

Northern Minnesota
(summary of TreeAtlas results 2013-see companion file for keys to interpret)
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		DISTRIB Results (suitable habitat)																						
		Current IV		Modeled IV						Future : Current						Change Class		Modifying Factors						
		Current Modeled		2010 - 2039		2040 - 2069		2070 - 2099		2010 - 2039		2040 - 2069		2070 - 2099				Positive Traits		Negative Traits		DistFact	BioFact	Adapt
FIA	Common Name	FIA IV	Current Modeled	PCM B1	GFDL A1FI	PCM B1	GFDL A1FI	PCM B1	GFDL A1FI	PCM B1	GFDL A1FI	PCM B1	GFDL A1FI	PCM B1	GFDL A1FI	PCM B1	GFDL A1FI	PCM B1	GFDL A1FI					
951	American basswood	635	761	736	927	771	1031	840	1034	0.97	1.22	1.01	1.36	1.10	1.36	No Change	Sm. Inc.	COL	FTK		0.31	0.16	4.6	
531	American beech	0	62	36	85	54	261	76	254	0.58	1.37	0.87	4.21	1.23	4.10	Sm. Inc.	Lg. Inc.	COL	INS FTK		-1.14	0.03	3.6	
972	American elm	505	646	587	864	666	1487	793	1921	0.91	1.34	1.03	2.30	1.23	2.97	Sm. Inc.	Lg. Inc.	EHS	DISE INS		-0.8	0.3	4.0	
391	American hornbeam	64	73	68	118	83	219	132	222	0.93	1.62	1.14	3.00	1.81	3.04	Sm. Inc.	Lg. Inc.	COL SES	FTK DRO		0.56	0.62	5.1	
935	American mountain-ash	10	1	4	1	2	0	1	0	4.00	1.00	2.00	0	1.00	0	No Change	Lg. Dec.		FTK COL EHS		-0.23	-1.62	3.1	
12	Balsam fir	1752	1767	1287	579	1049	101	908	59	0.73	0.33	0.59	0.06	0.51	0.03	Sm. Dec.	Lg. Dec.	COL	INS FTK DRO		-3	-0.35	2.7	
741	Balsam poplar	1130	1091	538	445	424	349	272	424	0.49	0.41	0.39	0.32	0.25	0.39	Lg. Dec.	Lg. Dec.	FRG VRE	COL DRO		0.13	-0.59	4.0	
743	Bigtooth aspen	307	370	365	366	381	296	426	249	0.99	0.99	1.03	0.80	1.15	0.67	No Change	Sm. Dec.	FRG DISP	COL DRO FTK		1.01	0.16	5.1	
402	Bitternut hickory	13	26	29	118	52	132	117	162	1.12	4.54	2.00	5.08	4.50	6.23	Lg. Inc.	Lg. Inc.	DRO	COL		2.17	-0.83	5.6	
543	Black ash	1492	1386	1339	1176	1268	943	1207	913	0.97	0.85	0.92	0.68	0.87	0.66	No Change	Sm. Dec.		INS COL DISP DRO SES FTK ESP		-1.31	-3	1.7	
762	Black cherry	129	166	252	435	328	659	515	561	1.52	2.62	1.98	3.97	3.10	3.38	Lg. Inc.	Lg. Inc.	DRO EHS	INS FTK COL		-1.56	-0.32	3.0	
408	Black hickory	0	0	0	0	0	28	0	107	NA	NA	NA	New	NA	New	NA	New Habitat		EHS COL		1.04	-2.27	4.1	
901	Black locust	0	0	2	22	3	270	8	461	New	New	New	New	New	New	New Habitat	New Habitat		COL INS		0	-0.59	3.8	
837	Black oak	7	62	117	338	217	465	317	567	1.89	5.45	3.50	7.50	5.11	9.15	Lg. Inc.	Lg. Inc.	DRO EHS	INS DISE		0.51	0.42	4.9	
95	Black spruce	1617	1567	916	396	691	99	529	85	0.59	0.25	0.44	0.06	0.34	0.05	Lg. Dec.	Lg. Dec.	COL EHS DISP	FTK INS DRO		-2.14	1.24	4.3	
602	Black walnut	1	7	8	88	26	393	68	523	1.14	12.57	3.71	56.14	9.71	74.71	Lg. Inc.	Lg. Inc.	SES	COL DRO		0.35	-0.83	4.0	
922	Black willow	24	77	83	226	108	512	191	544	1.08	2.94	1.40	6.65	2.48	7.07	Lg. Inc.	Lg. Inc.		COL FTK DRO		-0.31	-2.13	2.8	
693	Blackgum	0	0	0	0	0	19	0	53	NA	NA	NA	New	NA	New	NA	New Habitat	COL FTK			1.46	0.83	5.9	
824	Blackjack oak	0	0	0	0	0	82	0	179	NA	NA	NA	New	NA	New	NA	New Habitat	DRO SES FRG VRE	COL FTK		1.56	0.21	5.6	
313	Boxelder	136	347	365	808	409	1124	461	1359	1.05	2.33	1.18	3.24	1.33	3.92	Sm. Inc.	Lg. Inc.	SES DISP DRO COL TGR	FTK		2.39	2.06	7.4	
823	Bur oak	961	1103	999	1523	1058	1636	1157	1801	0.91	1.38	0.96	1.48	1.05	1.63	No Change	Sm. Inc.	DRO FTK			2.77	-0.16	6.4	
601	Butternut	29	13	20	27	22	0	24	1	1.54	2.08	1.69	0	1.85	0.08	No Change	Lg. Dec.		FTK COL DRO DISE		-1.41	-1.27	2.3	
832	Chestnut oak	0	1	0	0	0	29	0	36	0	0	0	29.00	0	36.00	Lg. Dec.	Lg. Inc.	SES VRE EHS FTK	INS DISE		1.39	1.29	6.1	
826	Chinkapin oak	0	0	0	6	1	53	2	119	NA	New	New	New	New	New	New Habitat	New Habitat	TGR			1.18	-0.66	4.8	
763	Chokecherry	168	195	175	194	174	197	171	171	0.90	1.00	0.89	1.01	0.88	0.88	No Change	No Change		COL		0.18	-0.86	3.8	
742	Eastern cottonwood	8	81	47	205	76	1047	132	1315	0.58	2.53	0.94	12.93	1.63	16.24	Sm. Inc.	Lg. Inc.	TGR	INS COL DISE FTK		0.22	-0.75	3.9	
261	Eastern hemlock	0	20	80	95	92	149	153	132	4.00	4.75	4.60	7.45	7.65	6.60	Sm. Inc.	Sm. Inc.	COL	INS DRO		-1.34	-0.88	2.7	
701	Eastern hophornbeam	241	322	341	449	362	535	412	516	1.06	1.39	1.12	1.66	1.28	1.60	Sm. Inc.	Sm. Inc.	COL EHS TGR			1.72	1.29	6.4	
68	Eastern red cedar	32	17	56	396	88	1819	135	2045	3.29	23.29	5.18	107.00	7.94	120.29	Sm. Inc.	Lg. Inc.	DRO	FTK COL INS		0.56	-1.48	3.9	
471	Eastern redbud	0	0	0	1	0	45	0	95	NA	New	NA	New	NA	New	NA	New Habitat				0.9	-0.03	4.9	
129	Eastern white pine	246	293	334	411	351	514	412	417	1.14	1.40	1.20	1.75	1.41	1.42	Sm. Inc.	Sm. Inc.	DISP	DRO FTK INS		-1.97	0.13	3.3	
491	Flowering dogwood	0	0	0	0	0	82	0	114	NA	NA	NA	New	NA	New	NA	New Habitat	COL			0.07	0.95	5.0	
379	Gray birch	0	3	1	3	2	15	3	13	0.33	1.00	0.67	5.00	1.00	4.33	No Change	Sm. Inc.	DISP EHS	FTK COL INS DISE		-1.14	0.03	3.6	
544	Green ash	344	615	558	731	600	1154	651	1260	0.91	1.19	0.98	1.88	1.06	2.05	No Change	Lg. Inc.		INS FTK COL		-0.13	-0.25	4.0	
462	Hackberry	4	30	48	244	80	725	143	909	1.60	8.13	2.67	24.17	4.77	30.30	Lg. Inc.	Lg. Inc.	DRO	FTK		1.66	0.3	5.7	
552	Honeylocust	0	2	1	46	5	318	25	468	0.50	23.00	2.50	159.00	12.50	234.00	Lg. Inc.	Lg. Inc.		COL		1.91	-0.54	5.5	
105	Jack pine	884	893	806	822	829	619	807	607	0.90	0.92	0.93	0.69	0.90	0.68	No Change	Sm. Dec.	DRO	COL INS		1.87	-1.24	5.2	
131	Loblolly pine	0	0	0	0	0	10	0	12	NA	NA	NA	New	NA	New	NA	New Habitat	EHS	INS INP DRO COL		-0.51	-0.66	3.4	
409	Mockernut hickory	0	0	0	0	0	49	0	147	NA	NA	NA	New	NA	New	NA	New Habitat		FTK		1.69	-0.28	5.4	
319	Mountain maple	164	151	113	37	77	3	46	0	0.75	0.25	0.51	0.02	0.31	0	Lg. Dec.	Lg. Dec.	COL VRE EHS	DRO FTK		0.8	1.48	5.9	
452	Northern catalpa	0	8	3	3	4	5	6	53	0.38	0.38	0.50	0.63	0.75	6.63	No Change	Lg. Inc.		COL EHS		0.93	-1.58	4.2	
809	Northern pin oak	110	108	115	235	175	214	263	224	1.07	2.18	1.62	1.98	2.44	2.07	Lg. Inc.	Lg. Inc.	DRO FTK	COL		2.52	-0.56	6.0	

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		FIA IV	Current Modeled	2010 - 2039		2040 - 2069		2070 - 2099		2010 - 2039		2040 - 2069		2070 - 2099		PCM B1	GFDL A1FI	Positive Traits	Negative Traits	DistFact	BioFact	Adapt
833	Northern red oak	884	924	1303	1817	1406	1356	1581	1090	1.41	1.97	1.52	1.47	1.71	1.18	Sm. Inc.	No Change	INS		1.39	0.13	5.4
241	Northern white-cedar	674	720	552	328	452	341	451	333	0.77	0.46	0.63	0.47	0.63	0.46	Sm. Dec.	Lg. Dec.	COL	FTK	-0.7	0.49	4.2
331	Ohio buckeye	0	0	0	4	0	60	0	87	NA	New	NA	New	NA	New	NA	New Habitat	COL	SES FTK	0.38	-1.92	3.5
641	Osage-orange	0	13	14	43	20	106	48	189	1.08	3.31	1.54	8.15	3.69	14.54	No Change	Lg. Inc.	EHS ESP		2.32	0.33	6.3
822	Overcup oak	0	1	0	0	0	0	0	0	0	0	0	0	0	0	Lg. Dec.	Lg. Dec.		FTK INS DRO	-0.51	-0.95	3.2
375	Paper birch	1834	1773	1737	1453	1649	527	1550	406	0.98	0.82	0.93	0.30	0.87	0.23	No Change	Lg. Dec.	FRG DISP EHS	FTK COL INS DRO	-1.72	0.18	3.4
921	Peachleaf willow	9	7	1	31	0	21	0	165	0.14	4.43	0	3.00	0	23.57	Lg. Dec.	Lg. Inc.		COL	0.13	-1.65	3.4
404	Pecan	0	70	0	0	0	11	0	42	0	0	0	0.16	0	0.60	Lg. Dec.	Sm. Dec.		FTK INS COL	-1.24	-1.7	2.2
403	Pignut hickory	0	0	0	2	0	55	1	165	NA	New	NA	New	New	New	New Habitat	New Habitat	EHS	INS DRO	0.22	0.4	4.7
761	Pin cherry	95	84	85	97	73	126	56	83	1.01	1.16	0.87	1.50	0.67	0.99	Sm. Dec.	No Change	SES FRG FTK	COL	0.45	-0.68	4.2
830	Pin oak	0	2	2	2	2	40	5	108	1.00	1.00	1.00	20.00	2.50	54.00	Sm. Inc.	Lg. Inc.		FTK COL INS DISE	-0.65	-1.39	2.8
126	Pitch pine	0	0	1	0	0	23	0	23	New	NA	NA	New	NA	New	NA	New Habitat		COL INS	0.56	-1.79	3.8
835	Post oak	0	0	0	0	0	299	0	587	NA	NA	NA	New	NA	New	NA	New Habitat	DRO TGR FTK	COL INS DISE	2.17	-0.59	5.7
746	Quaking aspen	6076	5942	4801	3927	4426	1703	3815	1374	0.81	0.66	0.75	0.29	0.64	0.23	Sm. Dec.	Lg. Dec.	TGR FRG EHS	COL DRO FTK	0.56	0.01	4.7
316	Red maple	862	977	1292	1246	1436	1523	1739	1475	1.32	1.28	1.47	1.56	1.78	1.51	Sm. Inc.	Sm. Inc.	SES EHS ESP	COL DISP	3	3	8.5
682	Red mulberry	0	8	14	81	23	428	45	624	1.75	10.13	2.88	53.50	5.63	78.00	Sm. Inc.	Lg. Inc.	COL DISP	FTK	0.07	0.59	4.7
125	Red pine	507	557	556	595	567	735	589	726	1.00	1.07	1.02	1.32	1.06	1.30	No Change	Sm. Inc.		INS COL DISP	0.86	-2.42	3.9
97	Red spruce	0	17	18	11	15	9	15	8	1.06	0.65	0.88	0.53	0.88	0.47	No Change	Sm. Dec.	EHS COL	FTK SES	-1.28	-0.62	2.9
373	River birch	2	1	1	18	7	6	8	7	1.00	18.00	7.00	6.00	8.00	7.00	Sm. Inc.	Sm. Inc.	DISP	FTK COL DRO	-0.45	-0.32	3.7
977	Rock elm	17	12	10	8	10	37	11	52	0.83	0.67	0.83	3.08	0.92	4.33	No Change	Sm. Inc.		EHS ESP SES	-0.2	-2.61	2.8
107	Sand pine	0	1	0	0	0	0	0	0	0	0	0	0	0	0	Lg. Dec.	Lg. Dec.		DRO INS FTK	-1.09	-1.14	2.7
931	Sassafras	0	0	0	2	0	86	1	161	NA	New	NA	New	New	New	New Habitat	New Habitat		COL FTK	0.48	-0.64	4.2
806	Scarlet oak	0	0	0	2	0	18	1	77	NA	New	NA	New	New	New	New Habitat	New Habitat	VRE EHS ESP	INS DISE FTK	-0.35	0.71	4.6
356	Serviceberry	0	2	1	1	1	12	1	12	0.50	0.50	0.50	6.00	0.50	6.00	Sm. Dec.	Sm. Inc.	COL SES	DRO	-0.38	0.98	4.8
407	Shagbark hickory	0	20	25	144	60	297	113	322	1.25	7.20	3.00	14.85	5.65	16.10	Sm. Inc.	Lg. Inc.		INS FTK	-0.2	0.37	4.4
817	Shingle oak	0	0	0	1	0	34	0	50	NA	New	NA	New	NA	New	NA	New Habitat	EHS	COL	1.31	-0.74	4.9
317	Silver maple	55	80	88	277	149	551	237	654	1.10	3.46	1.86	6.89	2.96	8.18	Lg. Inc.	Lg. Inc.	DISP SES COL	DRO FTK	0.13	1.63	5.6
111	Slash pine	0	0	1	0	0	18	0	19	New	NA	NA	New	NA	New	NA	New Habitat	DISP FTK	COL INS	1.14	-1.67	4.3
975	Slippery elm	36	51	85	325	126	723	209	811	1.67	6.37	2.47	14.18	4.10	15.90	Lg. Inc.	Lg. Inc.	COL	FTK DISE	0.03	0.68	4.8
315	Striped maple	6	14	9	17	12	32	16	33	0.64	1.21	0.86	2.29	1.14	2.36	No Change	No Change	COL SES	DRO	0.96	0.25	5.1
318	Sugar maple	630	761	1169	1376	1289	1208	1519	971	1.54	1.81	1.69	1.59	2.00	1.28	Sm. Inc.	Sm. Inc.	COL EHS		0.86	1.34	5.8
461	Sugarberry	0	4	2	2	2	7	2	42	0.50	0.50	0.50	1.75	0.50	10.50	Sm. Dec.	Lg. Inc.	COL SES	FTK	-0.17	0.64	4.6
804	Swamp white oak	4	1	1	7	1	78	2	95	1.00	7.00	1.00	78.00	2.00	95.00	No Change	Lg. Inc.			1.04	-0.3	4.9
372	Sweet birch	0	1	1	0	0	28	1	32	1.00	0	0	28.00	1.00	32.00	No Change	Lg. Inc.	DISP	FTK COL INS DISE	-1.28	-0.32	3.2
611	Sweetgum	0	0	0	0	0	33	0	58	NA	NA	NA	New	NA	New	NA	New Habitat	VRE EHS	FTK COL DRO	-0.41	0.18	4.1
71	Tamarack (native)	965	944	894	756	805	556	700	535	0.95	0.80	0.85	0.59	0.74	0.57	Sm. Dec.	Sm. Dec.		FTK COL INS	-0.48	-1.24	3.1
541	White ash	40	45	82	123	121	427	219	417	1.82	2.73	2.69	9.49	4.87	9.27	Lg. Inc.	Lg. Inc.		INS FTK COL	-2.01	-0.54	2.7
802	White oak	93	124	215	525	336	713	512	715	1.73	4.23	2.71	5.75	4.13	5.77	Lg. Inc.	Lg. Inc.	EHS ESP TGR FTK	INS DISE	1.66	1	6.1
94	White spruce	297	316	243	185	212	138	199	169	0.77	0.59	0.67	0.44	0.63	0.54	Sm. Dec.	Sm. Dec.		INS	0.07	-0.62	3.9
766	Wild plum	3	3	5	10	3	134	16	213	1.67	3.33	1.00	44.67	5.33	71.00	Sm. Inc.	Lg. Inc.		COL	0.48	-1.34	3.9
371	Yellow birch	95	126	170	149	179	84	269	79	1.35	1.18	1.42	0.67	2.14	0.63	Lg. Inc.	Sm. Dec.	DISP	FTK INS DISE	-1.38	-0.03	3.4
621	Yellow-poplar	0	0	0	0	0	5	0	48	NA	NA	NA	New	NA	New	NA	New Habitat	SES DISP EHS	INP	0.13	1.26	5.3