Tian N, Gan J, Pelkki M (2022). **Stem profile of red oaks in a bottomland hardwood restoration plantation forest in the Arkansas Delta**
iForest – Biogeosciences and Forestry – doi: 10.3832/ifor4057-015

Supplementary Material

Tab. S1 - Parameter estimates for all seven profile models for oak species of CBO, NUT, and SHU. CBO denotes cherry bark oak *(Quercus pagoda Raf*), NUT represents Nuttall oak (*Quercus texana Buckley*), and SHU indicates Shumard oak (*Quercus shumardii Buckl*). MB denotes Max and Burkhart (1976), CAO represents Cao (2009), CSS indicates Clark, Souter, and Schlaegel (1991), OCAO_F stands for optimized Cao (2009) -- modified MB to pass through DBH and FC at FC height, OCAO_R denotes optimized Cao (2009) -- modified MB to pass through DBH and FC at relative height, POLY3 indicates the 3rd-order polynomial joined at breast height to 5th order polynomial, and POLY2 represents the 2nd-order polynomial joined at breast height to 5th-order polynomial. DIB indicates diameter-inside-bark, and DOB denotes diameter-inside-bark.

Model	Oak species	CBO		NUT		SHU	
	Parameter	DOB	DIB	DOB	DIB	DOB	DIB
MB	b_1	46.04	3.37	50.87	10.18	1.10	2.34
	b_2	-24.95	-2.66	-28.51	-6.66	-1.44	-2.06
	b_3	21.98	18.88	18.87	12.47	14.56	7.70
	b_4	24.61	2.41	28.21	6.12	1.42	1.73
	alpha	0.15	0.15	0.164	0.197	0.163	0.213
	beta	0.95	0.81	0.909	0.844	0.695	0.834
	No. Obs.	188	188	169	169	154	154
CAO	b_1	4.694	4.269	7.378	7.976	1.223	4.422
	b_2	-3.438	-3.170	-5.257	-5.488	-7.596	-3.228
	b_3	28.874	23.993	19.102	17.628	31.02	47.15
	b_4	3.152	2.960	4.919	5.025	7.610	2.994
	alpha	0.128	0.130	0.165	0.165	0.118	0.096
	beta	0.834	0.819	0.786	0.816	0.863	0.846
	No. Obs.	168	168	149	149	134	134
CSS	b_1	29.95	59.27	-6.44	2.70	31.89	69.99
	b_2	1.09	1.60	0.399	0.229	1.225	1.598
	b_3	260.08	421.46	1677.13	2495.14	783.15	1525.53
	b_4	16.32	13.17	10.26	29.11	4.571	11.745
	b_5	6.31	6.32	1.535	1.000	10.00	10.00
	alpha	0.967	0.967	0.562	0.990	0.990	0.990
	No. Obs.	148	148	129	129	114	114
OCAO_F	b_1	6.633	11.959	4.716	1.903	7.228	7.671
	b_2	-4.520	-7.336	-3.766	-2.065	-4.930	-5.133
	b_3	28.141	23.352	19.442	18.006	30.461	48.153
	b_4	4.271	7.144	3.529	2.053	5.034	5.157
	alpha	0.129	0.131	0.161	0.155	0.117	0.092
	beta	0.845	0.878	0.730	0.602	0.815	0.825
	No. Obs.	148	148	129	129	114	114
OCAO_R	b_1	34.072	2.689	8.965	8.745	12.23	4.422
	b_2	-18.844	-2.292	-6.126	-5.880	-7.596	-3.228

Model	Oak species Parameter	CBO		NUT		SHU	
		DOB	DIB	DOB	DIB	DOB	DIB
	b_3	28.172	23.352	18.368	16.711	31.019	47.150
	b_4	18.525	2.049	5.683	5.272	7.610	2.994
	alpha	0.130	0.132	0.171	0.174	0.118	0.096
	beta	0.934	0.789	0.811	0.837	0.863	0.846
	No. Obs.	165	165	145	145	134	134
POLY3	b_1	135.009	176.075	38.098	-62.897	59.033	-55.252
	b_2	-639.457	-874.103	-40.041	255.96	-207.804	112.891
	b_3	-83.283	-72.722	-65.724	-163.083	-121.693	-223.918
	b_4	88.840	77.436	68.201	177.457	138.921	246.793
	b_5	-34.721	-30.237	-26.178	-70.273	-57.525	-99.075
	No. Obs.	148	148	129	129	114	114
POLY2	b_1	20.304	19.280	29.225	-6.176	5.797	-26.331
	b_2	-90.954	-83.208	-68.701	-144.055	-150.498	-208.270
	b_3	97.580	89.383	71.621	155.594	171.80	228.931
	b_4	-38.295	-35.122	-27.589	-61.250	-71.049	-91.729
	No. Obs.	148	148	129	129	114	114

Fig. S1 - Residue plots of DOB and DIB stem profile of all seven models for species of CBO.

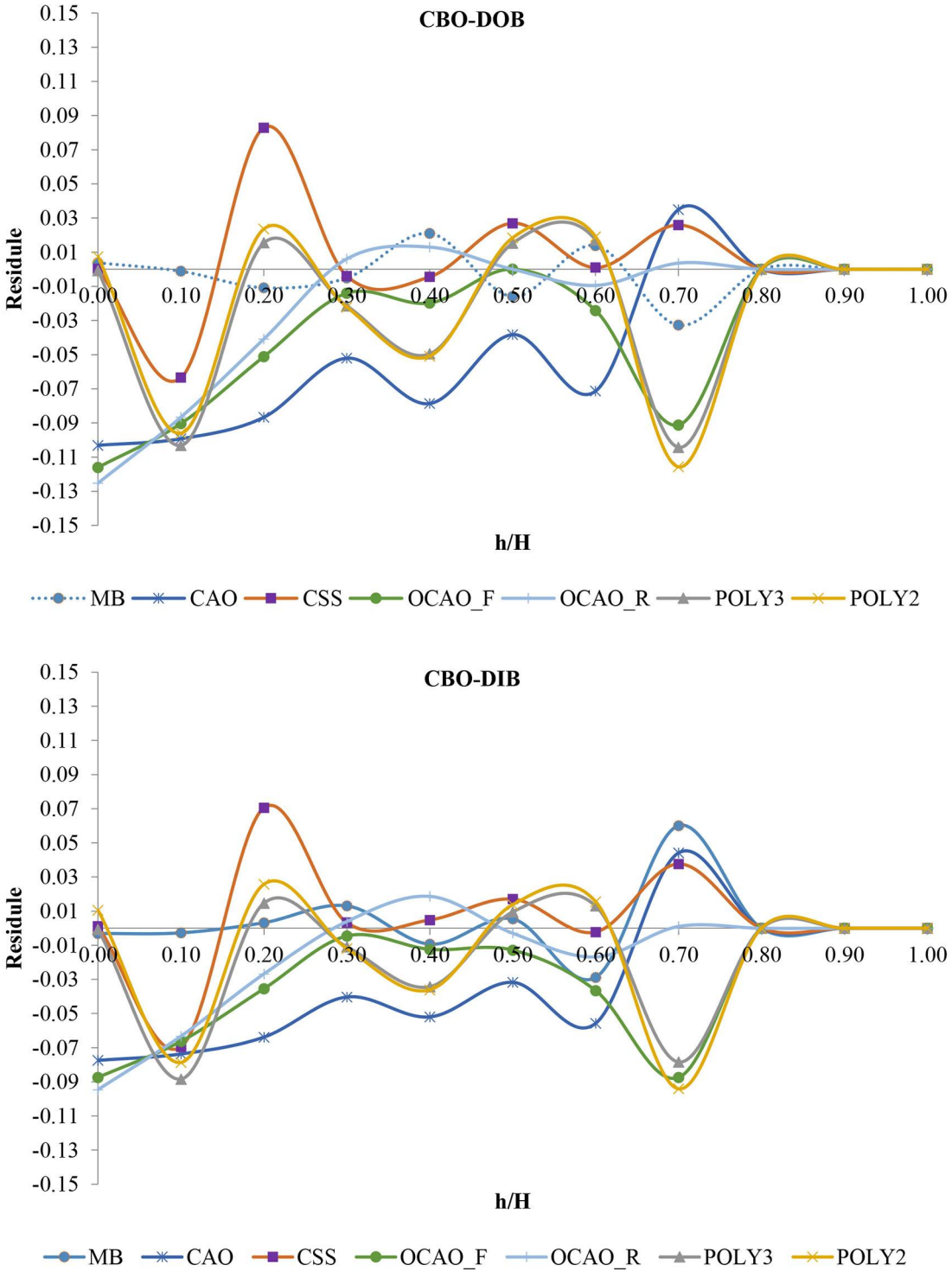

Fig. S2 - Residue plots of DOB and DIB stem profile of all seven models for species of NUT.

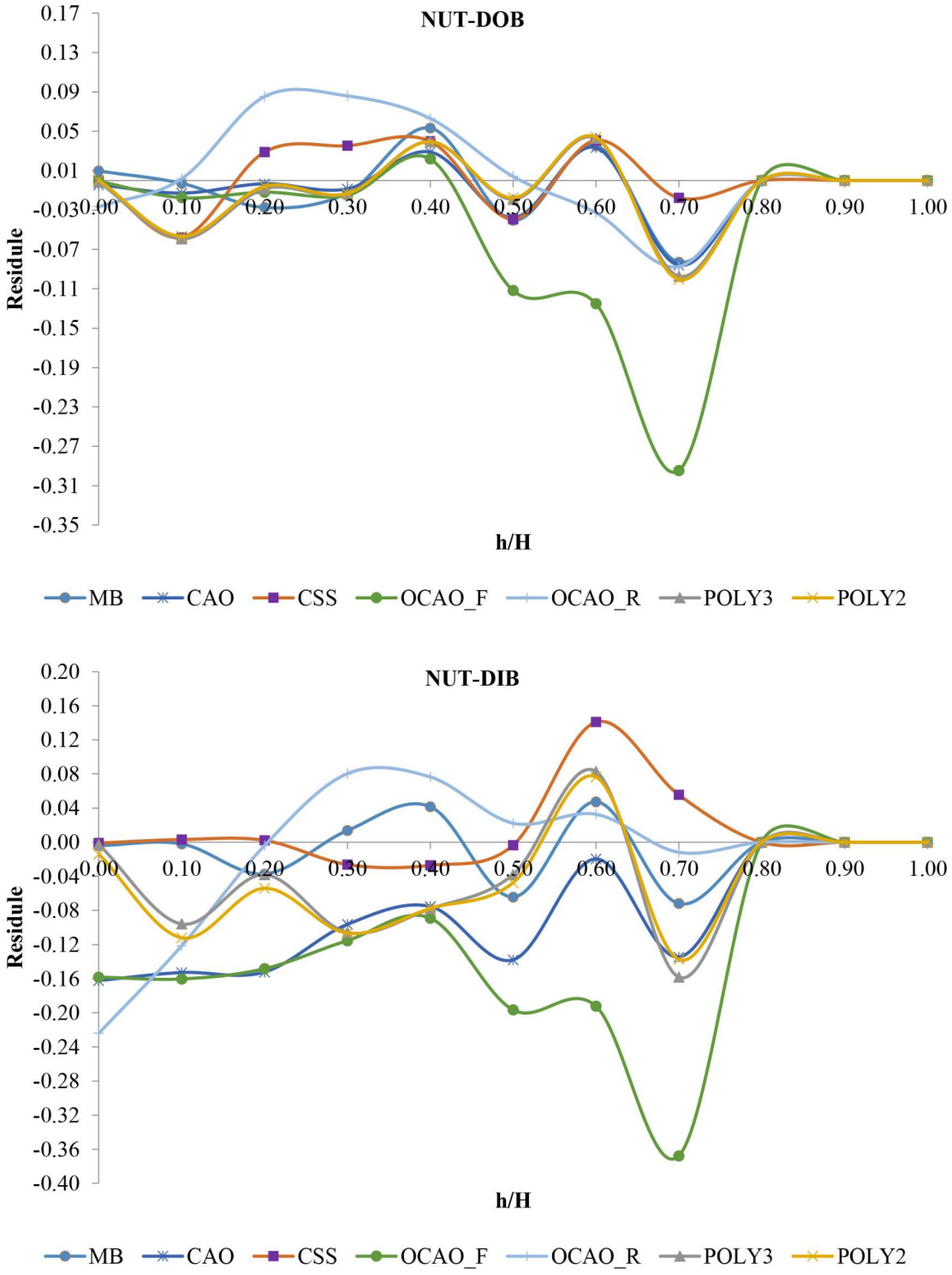

Fig. S3 - Residue plots of DOB and DIB stem profile of all seven models for species of SHU.