Supplementary Materials: Table S1 is the ε_{max} of the sites where the latitudes in the literature are consistent with the vegetation in the cold temperate zone of the Greater Khingan Mountains. Table S2, S3 and S4 are the basic values and variation ranges of input parameters of different forest types in the study area.

Table S1. The values of maximum light use efficiency of various forest types.

Forest type	Latitude	ε_{max}
deciduous coniferous forest	/	1.38
deciduous broad-leaved fores	53.7	1.29
mixed forest	51.3	0.928

Table S2. Input parameters descriptions of DNF.

Number	Parameter	Basic Value	Min	Max
1	TGP	0.2	0.16	0.24
2	LGS	0.2	0.16	0.24
3	LFRT	1	0.8	1.2
4	LWT	0.7	0.56	0.84
5	FM	0.0025	0.002	0.003
6	WPM	0.005	0.004	0.006
7	$C:N_{leaf}$	27	22.48	33.72
8	$C:N_{lit}$	120	97.6	146.4
9	$C:N_{fr}$	58	46.4	69.6
10	$C:N_{lw}$	50	40	60
11	$C:N_{dw}$	730	584	876
12	DMC_{leaf}	0.5	0.4	0.6
13	DMC_{lit}	0.5	0.4	0.6
14	DMC_{fr}	0.5	0.4	0.6
15	DMC_{f}	0.5	0.4	0.6
16	DMC_{s}	0.5	0.4	0.6
17	DMC_{lw}	0.5	0.4	0.6
18	DMC_{dw}	0.5	0.4	0.6
19	Llab	0.31	0.248	0.372
20	Lcel	0.45	0.36	0.54
21	FR_{lab}	0.34	0.272	0.408
22	FR_{cel}	0.44	0.352	0.528
23	F_{lab}	0.31	0.248	0.372
24	F_{cel}	0.45	0.36	0.54
25	DW_{cel}	0.71	0.568	0.852
26	W_{int}	0.045	0.036	0.054
27	k	0.51	0.408	0.612
28	SPLR	2.6	2.08	3.12
29	$LAI_{all:pro}$	2	1.6	2.4
30	FLNR	0.088	0.0704	0.1056
31	g_{smax}	0.006	0.0048	0.0072
32	g_{cl}	0.00006	0.000048	0.000072
33	g_{bl}	0.09	0.072	0.108
34	SW	25	20	30
35	R_{dmax}	3	2.4	3.6
36	GR	0.3	0.24	0.36
37	MR_{pern}	0.218	0.1744	0.2616
38	$NSC:Sc_{max}$	0.1	0.08	0.12

39	NSC_{MR}	0.3	0.24	0.36
40	SWC_{lim2}	0.4	0.32	0.48
41	VPD_s	610	488	732
42	VPD_c	3100	2480	3720
43	TR_{wsl}	0.01	0.008	0.012
44	TR_{cwl}	0.01	0.008	0.012
45	SLA1	22	17.6	26.4
46	SLA2	8.2	6.56	9.84
47	SLA3	8.2	6.56	9.84
48	SLA4	8.2	6.56	9.84
49	SLA5	8.2	6.56	9.84
50	SLA6	8.2	6.56	9.84
51	SLA7	8.2	6.56	9.84

Table S3. Input parameters descriptions of DBF.

Number	Parameter	Basic Value	Min	Max
1	TGP	0.2	0.16	0.24
2	LGS	0.2	0.16	0.24
3	LFRT	1	0.8	1.2
4	LWT	0.7	0.56	0.84
5	FM	0.0025	0.002	0.003
6	WPM	0.005	0.004	0.006
7	$C:N_{leaf}$	25	20	30
8	$C:N_{lit}$	55	44	66
9	$C:N_{fr}$	48	38.4	57.6
10	$C:N_{lw}$	50	40	60
11	$C:N_{dw}$	550	440	660
12	DMC_{leaf}	0.5	0.4	0.6
13	DMC_{lit}	0.5	0.4	0.6
14	DMC_{fr}	0.5	0.4	0.6
15	DMC_f	0.5	0.4	0.6
16	DMC_s	0.5	0.4	0.6
17	DMC_{lw}	0.5	0.4	0.6
18	DMC_{dw}	0.5	0.4	0.6
19	Llab	0.38	0.304	0.456
20	Lcel	0.44	0.352	0.528
21	FR_{lab}	0.34	0.272	0.408
22	FR_{cel}	0.44	0.352	0.528
23	F_{lab}	0.38	0.304	0.456
24	F_{cel}	0.44	0.352	0.528
25	DW_{cel}	0.77	0.616	0.924
26	W_{int}	0.045	0.036	0.054
27	k	0.54	0.432	0.648
28	SPLR	2	1.6	2.4
29	$LAI_{all:pro}$	2	1.6	2.4
30	FLNR	0.088	0.0704	0.1056
31	g_{smax}	0.006	0.0048	0.0072
32	g_{cl}	0.00006	0.000048	0.000072
33	g_{bl}	0.009	0.0072	0.0108
34	SW	25	20	30
35	R_{dmax}	2	1.6	2.4

36	GR	0.3	0.24	0.36
37	MR_{pern}	0.218	0.1744	0.2616
38	$NSC:Sc_{max}$	0.1	0.08	0.12
39	NSC_{MR}	0.3	0.24	0.36
40	SWC_{lim2}	0.4	0.32	0.48
41	VPD_s	1100	880	1320
42	VPD_c	3600	2880	4320
43	TR_{wsl}	0.01	0.008	0.012
44	TR_{cwl}	0.01	0.008	0.012
45	SLA1	32	25.6	38.4
46	SLA2	32	25.6	38.4
47	SLA3	32	25.6	38.4
48	SLA4	32	25.6	38.4
49	SLA5	32	25.6	38.4
50	SLA6	32	25.6	38.4
51	SLA7	32	25.6	38.4

Table S4. Input parameters descriptions of MF.

Number	Parameter	Basic Value	Min	Max
1	TGP	0.2	0.16	0.24
2	LGS	0.2	0.16	0.24
3	LFRT	1	0.8	1.2
4	LWT	0.7	0.56	0.84
5	FM	0.0025	0.002	0.003
6	WPM	0.005	0.004	0.006
7	$C:N_{leaf}$	26.2	20.96	31.44
8	$C:N_{lit}$	94	75.2	112.8
9	$C:N_{fr}$	54	43.2	64.8
10	$C:N_{lw}$	50	40	60
11	$C:N_{dw}$	658	526.4	789.6
12	DMC_{leaf}	0.5	0.4	0.6
13	DMC_{lit}	0.5	0.4	0.6
14	DMC_{fr}	0.5	0.4	0.6
15	DMC_f	0.5	0.4	0.6
16	DMC_s	0.5	0.4	0.6
17	DMC_{lw}	0.5	0.4	0.6
18	DMC_{dw}	0.5	0.4	0.6
19	Llab	0.338	0.2704	0.4056
20	Lcel	0.446	0.3568	0.5352
21	FR_{lab}	0.34	0.272	0.408
22	FR_{cel}	0.44	0.352	0.528
23	F_{lab}	0.338	0.2704	0.4056
24	F_{cel}	0.446	0.3568	0.5352
25	DW_{cel}	0.734	0.5872	0.8808
26	W_{int}	0.045	0.036	0.054
27	k	0.522	0.4176	0.6264
28	SPLR	2.36	1.888	2.832
29	$LAI_{all:pro}$	2	1.6	2.4
30	FLNR	0.088	0.0704	0.1056
31	g_{smax}	0.006	0.0048	0.0072
32	g_{cl}	0.00006	0.000048	0.000072

33	g_{bl}	0.0576	0.04608	0.06912
34	SW	25	20	30
35	R_{dmax}	2.6	2.08	3.12
36	GR	0.3	0.24	0.36
37	MR_{pern}	0.218	0.1744	0.2616
38	$NSC:Sc_{max}$	0.1	0.08	0.12
39	NSC_{MR}	0.3	0.24	0.36
40	SWC_{lim2}	0.4	0.32	0.48
41	VPD_s	806	644.8	967.2
42	VPD_c	3300	2640	3960
43	TR_{wsl}	0.01	0.008	0.012
44	TR_{cwl}	0.01	0.008	0.012
45	SLA1	26	20.8	31.2
46	SLA2	17.72	14.176	21.264
47	SLA3	17.72	14.176	21.264
48	SLA4	17.72	14.176	21.264
49	SLA5	17.72	14.176	21.264
50	SLA6	17.72	14.176	21.264
51	SLA7	17.72	14.176	21.264