

Appendix G

MIS Effects Analysis – Warblers

Northwest Howell Project

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”, which is in the project file.
- 2). Acres are approximate, and exclude some minor (relatively few acres) forest types.
- 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 mitigation for harvest of stands from December 1st through March 15th. This mitigation measure 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. 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 stands 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. However, because they 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 of one individual per acre of suitable habitat. Likewise, 0.8 acre per individual for the ovenbird, 0.6 acres per individual for the chestnut-sided warbler, and 3.5 acres per individual for the pine warbler.
- 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 than just the species identified in this analysis. The MIS below are treated either as a group or individually, and where multiple species occupy the same habitat, such as the red-eyed vireo, black-throated green warbler, ovenbird, and blackburnian warbler, the habitat is assumed to be occupied by at

least one individual, but not more than 4.25 individuals, [1 red-eyed vireo, 1 black throated-green warbler and 1.25 ovenbirds, and 1 blackburnian warbler = 4.25 total birds per acre of suitable habitat] at the same time. The analysis thus expresses the potential affects as a range of 0 - 4.25 individuals per acre of suitable habitat specifically for this group. The numbers reflected below are approximate, based on the assumptions described above. The data provided should be viewed only as an index of potential affects MIS.

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 of habitat in relation to harvest treatment mitigation measures.

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, Black-throated Green Warbler, and Ovenbird						
Mxhdwd	16371	5896	3926	1502	468	0
P.Birch	603	85	49	16	21	65
Aspen	1598	638	392	0	246	638
Blackburnian Warbler						
Mxhdw	16371	3253	1786	1000	468	0
P.Birch	603	85	49	16	21	65
Aspen	1598	638	392	0	246	638
W. Spruce	780	261	41	75	144	0
Pine Warbler						
Red Pine	2361	267	31	39	197	0
Jack Pine	301	218	81	136	154	115

Table 3 Alternative 2 - Existing and potentially suitable acres of habitat in relation to harvest treatment mitigation measures.

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.						
Forest Type	Existing 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 made suitable following treatment
P.Birch	7	N/A	N/A	N/A	N/A	0
Aspen	3644	N/A	N/A	N/A	N/A	394

Table 4. Summary of effects for Alternative 2 for all habitats combined.

Species	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	0-735	165-703	0
Black-throated Green Warbler	0-735	165-703	0
Ovenbird	0-919	207-879	0

Species	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
Blackburnian Warbler	0-879	165-703	0
Pine Warbler	0-100	0-33	0
Chestnut-sided Warbler	0	0	657

Table 5. Alternative 3 - Existing and potentially suitable acres of habitat in relation to harvest treatment mitigation measures.

Forest Type	Suitable ac. in project area	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	Suitable ac. no longer suitable following treatment
Red-eyed Vireo, Black-throated Green Warbler, and Ovenbird						
Mxhdw	16371	4015	2938	1077	0	0
P.Birch	603	85	4	73	8	65
Aspen	1598	313	207	29	76	313
Blackburnian Warbler						
Mxhdwd	16371	2538	1638	900	0	0
P.Birch	603	85	4	73	8	65
Aspen	1598	313	207	29	76	313
W.Spruce	780	260	260	0	0	0
Pine Warbler						
Red Pine	2361	266	8	0	258	0
Jack Pine	301	217	0	0	217	115

Table 6. Alternative 3 - Existing and potentially suitable acres of habitat in relation to harvest treatment mitigation measures.

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.

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	N/A	N/A	N/A	N/A	0
Aspen	3644	N/A	N/A	N/A	N/A	0

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

Species	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	0-84	89-378	0
Black-throated Green Warbler	0-84	89-378	0
Ovenbird	0-105	111-473	0
Blackburnian Warbler	0-84	89-378	0
Pine Warbler	0-136	0-33	0
Chestnut-sided Warbler	0	0	0

Table 8. Alternative 4 - Existing and potentially suitable acres of habitat in relation to harvest treatment mitigation measures.

Forest Type	Suitable ac. in project area	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	Suitable ac. no longer suitable following treatment
Red-eyed Vireo, Black-throated Green Warbler, and Ovenbird						
Mxhdwd	16371	6054	4156	1740	158	195
P.Birch	603	85	4	74	8	49
Aspen	1598	666	320	175	156	666
Blackburnian Warbler						
Mxhdwd	16371	3312	2108	1204	0	0

Forest Type	Suitable ac. in project area	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	Suitable ac. no longer suitable following treatment
P.Birch	603	85	4	74	37	65
Aspen	1598	666	320	190	156	653
W.Spruce	780	261	261	0	0	0
Pine Warbler						
Red Pine	2361	267	8	0	259	0
Jack Pine	301	217	0	0	217	115

Table 9. Alternative 4 - Existing and potentially suitable acres of habitat in relation to harvest treatment mitigation measures.

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.

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
Mxhdwd	126	N/A	N/A	N/A	N/A	212
P.Birch	7	N/A	N/A	N/A	N/A	0
Aspen	3644	N/A	N/A	N/A	N/A	565

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

Species	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	0- 322	214-910	0
Black-throated Green Warbler	0- 322	214-910	0
Ovenbird	0- 403	268-1138	0
Blackburnian Warbler	0- 322	214-910	0
Pine Warbler	0-136	0-33	0
Chestnut-sided Warbler	0	0	1295