

APPENDIX E.

TABLE E1. Comparisons of the initialized density (trees/ha) from LANDIS PRO at 0 simulation year against observed values from USDA Forest Service Inventory and Analysis (FIA) data for each ecological section in the CHFR using Chi-Square test ($\alpha=0.05$).

Species	Ozark Mountains		ILP-Transition Hills		ILP-Shawnee Hills		ILP-Highland Rim		ILP-Bluegrass		Central Till plains-Oak-hickory		Arkansas Valley	
	FIA	LANDIS PRO	FIA	LANDIS PRO	FIA	LANDIS PRO	FIA	LANDIS PRO	FIA	LANDIS PRO	FIA	LANDIS PRO	FIA	LANDIS PRO
White oak	52.78	54.27	12.94	13.09	14.99	12.86	17.57	19.41	4.05	5.12	8.83	9.46	11.4	27.99
Chestnut oak	0.02	0.01	9.92	5.60	2.50	3.74	7.59	8.39	0.84	1.84	0.05	0.08	0.00	0.00
Post oak	40.59	40.9	1.38	1.81	4.32	2.93	3.79	4.88	0.10	0.32	1.65	1.83	59.00	59.53
Northern red oak	10.56	11.10	4.51	5.71	4.79	4.71	5.28	4.36	7.07	6.95	2.15	2.89	3.43	10.14
Black oak	41.35	38.28	9.30	8.93	14.03	10.2	4.11	5.75	3.22	3.56	5.20	7.27	8.73	14.55
Scarlet oak	6.12	6.87	1.33	1.36	1.60	1.47	3.73	4.04	1.32	1.65	0.03	0.09	0.00	0.00
Southern red oak	3.12	2.97	0.41	0.73	1.72	1.5	3.32	4.44	0.07	0.09	0.12	0.10	9.28	9.06
Red maple	12.95	14.43	33.00	32.49	24.63	37.6	21.96	26.09	14.36	19.88	12.77	13.1	12.55	22.68
Sugar maple	13.82	15.01	76.39	81.99	64.19	66.52	61.10	47.54	46.57	55.35	24.00	30.58	0.30	0.41
Yellow poplar	0.41	0.45	47.44	38.17	26.91	28.29	36.99	34.4	8.47	11.66	2.88	8.87	0.03	0.04
American beech	0.55	0.62	36.26	33.20	17.02	22.66	17.83	13.98	6.23	10.22	2.60	7.14	0.40	0.90
Eastern hemlock	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Black cherry	8.55	8.56	10.30	10.99	11.92	10.68	11.81	11.12	9.78	10.72	20.08	18.62	7.69	9.02
White ash	9.25	8.45	9.55	15.09	13.33	11.33	10.92	11.62	29.68	29.29	13.64	12.41	2.67	4.06
Pignut hickory	5.39	5.19	8.85	8.64	11.04	10.89	14.67	14.58	3.97	3.47	10.82	12.88	0.34	0.6
Mockernut hickory	23.53	23.98	2.27	3.04	4.13	5.22	8.14	10.37	3.80	3.81	7.35	3.73	20.33	22.57
Shagbark hickory	5.16	7.16	3.10	5.84	1.27	5.33	5.70	8.78	3.34	5.98	9.78	14.29	0.86	1.03
SweetGum	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Shortleaf pine	13.31	14.03	0.32	0.84	2.18	1.67	0.46	1.03	0.13	0.24	0.67	1.22	41.92	54.62
Loblolly pine	0.19	0.58	0.02	0.03	1.66	3.45	8.10	10.07	0.00	0.00	0.01	0.01	14.49	16.24
Eastern white pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Red Cedar	60.29	48.77	36.44	27.51	32.37	24.95	49.30	46.58	66.94	67.02	3.84	3.63	66.25	56.83
Red spruce	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pseudo species	278.75	264.89	198.40	187.75	212.3	216.36	253.9	240.87	239.30	235.81	317.98	265.71	224.53	243.70
Chi-Square test (X^2)	5.69		9.20		12.54		2.84		8.84		12.85		9.79	

Species	Boston Mountains		Ouachita Mountains		Southern Unglaciaded Allegheny Plateau		Western Glaciaded Allegheny Plateau		Northern Ridge and Valleys		Allegheny Mountains		Northern Cumberland Mountains	
	FIA	LANDIS PRO	FIA	LANDIS PRO	FIA	LANDIS PRO	FIA	LANDIS PRO	FIA	LANDIS PRO	FIA	LANDIS PRO	FIA	LANDIS PRO
White oak	34.85	40.57	44.75	34.08	14.09	13.33	1.68	2.81	16.40	13.61	9.80	10.68	13.57	13.13
Chestnut oak	0.04	0.06	0.00	0.00	7.85	10.52	0.37	1.17	42.92	38.57	13.39	22.11	19.80	22.45
Post oak	31.26	36.88	73.56	68.97	--	--	--	--	--	--	--	--	--	--
Northern red oak	18.70	16.65	13.54	13.02	10.16	11.37	12.33	9.64	17.27	16.55	17.89	18.41	9.74	9.65
Black oak	15.49	26.30	10.88	8.91	8.010	8.37	1.81	2.28	10.59	8.21	4.58	6.97	8.36	8.61
Scarlet oak	0.20	0.37	0.00	0.00	2.59	3.33	0.52	0.71	9.70	9.89	4.42	6.69	7.23	6.88
Southern red oak	5.14	9.20	8.72	7.72	--	--	--	--	--	--	--	--	--	--
Red maple	29.03	22.95	34.38	29.86	74.57	83.10	96.10	91.96	84.15	86.65	88.73	85.42	105.94	91.83
Sugar maple	2.07	3.89	0.03	0.03	48.20	42.58	60.92	58.99	19.19	23.48	53.91	47.4	64.00	50.81
Yellow poplar	0.20	0.27	0.00	0.00	23.35	21.65	8.95	7.34	11.32	13.02	14.91	13.94	55.53	38.11
American beech	4.27	2.37	0.29	0.43	19.65	17.75	19.94	16.41	4.53	10.99	45.83	30.14	48.51	32.62
Eastern hemlock	--	--	--	--	3.36	6.35	9.97	11.13	12.32	13.13	10.88	10.04	19.62	11.71
Black cherry	12.56	10.06	11.79	10.3	29.88	27.50	44.79	46.1	15.69	13.98	36.37	31.17	7.74	8.82
White ash	7.28	7.64	4.25	2.76	17.30	14.30	23.62	19.3	12.52	10.97	10.43	10.73	8.42	7.98
Pignut hickory	0.59	1.61	1.20	0.44	6.52	6.44	0.67	0.88	11.12	9.32	5.50	7.29	9.11	8.11
Mockernut hickory	22.64	26.25	38.49	28.68	--	--	--	--	--	--	--	--	--	--
Shagbark hickory	3.89	4.65	0.30	0.50	--	--	--	--	--	--	--	--	--	--
SweetGum	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Shortleaf pine	24.12	23.14	110.47	97.88	--	--	--	--	--	--	--	--	--	--
Loblolly pine	5.04	3.90	85.08	36.49	1.70	0.58	0.01	0.01	0.70	0.64	0.10	0.22	0.06	0.05
Eastern white pine	--	--	--	--	3.52	4.85	2.32	2.32	19.84	15.83	14.4	11.02	2.00	5.72
Red Cedar	33.90	53.96	26.67	29.20	1.41	0.80	0.01	0.01	5.03	4.48	0.50	1.25	0.50	1.20
Red spruce	--	--	--	--	0.50	1.38	0.10	0.16	1.00	3.22	19.28	9.54	0.20	0.57
Pseudo species	271.64	282.04	275.05	220.28	216.8	197.16	212.3	172.92	225.5	205.28	192.91	196.59	273	242.67
Chi-Square (X ²)	6.84		1.96		4.96		7.61		7.26		5.14		9.42	