Supplementary Materials

The following tables describe the physical features of the study site, the experimental cave "Biospeleological Station of San Bartolomeo". Moreover, removal statistics or the salamander population sampled in the cave and results of the Canonical correspondence analysis (CCA) describing the annual variability of the biological community living in the cave are also provided.

Table S1. Physical parameters measured outside and inside the study site of "Biospeleological Station of San Bartolomeo". DISTANCE is the linear distance from entrance in meters; COMPLEXITY is the "roughness" of the cave walls (see Material and Methods); LUX is the illuminance measured in Lux.

	DISTANCE (m)	COMPLEXITY	LUX
Location			
Outside	-3	58	18400,0
Entrance	0	8	540,0
3 m	3	42	3,0
6 m	6	54	0,2
9 m	9	43	0,1
12 m	12	31	0,0
15 m	15	41	0,0
18 m	18	40	0,0
21 m	21	47	0,0

Table S2. Removal statistics of the cave salamander *Speleomantes strinatii* population living in the "Biospeleological Station of San Bartolomeo". Salamanders abundance (Number estimated) and capture probabilities were calculated by model M_{bh} implemented in CAPTURE software (White et al. 1982).

Year Age/sex group	I removal (N)	II removal (N)	III removal (N)	Number estimated (N)	Capture probability
2013					
I year juveniles	19	6	3	32	0.582
II year juveniles	10	5	4	22	0.470
Subadults	15	5	4	22	0.587
Females	13	6	2	21	0.655
Males	9	6	3	20	0.492

Total	66	28	18	126	0.513
2014					
I year juveniles	11	9	8	53	0.216
II year juveniles	28	7	5	41	0.666
Subadults	8	3	1	12	0.706
Females	15	5	2	22	0.710
Males	12	3	0	15	0.833
Total	74	27	16	126	0.574
2015					
I year juveniles	10	5	1	16	0.696
II year juveniles	16	4	3	23	0.685
Subadults	25	11	3	40	0.657
Females	7	4	4	19	0.375
Males	16	4	4	25	0.624
Total	74	28	13	122	0.605
2016					
I year juveniles	18	10	8	46	0.393
II year juveniles	11	3	3	17	0.624
Subadults	4	2	1	7	0.636
Females	11	1	2	14	0.737
Males	10	6	1	17	0.678
Total	54	22	15	102	0.516
2017					
I year juveniles	15	10	3	30	0.667
II year juveniles	8	0	2	10	0.500
Subadults	11	5	1	17	0.647
Females	6	5	5	31	0.424
Males	21	2	1	24	0.286
Total	61	22	12	101	0.584
2018					
I year juveniles	7	4	1	12	0.667
II year juveniles	6	5	2	14	0.500

Subadults	15	5	3	24	0.647
Females	7	2	4	16	0.424
Males	10	9	6	39	0.667
Total	45	25	16	105	0.428
2019					
I year juveniles	13	9	6	36	0.377
II year juveniles	8	3	3	15	0.539
Subadults	10	4	0	14	0.778
Females	11	1	1	13	0.812
Males	17	4	2	23	0.742
Total	59	21	12	98	0.590

Table S3. Scores of the environmental factors, trap sites and of the different faunal groups obtained by Canonical Correspondence Analysis. The percentage shown for each axis is the variance explained. DISTANCE is the linear distance from the entrance in meters, COMPLEXITY is the roughness of the cave walls, LUX is the illuminance in Lux. DI = dipterans, FF = female salamanders, JJ = juvenile salamanders, MM = male salamanders, OT = other invertebrate taxa, SA = subadult salamanders. Number following the symbols indicate sampling year.

	Axis 1 (67%)	Axis 2 (33%)	Axis 3 (0%)
DISTANCE	-0.24236	0.904898	-0.33872
COMPLEXITY	0.202289	-0.11966	-0.69804
LUX	-0.35409	-0.4969	-0.05171
Outside	-0.46327	-0.36638	-0.02958
Entrance	-0.25742	0.08774	0.527724
3 m	1.77872	-0.42657	0.409858
6 m	1.55665	-0.01119	-0.60347
9 m	0.575267	0.828154	-0.03649
12 m	0.400162	0.930269	0.412295
15 m	-0.23556	1.03725	0.223857
18 m	-0.24025	1.00686	-0.04723
21 m	-0.29842	1.17125	-0.49826
MM13	-1.10234	4.56366	-5.58691
FF13	-0.73661	3.7496	-1.00248
JJ13	2.22536	-0.12754	0.606959
SA13	0.361783	2.20767	0.958464
MM14	0.342131	2.15936	1.9158
FF14	-0.16445	2.83111	1.52668
JJ14	2.71582	-0.58648	-1.51789
SA14	2.36681	-0.20452	-0.72874
MM15	0.924812	1.66139	-1.22968

FF15	2.93987	-0.673	-4.09587
JJ15	2.46349	-0.45537	0.945908
SA15	1.30366	1.14778	-0.79052
MM16	0.87032	1.66308	-0.3475
FF16	-0.14285	3.00657	-1.12574
JJ16	2.50651	-0.40463	-0.4282
SA16	1.3769	0.991326	0.041617
MM17	-0.33475	3.31799	-2.01797
FF17	0.918766	1.94533	-4.84139
JJ17	2.82925	-0.80347	-0.56244
SA17	2.17706	0.143889	-2.13692
MM18	-0.33475	3.31799	-2.01797
FF18	0.918766	1.94533	-4.84139
JJ18	2.82925	-0.80347	-0.56244
SA18	2.17706	0.143889	-2.13692
MM19	0.6141	1.80822	2.00056
FF19	1.38936	0.981144	-0.03158
JJ19	2.41404	-0.58731	3.23266
SA19	0.995502	1.39977	1.02109
D13	-0.62656	-0.7494	0.313535
D14	-0.46781	-0.72262	0.23826
D15	-0.34021	0.145129	-0.80195
D16	-0.32591	0.806433	0.738489
D17	-0.70656	-0.77232	-0.58098
D18	-0.32591	0.806433	0.738489
D19	-0.18058	0.863241	0.156305
OT13	-0.39922	-0.95746	-0.41215
OT14	0.102428	-0.92788	0.035251
OT15	-0.45264	-1.06459	-1.40817
OT16	-0.13073	-0.96505	0.828683
OT17	-0.6779	-0.99807	-0.28672
OT18	-0.03371	-1.06037	-0.4479
OT19	-0.3534	-0.14681	-0.47935