

Northwest-Howell MIS Effects Analysis

Revised Appendix G MIS Effects Analysis - Warblers

Management Indicator Species (MIS) – Analysis of Effects, Potential Affected Habitat for Northwest Howell Project, Alternatives 2-4

Assumptions:

1). Alternative 1 is not analyzed below since the existing condition identifies potential habitat by forest type as described in the following document “Monitoring Methods and Wildlife Population Trend Data”, located in the project file.

2). Analysis considers 80% or more of acres proposed for treatment, with focus more so on major habitat types of hardwood, pine and aspen.

3). Table 1 below provides a description of preferred habitat types and age at which habitat was mostly considered suitable.

4). Columns a-c in Table 2 and similar tables below are self-explanatory. Column “d” describes design features (mitigation) for harvest of stands from December 1st through March 15th. This design feature protects sensitive soils by harvesting in winter during frozen ground conditions, but also protects nesting songbirds indirectly, because harvest occurs during the non-nesting season. Similarly, column “e” protects sensitive soils and “bark slippage” by restricting harvest to either dryer or frozen periods and again either directly or indirectly protects nesting songbirds by restricting harvest to a time when the majority of songbirds have completed their nesting cycle. Some species that nest late, re-nest, or raise multiple broods could however still be impacted, but numbers of individuals would be fewer as compared to the bulk of the spring/summer breeding birds. No estimate is available on the percent of songbirds nesting after July 15th. During the Northwest Howell project analysis, a stand-by-stand review was completed specifically for potential effects on nesting songbirds. Stands considered high quality songbird habitat, generally those containing mature trees with an average diameter of 9 - 11 inches at breast height (dbh) for conifer and hardwoods respectively, are listed with the mitigations as described in either columns “d” or “e”. Acres (stands) proposed for harvest under column “f”, are stands considered of lower quality or less structurally developed that typically contain smaller diameter trees. Because these stands are on firmer soils, and are not considered high quality songbird habitat, they are available for harvest treatments with less seasonal restrictions.

Although these stands are available for harvest during the nesting season, it is very unlikely that all the available acres of stands in this category would be harvested during the nesting season.

The last column, “g”, provides an estimate of acres of habitat affected following treatment. For example, a hardwood forest that is treated during the nesting season, by a thinning as opposed to a clearcut harvest, would have the affect of displacing songbirds that require this habitat for that nesting season only. The assumption is made here, that the disturbance of the logging operation would inhibit nesting. The following year habitat would once again be suitable for nesting for most songbirds. If however, that same hardwood unit were clearcut, then songbirds that require mature forest conditions would be displaced from this site until the forest re-grows to maturity.

5). For red-eyed vireo, black-throated green warbler and blackburnian warbler, the table (analysis) assumes an occupancy rate as described in Table 11. This density of songbirds per acre uses Nicolet Breeding Bird Survey data collected over a 16-year period and as summarized by Dr. Robert Howe, University of Wisconsin – Green Bay, Green Bay, WI. Dr. Howe was consulted with regard to using Nicolet Breeding Bird survey songbird density data in this format, and found it scientifically acceptable (personal communication, 2003). (Also see Estimating Bird Species Densities in the Nicolet National Forest, Howe 2003, located in project file.)

6). The summary of effects tables specific to each alternative describes the numbers of individuals potentially affected, realizing that each acre of habitat is utilized by more the just the species identified in

Northwest-Howell MIS Effects Analysis

this analysis. This analysis expresses the potential affects as a range of individuals per acre of suitable habitat. The numbers reflected below are approximate, based on the assumptions described above.

Table 1. Primary habitat assumptions by MIS species, forest type and stand age.

Forest Type	Red-eyed Vireo Black-throated Green Warbler Ovenbird	Blackburnian Warbler (Assumes a mature hemlock component present)	Pine Warbler	Chestnut-sided Warbler
Mixed Hardwoods	Stand year of origin older than 1943 (60 years)	Stand year of origin older than 1923 (80 years)	N/A	Hardwood habitat 20 years or younger (1982-2002)
Paper Birch	Stand year of origin older than 1943 (60 years)	Stand year of origin older than 1943 (60 years)	N/A	N/A
Aspen	Stand year of origin older than 1963 (40 years)	Stand year of origin older than 1963 (40 years)	Stand year of origin older than 1963 (40 years)	Aspen habitat 20 years or younger (1982-2002)
Red Pine	N/A	N/A	Stand year of origin older than 1963 (40 years)	N/A
Jack Pine	N/A	N/A	Stand year of origin older than 1963 (40 years)	N/A
W. Spruce	N/A	Stand year of origin older than 1943 (60 years)	N/A	N/A

Table 2. Alternative 2 – Existing and potentially suitable acres in relation to harvest treatment design features. Estimates of numbers of affected individuals are in parenthesis.

a). Forest Type	b). Suitable ac. in project area	c). Suitable ac. proposed for treatment	d). Suitable ac. proposed for treatment Dec.1 st - March 15 th	e). Suitable ac. proposed for treatment July 15 th - March 15 th	f). Suitable ac. available for treatment during the nesting season	g). Suitable ac. no longer suitable following treatment
Red-eyed Vireo						
Mxhdwd	16371 (4562)	5896 (1643)	3926 (0)	1502 (0)	468 (130)	0
P.Birch	603 (84)	85 (12)	49 (0)	16 (0)	21 (3)	65 (9)
Aspen	1598 (318)	638 (127)	392 (0)	0	246 (49)	638 (127)
Black-throated Green Warbler						
Mxhdwd	16371 (4077)	5896 (1468)	3926 (0)	1502 (0)	468 (117)	0
P.Birch	603 (65)	85 (9)	49 (0)	16 (0)	21 (2)	65 (7)
Aspen	1598 (62)	638 (25)	392 (0)	0	246 (10)	638 (25)
Ovenbird						
Mxhdwd	16371 (3966)	5896 (1428)	3926 (0)	1502 (0)	468 (113)	0
P.Birch	603 ((76)	85 (11)	49 (0)	16 (0)	21 (3)	65 (8)
Aspen	1598 (308)	638 (123)	392 (0)	0	246 (48)	638 (123)
Blackburnian Warbler						
Mxhdw	16371 (1123)	3253 (223)	1786 (0)	1000 (0)	468 (32)	0
P.Birch	603 (15)	85 (2)	49 (0)	16 (0)	21 (1)	65 (2)
Aspen	1598 (25)	638 (10)	392 (0)	0 (0)	246 (4)	638 (10)
W. Spruce	780 (43)	261 (14)	41 (0)	75 (0)	144 (8)	0
Pine Warbler						
Red Pine	2361 (205)	267 (23)	31 (0)	39 (0)	197 (17)	0
Jack Pine	301 (3)	218 (2)	81 (0)	136 (0)	154 (1)	115 (1)

Table 3. Alternative 4 – Existing and potentially suitable acres in relation to harvest treatment design features. Estimates of numbers of affected individuals are in parenthesis.

Chestnut-sided Warbler - Note: Suitable habitat for this species is regenerating hardwood forest, generally aspen or hardwood younger than 20 years. Commercial harvest is not proposed in stands of this age. However, habitat becomes suitable for this species once mature hardwood and aspen forest habitat is clearcut. Approximately 3644 acres of aspen and 7 acres of paper birch are younger than 20 years in the project area, and thus provides habitat for this species. (Note: no data was available for numbers of birds in regenerating hardwood or paper birch, estimates were calculated using aspen density figures)

Northwest-Howell MIS Effects Analysis

a). Forest Type	b). Existing suitable ac. in project area	c). Potentially suitable ac. proposed for treatment	d). Suitable ac. proposed for treatment Dec.1 st - March 15 th	e). Suitable ac. proposed for treatment July 15 th - March 15 th	f). Suitable ac. available for treatment during the nesting season	Acres of habitat <u>made</u> suitable following treatment
P.Birch	7 (5)	N/A	N/A	N/A	N/A	0
Aspen	3644 (2334)	N/A	N/A	N/A	N/A	394 (252)

Table 4. Summary of effects for Alternative 2 for all habitats combined (numbers are estimates).

Species	Estimated number of individuals (only) for habitats considered above.	Range of numbers of individuals displaced in the short-term	Range of numbers of individuals displaced in the long-term	Range of numbers of individuals colonizing new habitat following clearcut treatment
Red-eyed Vireo	4964	0-182	136	0
Black-throated Green Warbler	4204	0-129	32	0
Ovenbird	4350	0-164	131	0
Blackburnian Warbler	1206	0- 45	12	0
Pine Warbler	208	0-18	1	0
Chestnut-sided Warbler	2339	0	0	252

Table 5. Alternative 3 – Existing and potentially suitable acres in relation to harvest treatment design features. Estimates of numbers of affected individuals are in parenthesis.

a). Forest Type	b). Suitable ac. in project area	c). Suitable ac. proposed for treatment	d). Suitable ac. proposed for treatment Dec.1 st - March 15 th	e). Suitable ac. proposed for treatment July 15 th - March 15 th	f). Suitable ac. available for treatment during the nesting season	g). Suitable ac. no longer suitable following treatment
Red-eyed Vireo						
Mxhdw	16371 (4562)	4015 (1119)	2938 (0)	1077 (0)	0	0
P.Birch	603 (84)	85 (12)	4 (0.6)	73 (10)	8 (1)	65 (9)
Aspen	1598 (318)	313 (62)	207 (41)	29 (6)	76 (15)	313 (62)
Black-throated Green Warbler						
Mxhdw	16371 (4077)	4015 (1000)	2938 (0)	1077 (0)	0	0
P.Birch	603 (65)	85 (9)	4 (0)	73 (0)	8 (1)	65 (7)
Aspen	1598 (62)	313 (12)	207 (0)	29 (0)	76 (3)	313 (12)
Ovenbird						
Mxhdw	16371 (3966)	4015 (973)	2938 (0)	1077 (0)	0	0
P.Birch	603 (76)	85 (11)	4 (0)	73 (0)	8 (1)	65 (8)
Aspen	1598 (308)	313 (60)	207 (0)	29 (0)	76 (15)	313 (60)
Blackburnian Warbler						
Mxhdwd	16371 (1123)	2538 (174)	1638 (0)	900 (0)	0	0
P.Birch	603 (15)	85 (2)	4 (0)	73 (0)	8 (0)	65 (2)
Aspen	1598 (25)	313 (5)	207 (0)	29 (0)	76 (1)	313 (5)
W.Spruce	780 (43)	260 (14)	260 (0)	0	0	0
Pine Warbler						
Red Pine	2361 (205)	266 (23)	8 (8)	0	258 (22)	0
Jack Pine	301 (3)	217 (2)	0	0	217 (2)	115 (1)

Table 6. Alternative 3 – Existing and potentially suitable acres in relation to harvest treatment design features. Estimates of numbers of affected individuals are in parenthesis.

Chestnut-sided Warbler - Note: Suitable habitat for this species is regenerating hardwood forest, generally aspen or hardwood younger than 20 years. Commercial harvest is not proposed in stands of this age. However, habitat becomes suitable for this species once mature hardwood and aspen forest habitat is clearcut. Approximately 3644 acres of aspen and 7 acres of paper birch are younger than 20 years in the project area, and thus provides habitat for this species. (Note: no data was available for numbers of birds in regenerating hardwood or paper birch, estimates were calculated using aspen density figures)						
Forest Type	Suitable ac. in project area	Potentially suitable ac. proposed for treatment	Suitable ac. proposed for treatment Dec.1 st - March 15 th	Suitable ac. proposed for treatment July 15 th - March 15 th	Suitable ac. available for treatment during the nesting season	Acres of habitat <u>made</u> suitable following treatment
P.Birch	7 (5)	N/A	N/A	N/A	N/A	0
Aspen	3644 (2334)	N/A	N/A	N/A	N/A	0

Table 7. Summary of effects for Alternative 3 for all habitats combined.

Species	Estimated number of individuals (only) for habitats considered above	Range of numbers of individuals displaced in the short-term	Range of numbers of individuals displaced in the long-term	Range of numbers of individuals colonizing new habitat following clearcut treatment
Red-eyed Vireo	4964	0-16	71	0
Black-throated Green Warbler	4204	0-4	19	0
Ovenbird	4350	0-16	68	0
Blackburnian Warbler	1206	0-1	6	0
Pine Warbler	208	0-24	1	0
Chestnut-sided Warbler	2339	0	0	0

Table 8. Alternative 4 – Existing and potentially suitable acres in relation to harvest treatment design features. Estimates of numbers of affected individuals are in parenthesis.

a). Forest Type	b). Suitable ac. in project area	c). Suitable ac. proposed for treatment	d). Suitable ac. proposed for treatment Dec.1 st - March 15 th	e). Suitable ac. proposed for treatment July 15 th - March 15 th	f). Suitable ac. available for treatment during the nesting season	g). Suitable ac. no longer suitable following treatment
Red-eyed Vireo						
Mxhdwd	16371 (4562)	6054 (1687)	4156 (0)	1740 (0)	158 (44)	195 (54)
P.Birch	603 (84)	85 (12)	4 (0)	74 (0)	8 (1)	49 (7)
Aspen	1598 (318)	666 (133)	320 (0)	175 (0)	156 (31)	666 (133)
Black-throated Green Warbler						
a). Forest Type	b). Suitable ac. in project area	c). Suitable ac. proposed for treatment	d). Suitable ac. proposed for treatment Dec.1 st - March 15 th	e). Suitable ac. proposed for treatment July 15 th - March 15 th	f). Suitable ac. available for treatment during the nesting season	g). Suitable ac. no longer suitable following treatment
Mxhdwd	16371 (4077)	6054 (1508)	4156 (0)	1740 (0)	158 (39)	195 (49)
P.Birch	603 (65)	85 (9)	4(0)	74 (0)	8 (1)	49(5)
Aspen	1598 (62)	666 (3)	320 (0)	175 (0)	156 (7)	666 (3)
Ovenbird						
a). Forest Type	b). Suitable ac. in project area	c). Suitable ac. proposed for treatment	d). Suitable ac. proposed for treatment Dec.1 st - March 15 th	e). Suitable ac. proposed for treatment July 15 th - March 15 th	f). Suitable ac. available for treatment during the nesting season	g). Suitable ac. no longer suitable following treatment
Mxhdwd	16371 (3966)	6054 (1467)	4156 (0)	1740 (0)	158 (38)	195 (47)
P.Birch	603 (76)	85 (11)	4 (0)	74 (0)	8 (1)	49 (6)
Aspen	1598 (308)	666 (129)	320 (0)	175 (0)	156 (30)	666 (129)
Blackburnian Warbler						
Mxhdwd	16371 (1123)	3312 (227)	2108 (0)	1204 (0)	0	0
P.Birch	603 (15)	85 (2)	4 (0)	74 (0)	37 (1)	65 (2)
Aspen	1598 (25)	666 (11)	320 (0)	190 (0)	156 (2)	653 (10)
W.Spruce	780 (43)	261 (14)	261 (0)	0	0	0
Pine Warbler						
Red Pine	2361 (205)	267 (23)	8 (0)	0	259 (22)	0
Jack Pine	301 (3)	217 (2)	0	0	217 (2)	115 (1)

Table 9. Alternative 4 – Existing and potentially suitable acres in relation to harvest treatment design features. Estimates of numbers of affected individuals are in parenthesis.

<p>Chestnut-sided Warbler - Note: Suitable habitat for this species is regenerating hardwood forest, generally aspen or hardwood younger than 20 years. Commercial harvest is not proposed in stands of this age. However, habitat becomes suitable for this species once mature hardwood and aspen forest habitat is clearcut. Approximately 3644 acres of aspen, 126 acres mixed hardwood, and 7 acres of paper birch are younger than 20 years in the project area, and thus provides habitat for this species. (Note: no data was available for numbers of birds in regenerating hardwood or paper birch, estimates were calculated using aspen density figures)</p>						
a). Forest Type	b). Suitable ac. in project area	c). Potentially suitable ac. proposed for treatment	d). Suitable ac. proposed for treatment Dec.1 st - March	e). Suitable ac. proposed for treatment July 15 th - March	f). Suitable ac. available for treatment during the	Acres of habitat <u>made</u> suitable following

Northwest-Howell MIS Effects Analysis

			15th	15 th	nesting season	treatment
Mxhdwd	126 (81)	N/A	N/A	N/A	N/A	212 (136)
P.Birch	7 (5)	N/A	N/A	N/A	N/A	0
Aspen	3644 (2334)	N/A	N/A	N/A	N/A	565 (362)

Table 10. Summary of effects for Alternative 4 for all habitats combined.

Species	Estimated number of individuals (only) for habitats considered above	Range of numbers of individuals displaced in the short-term	Range of numbers of individuals displaced in the long-term	Range of numbers of individuals colonizing new habitat following clearcut treatment
Red-eyed Vireo	4964	0-76	194	0
Black-throated Green Warbler	4204	0-47	57	0
Ovenbird	4350	0-69	182	0
Blackburnian Warbler	1206	0-3	12	0
Pine Warbler	208	0-24	1	0
Chestnut-sided Warbler	2339	0	0	498

Table 11. Songbird density expressed per acre, for selected habitat types and ages.

Forest Type/Age	Black-throated Green W.	Ovenbird	Red-eyed Vireo	Blackburnian W.	Pine Warbler	Chestnut-sided W.
Aspen - Regenerating	---	---	---	---	---	.64054
Aspen - Mature	.03871	.19298	.19927	.01586	---	.14782
Birch - Immature	.10823	.12564	.13998	.02494	---	.03690
Hardwood - Mature	.24905	.24224	.27868	.06857	---	---
White Spruce - Immature	---	---	---	.05523	---	---
Red Pine - Immature	---	---	---	---	.08661	---
Jack Pine Mature	---	---	---	---	.00839	---