

Table S1. Details of experimental areas in subalpine spruce forests.

Experimental area	Forest type	Altitude (m)	Aspect ¹	Slope (°)	Stand age	Canopy density	Height (m)	Mean diameter at breast height (cm)	Herb layer coverage	Moss layer coverage	Arbor layer species
Area 1	Plantation	3,305	N	27.50	29	0.80	8.68	10.62	0.10	1.00	<i>Picea</i>
	Natural forest	3,419	N	34.00	229	0.65	26.24	22.31	0.25	0.93	<i>Picea</i> associated with <i>Abies</i>
Area 2	Plantation	3,092	NE	39.30	34	0.76	10.63	12.82	0.10	-	<i>Picea</i>
	Natural forest	3,329	NE	28.67	260	0.60	29.11	38.91	0.23	0.77	<i>Picea</i> associated with <i>Abies</i>
Area 3	Plantation	3,354	NW	17.30	25	0.65	6.35	12.61	0.15	0.82	<i>Picea</i>
	Natural forest	3,377	NW	20.50	287	0.53	31.50	44.17	0.25	0.78	<i>Picea</i> associated with <i>Abies</i>
Area 4	Plantation	3,171	NW	5.00	30	0.63	8.00	11.70	0.20	0.96	<i>Picea</i>
	Natural forest	3,240	NW	7.67	227	0.73	26.00	19.63	0.25	0.96	<i>Picea</i>
Area 5	Plantation	3,185	NE	24.67	34	0.67	13.00	14.45	0.30	0.93	<i>Picea</i>
	Natural forest	3,227	N	14.30	325	0.75	35.00	24.76	0.50	0.78	<i>Picea</i> associated with <i>Abies</i>

¹ N: north; NE: northeast; NW: northwest.

Table S2. Average nematode individual density (ind./100 g dry matter) in different layers in subalpine spruce plantation and natural forests.

Family	Genus	Functional guild	Individual biomass carbon (μg)	Plantation individual density			Natural forest individual density		
				Moss	Litter	Soil	Moss	Litter	Soil
1. Alloionematidae	1. <i>Rhabditophanes</i>	Ba1	0.008	0	0	0	0	29 \pm 29	3 \pm 3
2. Bunonematidae	2. <i>Bunonema</i>	Ba1	0.004	13 \pm 13	25 \pm 14	0	22 \pm 16	0	1 \pm 1
3. Diplogasteridae	3. <i>Butlerius</i>	Ba1	0.004	38 \pm 38	0	0	0	0	0
	4. <i>Demaniella</i>	Ba1	0.012	0	0	0	0	5 \pm 5	0
	5. <i>Diplogasteritus</i>	Ba1	0.002	951 \pm 909	0	0	63 \pm 26	13 \pm 10	0
4. Neodiplogasteridae	6. <i>Diplenteron</i>	Ba1	0.460	0	0	1 \pm 1	0	0	0
	7. <i>Fictor</i>	Ba1	0.024	0	7 \pm 7	0	0	16 \pm 16	0
	8. <i>Mononchoides</i>	Ba1	0.004	13 \pm 13	0	0	0	0	0
	9. <i>Pareudiplogaster</i>	Ba1	0.009	0	12 \pm 12	0	15 \pm 15	13 \pm 9	0
5. Panagrolaimidae	10. <i>Panagrellus</i>	Ba1	0.428	0	0	4 \pm 4	0	0	1 \pm 1
	11. <i>Panagrobelus</i>	Ba1	0.001	0	0	0	0	0	1 \pm 1
	12. <i>Panagrolaimus</i>	Ba1	0.005	161 \pm 111	27 \pm 17	17 \pm 13	80 \pm 58	18 \pm 12	2 \pm 1
6. Rhabditidae	13. <i>Rhabditidae</i>	Ba1	0.016	292 \pm 265	30 \pm 22	13 \pm 5	36 \pm 25	17 \pm 11	5 \pm 2
7. Cephalobidae	14. <i>Acrobeles</i>	Ba2	0.008	0	0	16 \pm 12	22 \pm 15	0	8 \pm 5
	15. <i>Acrobeloides</i>	Ba2	0.006	10 \pm 10	196 \pm 170	35 \pm 15	8 \pm 6	62 \pm 33	10 \pm 7
	16. <i>Acrolobus</i>	Ba2	0.001	5 \pm 5	0	7 \pm 4	0	0	0
	17. <i>Cephalobus</i>	Ba2	0.019	0	0	0	0	0	1 \pm 1
	18. <i>Cervidellus</i>	Ba2	0.005	8 \pm 8	105 \pm 28	0	30 \pm 15	53 \pm 20	15 \pm 10
	19. <i>Chiloplacus</i>	Ba2	0.001	0	0	0	0	10 \pm 10	0
	20. <i>Eucephalobus</i>	Ba2	0.006	5 \pm 5	213 \pm 108	14 \pm 5	47 \pm 30	39 \pm 23	5 \pm 2
	21. <i>Heterocephalobus</i>	Ba2	0.006	0	19 \pm 14	8 \pm 4	6 \pm 6	38 \pm 21	5 \pm 4
	22. <i>Chronogaster</i>	Ba2	0.001	0	0	14 \pm 6	0	0	5 \pm 4

Family	Genus	Functional guild	Individual biomass carbon (µg)	Plantation individual density			Natural forest individual density		
				Moss	Litter	Soil	Moss	Litter	Soil
	23. <i>Leptolaimus</i>	Ba2	0.007	0	0	10 ± 6	0	0	0
9. Microlaimidae	24. <i>Microlaimus</i>	Ba2	0.004	0	0	3 ± 2	25 ± 25	0	1 ± 1
10. Monhysteridae	25. <i>Eumonhystera</i>	Ba2	0.004	495 ± 222	361 ± 91	13 ± 6	721 ± 124	609 ± 143	15 ± 6
	26. <i>Monhystera</i>	Ba2	0.001	19 ± 19	0	0	0	0	0
	27. <i>Monhystrella</i>	Ba2	0.005	0	8 ± 6	0	0	14 ± 9	0
11. Osstellidae	28. <i>Deficephalobus</i>	Ba2	0.007	0	0	0	29 ± 29	0	0
12. Plectidae	29. <i>Anaplectus</i>	Ba2	0.041	58 ± 18	93 ± 28	22 ± 11	108 ± 85	110 ± 57	9 ± 5
	30. <i>Plectus</i>	Ba2	0.028	2023 ± 478	1666 ± 244	269 ± 55	2863 ± 291	2537 ± 359	178 ± 22
	31. <i>Tylocephalus</i>	Ba2	0.005	0	29 ± 19	4 ± 3	0	53 ± 35	1 ± 1
	32. <i>Wilsonema</i>	Ba2	0.003	0	93 ± 38	114 ± 27	31 ± 31	88 ± 37	44 ± 9
13. Achromadoridae	33. <i>Achromadora</i>	Ba3	0.007	133 ± 92	237 ± 70	13 ± 7	201 ± 55	237 ± 79	5 ± 4
14. Aulolaimidae	34. <i>Aulolaimus</i>	Ba3	0.027	0	0	0	0	0	2 ± 1
15. Bastianiidae	35. <i>Bastiania</i>	Ba3	0.010	59 ± 23	401 ± 166	70 ± 14	197 ± 84	232 ± 70	23 ± 6
16. Chromadoridae	36. <i>Chromadorina</i>	Ba3	0.001	0	0	1 ± 1	0	0	0
	37. <i>Prochromadora</i>	Ba3	0.003	138 ± 69	192 ± 60	10 ± 5	274 ± 90	154 ± 52	8 ± 6
17. Diplopeltidae	38. <i>Cylindrolaimus</i>	Ba3	0.011	4 ± 4	4 ± 4	2 ± 1	0	8 ± 8	0
18. Halaphanolaimidae	39. <i>Aphanolaimus</i>	Ba3	0.003	0	7 ± 7	2 ± 2	63 ± 36	0	0
19. Hypodontolaimidae	40. <i>Dichromadora</i>	Ba3	0.195	0	0	0	0	23 ± 23	0
20. Odontolaimidae	41. <i>Odontolaimus</i>	Ba3	0.005	11 ± 11	126 ± 73	12 ± 6	42 ± 27	66 ± 33	4 ± 3
21. Onchulidae	42. <i>Stenonchulus</i>	Ba3	0.002	0	0	4 ± 2	0	0	4 ± 4
22. Prismatolaimidae	43. <i>Prismatolaimus</i>	Ba3	0.003	15 ± 11	126 ± 57	106 ± 31	99 ± 41	186 ± 58	89 ± 33
23. Rhabdolaimidae	44. <i>Rhabdolaimus</i>	Ba3	0.002	0	18 ± 14	28 ± 7	8 ± 8	32 ± 15	8 ± 3
24. Teratocephalidae	45. <i>Euteratocephalus</i>	Ba3	0.001	0	0	0	0	0	1 ± 1
	46. <i>Metateratocephalus</i>	Ba3	0.003	101 ± 61	73 ± 23	45 ± 34	146 ± 44	209 ± 60	30 ± 7

Family	Genus	Functional guild	Individual biomass carbon (µg)	Plantation individual density			Natural forest individual density		
				Moss	Litter	Soil	Moss	Litter	Soil
25. Alaimidae	47. <i>Teratocephalus</i>	Ba3	0.004	339 ± 84	561 ± 162	161 ± 61	811 ± 110	548 ± 100	108 ± 15
	48. <i>Alaimus</i>	Ba4	0.006	228 ± 122	187 ± 60	13 ± 5	445 ± 113	245 ± 63	15 ± 4
	49. <i>Amphidelus</i>	Ba4	0.004	0	0	17 ± 8	23 ± 16	4 ± 4	3 ± 3
	50. <i>Paramphidelus</i>	Ba4	0.006	26 ± 26	28 ± 22	37 ± 13	13 ± 13	9 ± 9	12 ± 5
26. Anguinidae	51. <i>Ditylenchus</i>	Fu2	0.009	19 ± 11	15 ± 10	0	42 ± 18	0	0
27. Aphelenchidae	52. <i>Paraphelenchus</i>	Fu2	0.002	190 ± 60	248 ± 62	4 ± 3	329 ± 80	246 ± 84	12 ± 4
28. Aphelenchoididae	53. <i>Aphelenchoides</i>	Fu2	0.002	480 ± 134	440 ± 68	17 ± 5	360 ± 85	314 ± 72	7 ± 4
	54. <i>Bursaphelenchus</i>	Fu2	0.001	0	0	0	51 ± 39	0	0
29. Neotylenchidae	55. <i>Deladenus</i>	Fu2	0.005	0	0	2 ± 2	0	0	0
30. Diphtherophoridae	56. <i>Diphtherophora</i>	Fu3	0.030	0	0	4 ± 3	0	0	1 ± 1
	57. <i>Doryllium</i>	Fu4	0.088	0	0	0	0	0	2 ± 2
	58. <i>Leptonchus</i>	Fu4	0.031	3 ± 3	0	0	0	9 ± 9	3 ± 3
	59. <i>Tylencholaimellus</i>	Fu4	0.060	13 ± 13	0	8 ± 5	0	0	30 ± 18
31. Paratylenchidae	60. <i>Tylencholaimus</i>	Fu4	0.017	329 ± 182	474 ± 128	147 ± 54	206 ± 70	513 ± 121	81 ± 24
	61. <i>Paratylenchus</i>	He2	0.004	0	0	2 ± 2	0	0	0
32. Tylenchidae	62. <i>Basiria</i>	He2	0.002	436 ± 129	783 ± 288	194 ± 33	583 ± 102	674 ± 192	97 ± 18
	63. <i>Boleodorus</i>	He2	0.002	56 ± 23	53 ± 26	150 ± 34	229 ± 61	135 ± 33	93 ± 18
	64. <i>Ecphyadophora</i>	He2	0.001	0	0	11 ± 6	0	13 ± 9	0
	65. <i>Filenchus</i>	He2	0.004	291 ± 87	311 ± 79	206 ± 28	357 ± 124	636 ± 168	177 ± 32
	66. <i>Lelenchus</i>	He2	0.003	0	7 ± 7	141 ± 40	51 ± 43	0	127 ± 41
	67. <i>Malenchus</i>	He2	0.004	208 ± 94	457 ± 123	268 ± 83	835 ± 274	308 ± 69	152 ± 43
	68. <i>Miculenchus</i>	He2	0.009	13 ± 13	0	4 ± 3	0	12 ± 12	5 ± 4
	69. <i>Neopsilenchus</i>	He2	0.020	0	0	0	0	0	2 ± 2
	70. <i>Cephalenchus</i>	He2	0.012	0	0	9 ± 9	0	0	1 ± 1

Family	Genus	Functional guild	Individual biomass carbon (µg)	Plantation individual density			Natural forest individual density		
				Moss	Litter	Soil	Moss	Litter	Soil
34. Belonolaimidae	71. <i>Pleurotylenchus</i>	He2	0.017	0	0	1 ± 1	0	0	0
	72. <i>Amplimerlinius</i>	He3	0.020	0	26 ± 18	44 ± 21	0	14 ± 10	0
	73. <i>Merlinius</i>	He3	0.035	0	0	7 ± 4	0	0	0
35. Criconematidae	74. <i>Criconema</i>	He3	0.011	0	0	0	0	0	4 ± 4
	75. <i>Criconemella</i>	He3	0.027	0	0	74 ± 21	0	0	69 ± 16
	76. <i>Macroposthonia</i>	He3	0.004	0	0	0	0	0	4 ± 2
36. Hoplolaimidae	77. <i>Helicotylenchus</i>	He3	0.010	6 ± 6	14 ± 14	45 ± 19	0	0	17 ± 7
	78. <i>Pararotylenchus</i>	He3	0.011	5 ± 5	7 ± 7	23 ± 10	14 ± 14	0	17 ± 13
	79. <i>Rotylenchus</i>	He3	0.017	0	0	39 ± 13	0	0	16 ± 9
37. Nordiidae	80. <i>Longidorella</i>	He4	0.004	0	0	0	9 ± 9	0	1 ± 1
	81. <i>Pungentus</i>	He4	0.048	0	0	1 ± 1	7 ± 7	0	0
38. Belondiridae	82. <i>Axonchium</i>	He5	0.339	0	0	0	0	0	1 ± 1
	83. <i>Dorylaimellus</i>	He5	0.042	4 ± 4	53 ± 24	4 ± 3	24 ± 17	51 ± 33	1 ± 1
	84. <i>Oxydirus</i>	He5	0.195	0	0	1 ± 1	0	0	0
39. Longidoridae	85. <i>Longidorus</i>	He5	1.458	0	0	0	0	6 ± 6	0
	86. <i>Xiphinema</i>	He5	0.154	0	0	0	13 ± 13	0	0
40. Leptonchidae	87. <i>Dorylaimoides</i>	Om4	0.038	10 ± 10	21 ± 15	7 ± 3	0	53 ± 24	3 ± 2
	88. <i>Thornia</i>	Om4	0.127	0	12 ± 12	9 ± 9	0	0	0
41. Qudsianematidae	89. <i>Dorydorella</i>	Om4	0.066	6 ± 6	7 ± 7	3 ± 2	0	10 ± 10	3 ± 3
	90. <i>Epidorylaimus</i>	Om4	0.043	28 ± 13	99 ± 28	36 ± 11	45 ± 24	132 ± 39	33 ± 11
	91. <i>Microdorylaimus</i>	Om4	0.012	376 ± 120	260 ± 74	30 ± 9	420 ± 82	374 ± 89	26 ± 10
42. Chrysonematidae	92. <i>Chrysonnemoides</i>	Om5	0.013	0	0	0	0	0	2 ± 1
43. Thornenematidae	93. <i>Laimydorus</i>	Om5	0.411	0	0	0	0	0	3 ± 3
	94. <i>Mesodorylaimus</i>	Om5	0.073	44 ± 38	34 ± 19	10 ± 9	0	0	0

Family	Genus	Functional guild	Individual biomass carbon (µg)	Plantation individual density			Natural forest individual density		
				Moss	Litter	Soil	Moss	Litter	Soil
	95. <i>Prodorylaimus</i>	Om5	0.100	0	12 ± 9	0	21 ± 15	15 ± 12	0
44. Tobrilidae	96. <i>Tobrilus</i>	Pr3	0.779	0	0	1 ± 1	0	0	0
45. Tripylidae	97. <i>Paratripyla</i>	Pr3	0.082	0	0	1 ± 1	0	0	3 ± 2
	98. <i>Tripyla</i>	Pr3	0.183	0	0	5 ± 3	0	0	1 ± 1
	99. <i>Trischistoma</i>	Pr3	0.010	9 ± 6	0	10 ± 6	9 ± 9	0	8 ± 4
46. Anatonchidae	100. <i>Miconchus</i>	Pr4	0.329	32 ± 26	292 ± 126	1 ± 1	42 ± 35	204 ± 89	0
47. Ironidae	101. <i>Ironus</i>	Pr4	0.002	0	0	10 ± 5	0	0	0
48. Mononchidae	102. <i>Clarkus</i>	Pr4	0.054	101 ± 75	4 ± 4	5 ± 3	68 ± 32	4 ± 4	14 ± 5
	103. <i>Coomansus</i>	Pr4	0.039	155 ± 67	611 ± 161	5 ± 4	190 ± 86	434 ± 241	5 ± 2
	104. <i>Iotonchus</i>	Pr4	0.340	0	0	1 ± 1	26 ± 26	0	1 ± 1
	105. <i>Mononchus</i>	Pr4	0.053	120 ± 34	283 ± 72	15 ± 6	441 ± 81	304 ± 88	13 ± 4
	106. <i>Mylonchulus</i>	Pr4	0.037	57 ± 31	99 ± 26	2 ± 2	26 ± 26	229 ± 80	3 ± 2
	107. <i>Parkellus</i>	Pr4	0.091	72 ± 50	0	7 ± 3	80 ± 60	0	0
	108. <i>Prionchulus</i>	Pr4	0.244	475 ± 142	260 ± 67	1 ± 1	507 ± 114	204 ± 59	0
	109. <i>Eudorylaimus</i>	Pr4	0.161	2129 ± 809	545 ± 124	28 ± 8	1275 ± 330	630 ± 166	19 ± 9
	110. <i>Thonus</i>	Pr4	0.042	158 ± 75	145 ± 35	11 ± 5	135 ± 38	144 ± 31	16 ± 5
49. Actinolaimidae	111. <i>Paractinolaimus</i>	Pr5	0.102	62 ± 26	13 ± 13	0	88 ± 42	31 ± 15	0
50. Aporcelaimidae	112. <i>Aporcelaimellus</i>	Pr5	0.378	121 ± 41	387 ± 141	5 ± 4	82 ± 35	205 ± 96	1 ± 1
	113. <i>Paraxonchium</i>	Pr5	2.448	0	0	0	0	0	1 ± 1
51. Nygolaimidae	114. <i>Aetholaimus</i>	Pr5	0.028	6 ± 6	0	0	0	0	0
	115. <i>Nygolaimus</i>	Pr5	0.023	0	0	1 ± 1	0	0	0
	116. <i>Paravulvus</i>	Pr5	0.128	0	0	0	0	0	1 ± 1

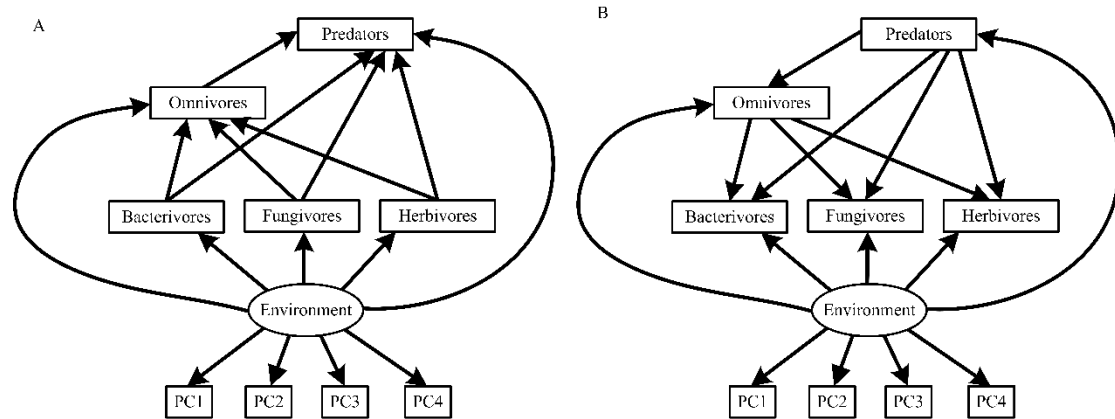


Figure S1. An initial model for nematode carbon used in production and budget through food web bottom – up (A) and top – down (B) relationships.

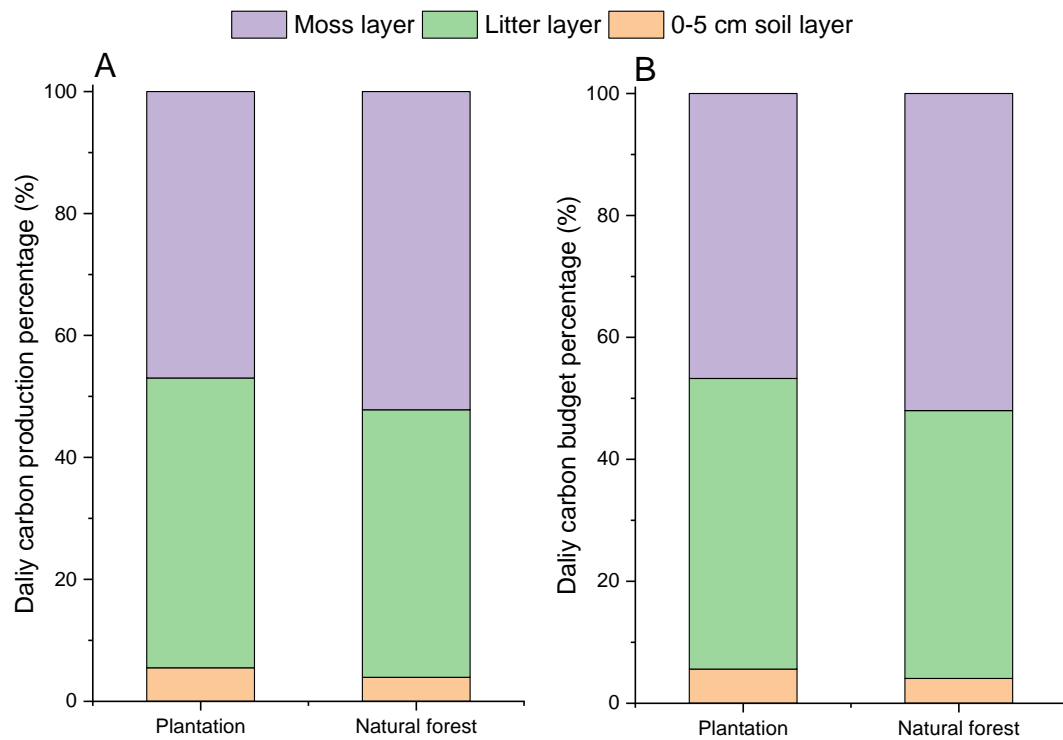


Figure S2. Vertical distribution of relative daily carbon used in production (A) and daily carbon budget (B) of nematodes in subalpine plantation and natural forests.

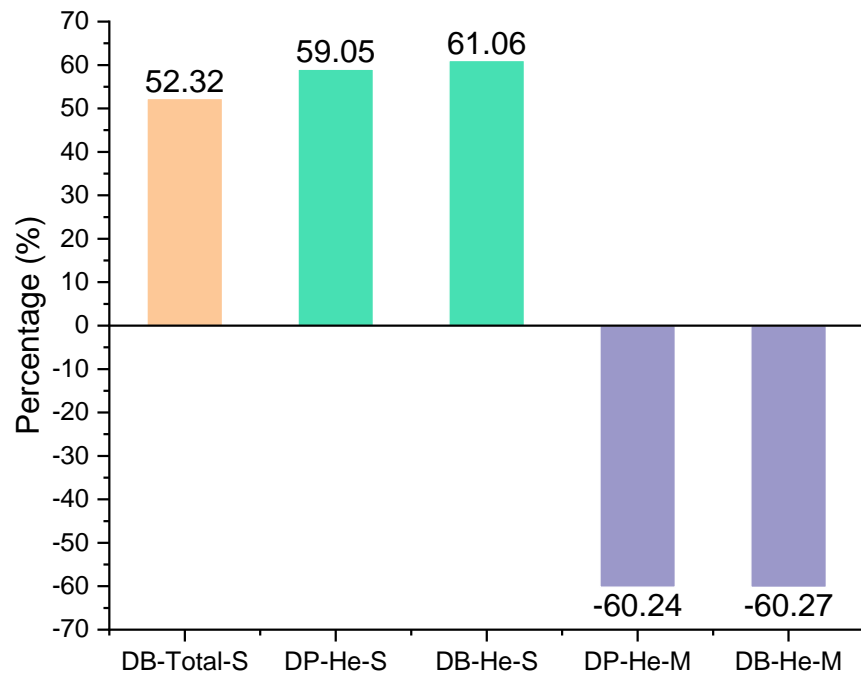


Figure S3. Incremental percentage (%) of natural forests converted to plantations. DP: daily carbon used in production; DB: daily carbon budget; Total: total nematodes; He: herbivore nematodes; S: 0–5-cm soil layer; M: moss layer.