deep Marsh / Aquatic Bed	
					Marsh Complex - Water Far	
					Wet Shrub Complex - Water Far	
			Coastal		Salt Marsh	
					Mud Flat	
					Beach	
					Rocky Shoreline	
Freshwater		Any Open Freshwater				
BLACK-CROWNED NIGHT-HERON	Breeding		Forest	✓	Any Forest	Mid / Old
			Wetland		Emergent Shallow Marsh	
					Alder or Shrub Wetland	
			Coastal		Salt Marsh	
					Coastal Island	
					Mud Flat	
					Rocky Shoreline	
MERLIN	Breeding		Forest	✓	Any Forest	Mid / Old
			Upland		Any Upland	
			Wetland		Any Wetland	
AMERICAN WOODCOCK	Breeding		Forest		Hardwood	Young / Mid
					Mixedwood	Young / Mid
			Upland		Hardwood Woodland	
					Upland Shrub	
			Wetland		Alder or Shrub Wetland	

Species	Population	Not Common ¹	Habitat Class	Forest Juxtaposition ²	Habitat	
					Type	Stage or Sub-type ³
AMERICAN WOODCOCK (Continued)	Migrating		Forest		Hardwood	Young / Mid
					Mixedwood	Young / Mid
			Upland		Hardwood Woodland	
					Upland Shrub	
Wetland	Alder or Shrub Wetland					
	MOURNING DOVE	Breeding		✓	Spruce-fir	Young
Upland					Any Upland	
NORTHERN HAWK OWL	Breeding	✓	Forest		Spruce-fir	Mid
LONG-EARED OWL	Breeding	✓	Forest		Spruce-fir	Mid
BOREAL OWL	Breeding	✓	Forest		Spruce-fir	Mid
COMMON NIGHTHAWK	Breeding	✓	Forest		Any Forest	Young
			Upland	Softwood Woodland		
				Hardwood Woodland		
EASTERN WHIP-POOR-WILL	Breeding		Forest		Hardwood	Mid
LEAST FLYCATCHER	Breeding		Forest		Hardwood	Mid / Old
PHILADELPHIA VIREO	Breeding		Forest		Hardwood	Mid
					Mixedwood	Mid
			Upland		Hardwood Woodland	
RED-EYED VIREO	Breeding		Forest		Hardwood	Mid / Old
GRAY JAY	Breeding		Forest		Spruce-fir	Mid / Old
			Wetland	Bog	Partially Treed	
				Bog	Fully Treed	
GOLDEN-CROWNED KINGLET	Breeding		Forest		Spruce-fir	Mid / Old
RUBY-CROWNED KINGLET	Breeding		Forest		Spruce-fir	Mid / Old
			Wetland	Bog	Partially Treed	
				Bog	Fully Treed	

Species	Population	Not Common ¹	Habitat Class	Forest Juxtaposition ²	Habitat	
					Type	Stage or Sub-type ³
EASTERN BLUEBIRD	Breeding	✓	Forest		Any Forest	Young
			Upland		Upland Shrub	
					Grassland	
					Agriculture	
					Open Low Vegetation	
VEERY	Breeding		Forest		Hardwood	Young / Mid
			Wetland		Alder or Shrub Wetland	
					Floodplain Forest	
GRAY-CHEEKED THRUSH	Migrating	✓	Forest		Spruce-fir	Young
BICKNELL'S THRUSH	Breeding	✓	Forest		Spruce-fir	Young
					Mixedwood	Young
HERMIT THRUSH	Breeding		Forest		Any Forest	Mid / Old
			Wetland		Bog	Partially Treed
					Bog	Fully Treed
WOOD THRUSH	Breeding	✓	Forest		Tolerant Hardwood	Mid
CEDAR WAXWING	Breeding		Forest		Any Forest	Young
			Upland		Upland Shrub	
			Wetland		Alder or Shrub Wetland	
					Floodplain Forest	
TENNESSEE WARBLER	Breeding		Forest		Spruce-fir	Mid
			Wetland		Bog	Partially Treed
					Bog	Fully Treed
NASHVILLE WARBLER	Breeding		Forest		Any Forest	Young
MOURNING WARBLER	Breeding		Forest		Any Forest	Young
COMMON YELLOWTHROAT	Breeding		Forest		Any Forest	Young
			Wetland		Alder or Shrub Wetland	

Species	Population	Not Common ¹	Habitat Class	Forest Juxtaposition ²	Habitat	
					Type	Stage or Sub-type ³
AMERICAN REDSTART	Breeding		Forest		Hardwood	Mid
			Upland		Hardwood Woodland	
			Upland		Upland Shrub	
			Wetland		Floodplain Forest	
MAGNOLIA WARBLER	Breeding		Forest		Spruce-fir	Young
BAY-BREASTED WARBLER	Breeding		Forest		Spruce-fir	Mid / Old
CHESTNUT-SIDED WARBLER	Breeding		Forest		Hardwood	Young
BLACKPOLL WARBLER	Breeding		Forest		Spruce-fir	Young
PALM WARBLER	Breeding		Forest		Black Spruce	Young
			Wetland		Bog	Shrub
					Bog	Partially Treed
					Bog	Fully Treed
YELLOW-RUMPED WARBLER	Breeding		Forest		Spruce-fir	Young / Mid
BLACK-THROATED GREEN WARBLER	Breeding		Forest		Any Forest	Mid / Old
WILSON'S WARBLER	Breeding		Forest		Any Forest	Young
			Wetland		Alder or Shrub Wetland	
FOX SPARROW	Breeding		Forest		Spruce-fir	Young / Mid
LINCOLN'S SPARROW	Breeding		Forest		Black Spruce	Young
			Wetland		Bog	Shrub
					Bog	Partially Treed
					Bog	Fully Treed
WHITE-THROATED SPARROW	Breeding		Forest		Any Forest	Young

Species	Population	Not Common ¹	Habitat Class	Forest Juxtaposition ²	Habitat	
					Type	Stage or Sub-type ³
NORTHERN CARDINAL	Breeding	✓	Forest		Hardwood	Young
			Upland		Softwood Woodland	
					Hardwood Woodland	
ROSE-BREASTED GROSBEAK	Breeding		Forest		Hardwood	Mid
INDIGO BUNTING	Breeding	✓	Forest		Hardwood	Young
RUSTY BLACKBIRD	Breeding	✓	Forest	✓	Black Spruce	Young
			Wetland		Bog	Shrub
					Bog	Partially Treed
					Alder or Shrub Wetland	Beaver Pond
PINE GROSBEAK	Breeding		Forest		Spruce-fir	Mid
COMMON REDPOLL	Non-breeding		Forest		Hardwood	Mid / Old
			Upland		Upland Shrub	
					Agriculture	
			Wetland		Alder or Shrub Wetland	