

## APPENDIX A.

TABLE A1. Species vital attributes used in the ecosystem model LINKAGES II in the Central Hardwood Forest Region, U.S.A.

Species	Growth degree days		Frost tolerance	Nitrogen coefficients			Crown area coefficients		Leaf litter quality	Leaf weight per crown area
	maximum	minimum		cm1	cm2	cm3	stla	stlb		
American beech	3280	279	-22	2.94	120	0.00200	0.904	0.095	8	440
Black cherry	4554	812	-19	2.9	100	0.00175	0.729	0.044	3	173
Black oak	3987	1206	-17	2.87	180	0.00207	0.904	0.095	9	440
Chestnut oak	3894	1046	-14	2.87	180	0.00207	0.904	0.095	9	440
Eastern hemlock	3258	279	-20	2.87	180	0.00207	0.804	0.069	6	440
Eastern redcedar	5229	1327	-19	2.87	180	0.00207	0.804	0.069	6	440
Eastern white pine	3258	807	-21	2.87	180	0.00207	0.804	0.069	12	440
Loblolly pine	6398	2234	-7	2.87	180	0.00207	0.804	0.069	12	440
Mockernut hickory	4996	1206	-12	2.94	120	0.00200	0.804	0.069	4	248
Northern red oak	3889	832	-23	2.94	120	0.00200	0.904	0.095	9	440
Pignut hickory	4408	1046	-13	2.94	120	0.00200	0.804	0.069	4	248
Post oak	5766	1845	-12	2.87	180	0.00207	0.904	0.095	5	440
Red maple	6375	697	-23	2.87	180	0.00207	0.814	0.078	2	440
Red spruce	2155	279	-22	2.87	180	0.00207	0.804	0.069	11	440
Scarlet oak	3586	1046	-14	2.87	180	0.00207	0.904	0.095	5	440
Shagbark hickory	3953	1233	-18	2.94	120	0.00200	0.804	0.069	4	248
Shortleaf pine	4738	2234	-9	2.87	180	0.00207	0.804	0.069	12	440
Southern red oak	5165	1845	-9	2.94	120	0.00200	0.904	0.095	9	440
Sugar maple	3280	620	-23	2.94	120	0.00200	0.814	0.078	2	440
SweetGum	6398	1856	-9	2.9	100	0.00175	0.814	0.078	2	440
White ash	4820	1140	-12	2.9	100	0.00175	0.814	0.078	2	440
White oak	4074	757	-20	2.9	100	0.00175	0.428	0.074	2	440
Yellow-poplar	4440	1203	-18	2.94	120	0.00200	0.904	0.095	5	440