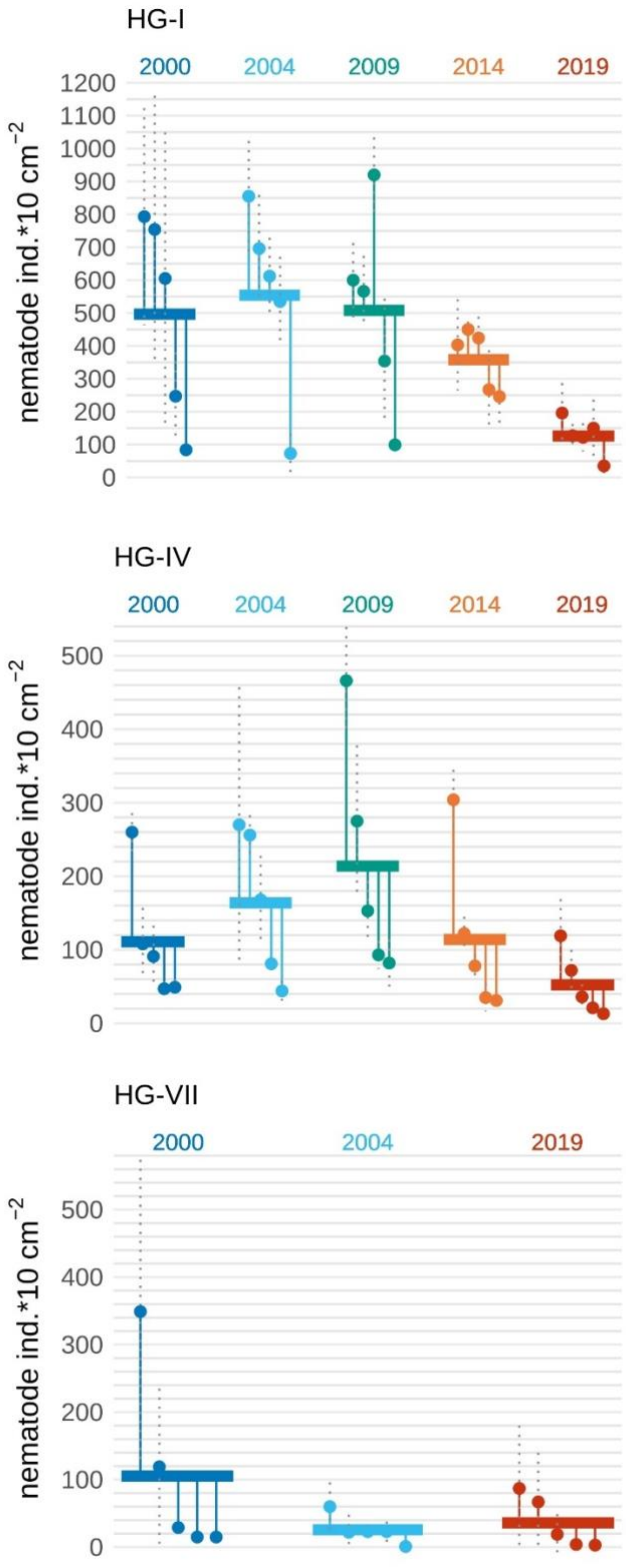

Fig. S1. Lollipop plot of the nematode abundance (ind.*10 cm^{-2}) for each HAUSGARTEN (HG) station and year. Individual lollipops show the nematode abundance for each sediment depth layer of a year calculated as a mean of three samples (standard deviation is presented in grey, dotted error bars). The 0-1 cm layer is the lollipop furthest to the left and the 4-5 cm layer the lollipop furthest to the right, for each year respectively. The coloured horizontal bar represents the mean nematode abundance for each sediment layer, calculated over the entire sediment depth (0-5 cm) per year and station. Different colours represent the different years.

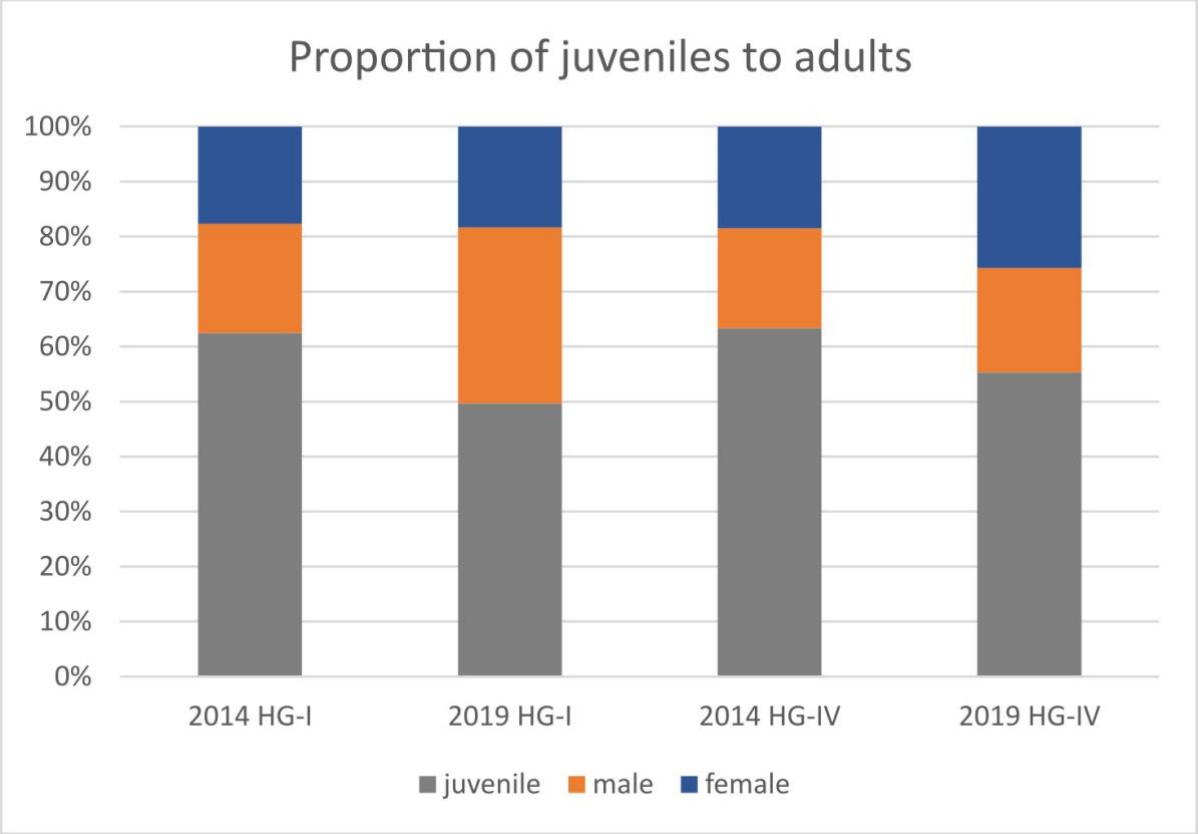

Fig. S2. Stacked barplots showing the relative proportion of juveniles to adults for stations HG-I and HG-IV in 2014 and 2019.

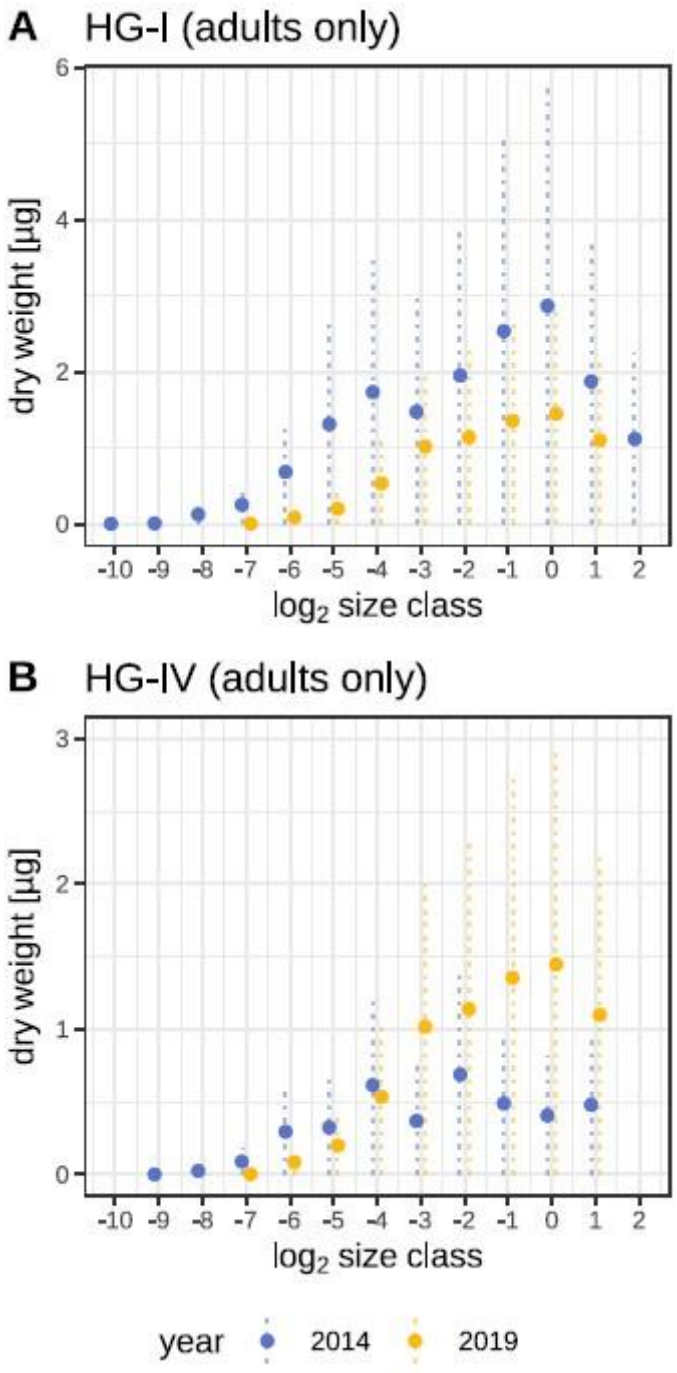

Fig. S3. Nematode biomass in µg per log_2-size class as a mean of the three samples per station and year considering only adult individuals for the stations and years where data was available. Standard deviation in dotted bars.

Table S1. Results of a Kruskal-Wallis test and a post-hoc test to test for significant differences of nematode abundance between the years. Significant pairs are presented in bold. **n** sample count, **statistic** test statistic (z-value) used to compute the p-value, **p.adj** Bonferroni adjusted p-value, **p.adj.signif** significance level of the adjusted p-value (ns not significant, * significant).

HG-I: Kruskal-Wallis chi-squared = 22.733, df = 4, p-value < 0.0001

HG-IV: Kruskal-Wallis chi-squared = 19.551, df = 4, p-value < 0.001

HG-VII: Kruskal-Wallis chi-squared = 7.0594, df = 2, p-value = 0.03

Post-hoc test (method: Dunn, Bonferroni adjusted)

station	y	group1	group2	n1	n2	statistic	p	p.adj	p.adj.signif
HG-I	abundance	2000	2004	15	15	1.36130	0.173	1.000	ns
HG-I	abundance	2000	2009	15	15	0.52777	0.598	1.000	ns
HG-I	abundance	2000	2014	15	15	-0.44818	0.654	1.000	ns
HG-I	**abundance**	**2000**	**2019**	**15**	**15**	**-3.09540**	**0.002**	**0.020**	*
HG-I	abundance	2004	2009	15	15	-0.83354	0.405	1.000	ns
HG-I	abundance	2004	2014	15	15	-1.80949	0.070	0.704	ns
HG-I	**abundance**	**2004**	**2019**	**15**	**15**	**-4.45670**	**< 0.001**	**< 0.001**	****
HG-I	abundance	2009	2014	15	15	-0.97595	0.329	1.000	ns
HG-I	**abundance**	**2009**	**2019**	**15**	**15**	**-3.62316**	**< 0.001**	**0.003**	**
HG-I	abundance	2014	2019	15	15	-2.64721	0.008	0.081	ns
HG-IV	abundance	2000	2004	15	15	1.09750	0.272	1.000	ns
HG-IV	abundance	2000	2009	15	15	2.07352	0.038	0.381	ns
HG-IV	abundance	2000	2014	15	15	-0.17175	0.864	1.000	ns
HG-IV	abundance	2000	2019	15	15	-2.09865	0.036	0.358	ns
HG-IV	abundance	2004	2009	15	15	0.97602	0.329	1.000	ns
HG-IV	abundance	2004	2014	15	15	-1.26924	0.204	1.000	ns
HG-IV	**abundance**	**2004**	**2019**	**15**	**15**	**-3.19615**	**< 0.001**	**0.014**	*
HG-IV	abundance	2009	2014	15	15	-2.24526	0.025	0.248	ns
HG-IV	**abundance**	**2009**	**2019**	**15**	**15**	**-4.17217**	**< 0.001**	**< 0.001**	***
HG-IV	abundance	2014	2019	15	15	-1.92691	0.054	0.540	ns
HG-VII	abundance	2000	2004	15	15	-1.88061	0.060	0.180	ns
HG-VII	**abundance**	**2000**	**2019**	**15**	**15**	**-2.56574**	**0.010**	**0.031**	*
HG-VII	abundance	2004	2019	15	15	-0.68513	0.493	1.000	ns

Table S2. Relative abundance of nematode genera at for each year and station. The top ten genera with highest relative abundance per station are displayed in descending order. NA: no sample available.

HG-I									
2000		**2004**		**2009**		**2014**		**2019**	
genus	**%**	**genus**	**%**	**genus**	**%**	**genus**	**%**	**genus**	**%**
Microlaimus	11.9	*Desmoscolex*	18.6	*Desmoscolex*	15.7	*Desmoscolex*	10.1	*Desmoscolex*	27.0
Tricoma	7.3	*Aegialoalaimus*	7.2	*Tricoma*	7.4	*Amphimonhystera*	9.8	*Tricoma*	10.0
Daptonema	6.6	*Microlaimus*	6.5	*Sphaerolaimus*	6.6	*Monhystrella*	8.9	*Acantholaimus*	7.3
Acantholaimus	6.4	*Acantholaimus*	6.2	*Aegialoalaimus*	5.6	*Acantholaimus*	8.3	*Amphimonhystera*	6.5
Dichromadora	6.4	*Daptonema*	5.5	*Acantholaimus*	4.9	*Aegialoalaimus*	6.6	*Sabatieria*	5.4
Desmoscolex	6.3	*Tricoma*	4.6	*Halalaimus*	4.6	*Tricoma*	6.6	*Halalaimus*	4.9
Aegialoalaimus	6.3	*Dichromadora*	4.3	*Sabatieria*	4.5	*Halalaimus*	5.0	*Microlaimus*	4.4
Metadesmolaimus	5.5	*Halalaimus*	3.9	*Amphimonhystera*	3.1	*Daptonema*	4.0	cf *Wieseria*	3.7
Sabatieria	4.3	*Campylaimus*	3.6	*Campylaimus*	3.1	*Campylaimus*	3.3	*Sphaerolaimus*	3.6
Amphimonhystrella	3.7	*Amphimonhystrella*	3.3	*Desmolaimus*	2.1	*Amphimonhystrella*	3.1	*Aegialoalaimus*	3.0
Sum	64.7	Sum	63.7	Sum	57.6	Sum	65.7	Sum	75.8

Table S2 continued

HG-IV

2000		2004		2009		2014		2019	
genus	**%**	**genus**	**%**	**genus**	**%**	**genus**	**%**	**genus**	**%**
Daptonema	12.4	*Acantholaimus*	13.5	*Acantholaimus*	11.6	*Amphimonhystera*	12.9	*Desmoscolex*	11.8
Halalaimus	8.5	*Tricoma*	12.3	*Tricoma*	9.7	*Tricoma*	12.3	*Tricoma*	11.7
Acantholaimus	8.2	*Cervonema/Pierrickia*	8.0	*Sabatieria*	8.4	*Thalassomonhystera*	8.8	*Amphimonhystera*	8.3
Dichromadora	6.5	*Desmoscolex*	6.3	*Halalaimus*	7.1	*Acantholaimus*	7.9	*Acantholaimus*	6.5
Cervonema/Pierrickia	6.3	*Microlaimus*	5.1	*Desmoscolex*	6.8	*Halalaimus*	7.6	*Sabatieria*	5.5
Odontophora	3.9	*Halalaimus*	4.6	*Leptolaimus*	4.3	*Desmoscolex*	7.5	*Sphaerolaimus*	5.5
Tricoma	3.4	*Sabatieria*	4.4	*Metasphaerolaimus*	3.5	*Monhystrella*	4.8	*Thalassomonhystera*	5.5
Theristus	3.3	*Daptonema*	4.0	*Neochromadora*	3.4	*Leptolaimus*	4.5	*Halalaimus*	5.0
Cobbia	3.3	*Neochromadora*	3.2	*Sphaerolaimus*	3.4	*Microlaimus*	3.6	Rhabdolaimidae *gen 1*	3.2
Deontolaimus	3.3	*Molgolaimus*	3.1	Xyalidae *gen. C*	3.3	*Cervonema*	2.0	*Microlaimus*	2.8
Sum	59.1	Sum	64.5	Sum	61.5	Sum	71.9	Sum	65.8

HG-VII

2000		2004		2009		2014		2019	
genus	**%**	**genus**	**%**	**genus**	**%**	**genus**	**%**	**genus**	**%**
Microlaimus	22.0	*Daptonema*	18.8	*NA*	*NA*	*NA*	*NA*	*Acantholaimus*	17.8
Daptonema	11.6	*Acantholaimus*	11.2	*NA*	*NA*	*NA*	*NA*	*Halalaimus*	12.7
Halalaimus	7.0	*Eleutherolaimus*	10.4	*NA*	*NA*	*NA*	*NA*	*Amphimonhystera*	10.6
Tricoma	6.8	*Halalaimus*	10.4	*NA*	*NA*	*NA*	*NA*	Rhabdolaimidae *gen 1*	7.9
Metadesmolaimus	5.8	*Aegialoalaimus*	9.6	*NA*	*NA*	*NA*	*NA*	*Sphaerolaimus*	7.9
Neochromadora	5.5	*Cyartonema*	6.2	*NA*	*NA*	*NA*	*NA*	*Thalassomonhystera*	7.4
Acantholaimus	5.4	*Microlaimus*	4.6	*NA*	*NA*	*NA*	*NA*	*Tricoma*	6.6
Trefusia	4.2	*Procamacolaimus*	3.8	*NA*	*NA*	*NA*	*NA*	*Desmoscolex*	6.3
Campylaimus	3.4	*Tricoma*	3.5	*NA*	*NA*	*NA*	*NA*	Linhomoeidae *gen 1*	3.4
Oncholaimellus	2.5	*Syringolaimus*	3.1	*NA*	*NA*	*NA*	*NA*	*Halichoanolaimus*	2.2
Sum	74.2	Sum	81.6					Sum	82.8