SUPPLEMENTARY DATA

FIG. S1. Habitats of six mixed ploidy populations of *Centaurea stoebe*. **(a, b)** 'Glavica' (GLA), view in (a) 2008 and (b) in 2009 where rare tetraploid plants were found in 2008 before destruction of area (bottom of the picture). **(c)** 'Kopáč' island (KOP) with tetraploid plants growing on and along dirt road, but they were missing in steppe meadows (right side of the photo) where they were replaced by diploids. **(d)** 'Marchegg' (MAR) site with diploid and tetraploid plants growing along a dirt road near gravel (see Fig. 4). **(e)** 'Sandberg' hill (SAND), tetraploid plants were found mostly on open sandy sites used in the past for sand exploitation and were rare in dense vegetation where the diploids prevailed. **(f)** 'Tlmače' site (TLM), a view on the road and railway leading to the andezite quarry: the tetraploid plants grew solely along the road, while the diploids were frequent also on the semi-natural steppe and natural rock outcrops on the slope above the road (bottom of the picture); **(g, h)** 'Weit quarry' (WEIT), a past limestone quarry with tetraploids growing on the artificially created limestone walls **(h)** and recently disturbed soils. Photo credits: P. Mráz (a–h).

FIG. S2. Cytotype distribution of *Centaurea stoebe* at the Sandberg site (SAND) across heterogeneous microhabitats with different vegetation densities.

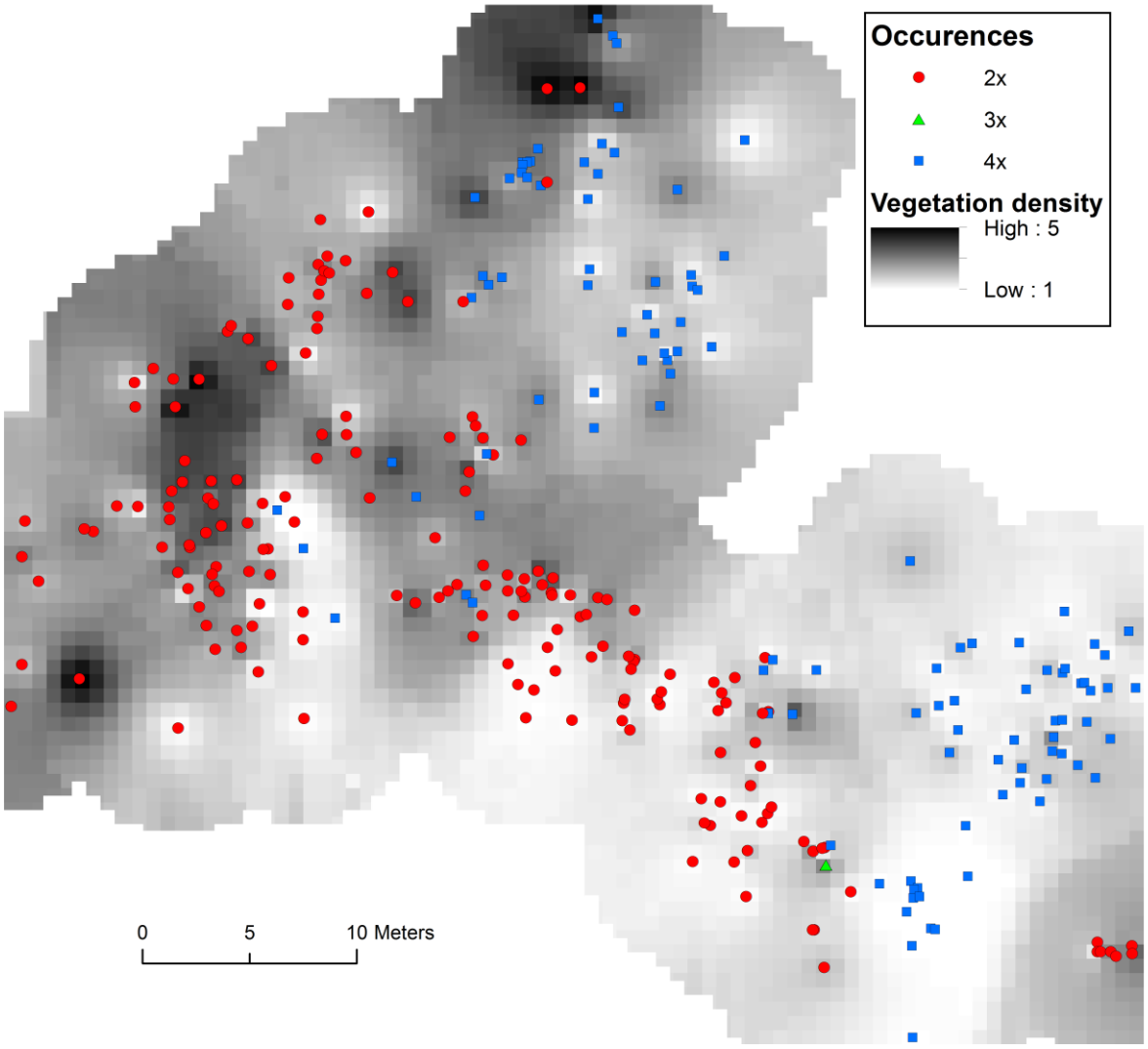

FIG. S3. Averaged soil moisture (%) around randomly selected diploid and tetraploid plants in three mixed ploidy populations of *Centaurea stoebe*. The number of measured plants per ploidy level and respective site is given above each box plot.

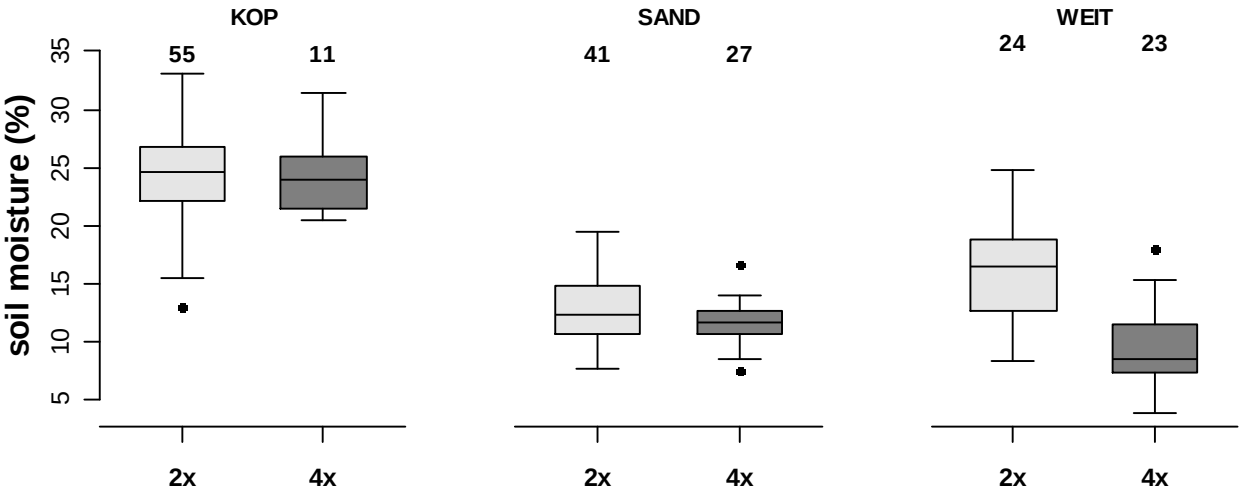

FIG. S4. Estimated mean proportions (with confidence intervals) of diploid (*N* = 377) and tetraploid (*N* = 216) plants of *Centaurea stoebe* forming accessory rosettes. Different letters above columns indicate a significant difference between geo-cytotypes at *P* <0 .05.

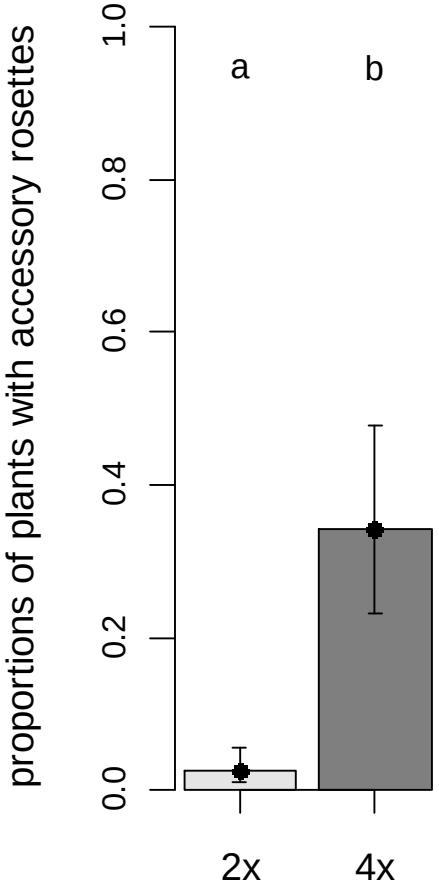

FIG. S5. Number of shoots in diploid and tetraploid plants of *Centaurea stoebe*. The number of analysed seed plants per cytotype is given above each boxplot.

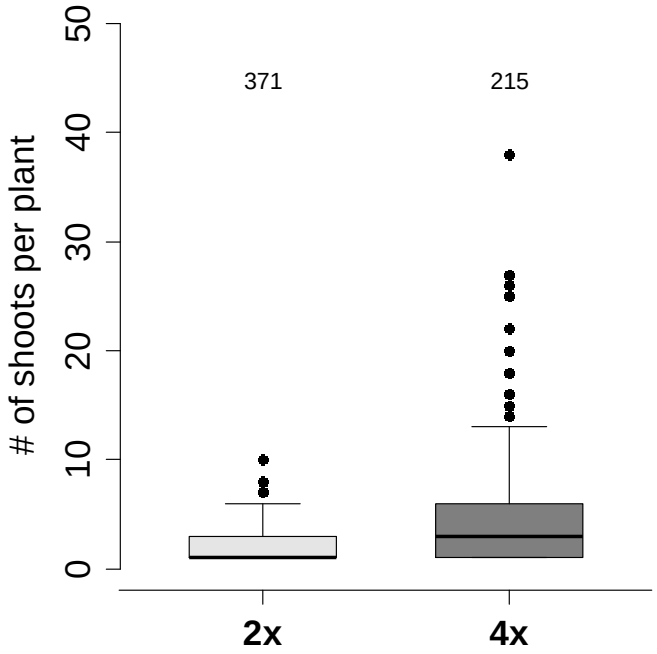

FIG. S6. Number of accessory rosettes in diploid and tetraploid plants of *Centaruea stoebe*. The number of analysed seed plants per cytotype is given above each boxplot.

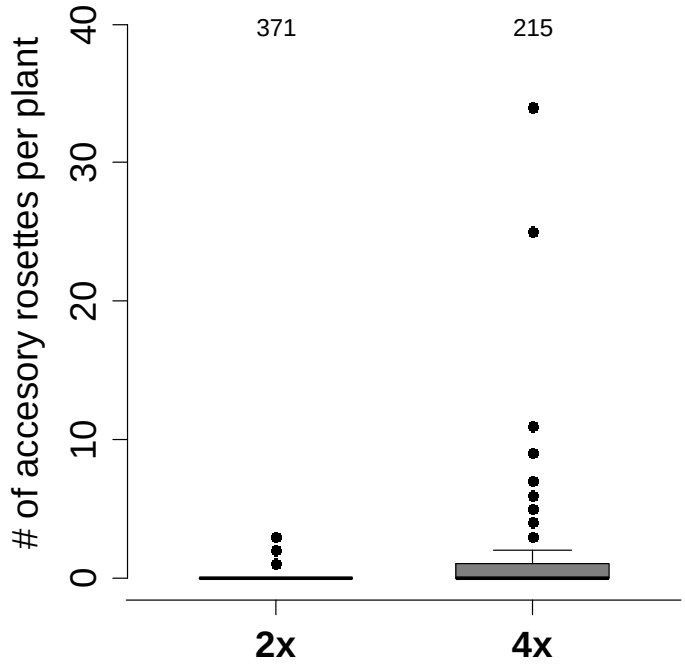

FIG. S7. Germination rate per plant (a) and germination speed in days (b) in diploid and tetraploid plants of *Centaurea stoebe* from SAND site. The number of analysed plants per ploidy level (a) and number of seeds per ploidy level (b) are given above each respective boxplot.

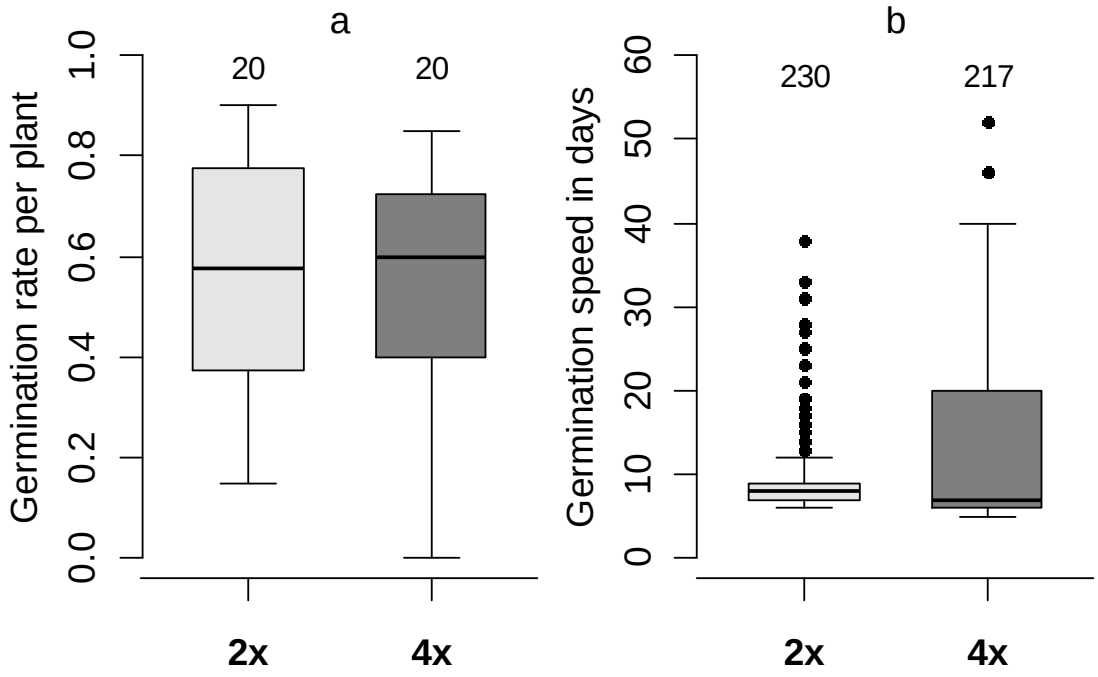

FIG. S8. Proportions of plants that were still flowering and that had finished flowering at the mixed ploidy KOP site on 14 August 2009.

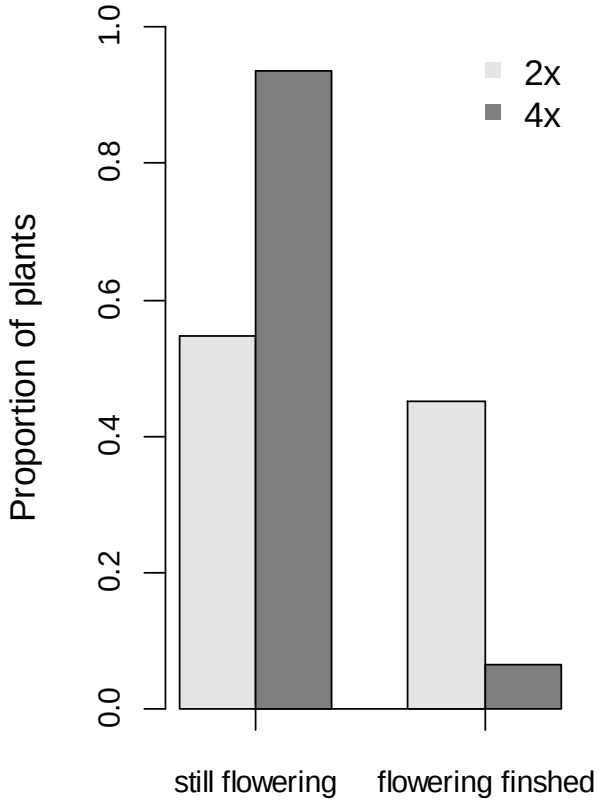

TABLE S1. Details of the four microsatellite loci used in present study.

Locus	Primer sequence (5'→ 3')	Dye	Motif	Size range (bp)
CM-730	F:CAGGAAACAGCTATGACGCAGCAACAACCCTTTCTTT R:GGTGGCGATTGAATTGAAGA	FAM	$(CTT)_n$, $(CTT)_n$,	140-197
CM-1922	F:CAGGAAACAGCTATGACAATCAATTGGGCGATAGACG R:AGGGTTAGGGTCCATCAACA	TAMRA	$(GAT)_n$, $(GAT)_n$	195-228
CM-8337	F:CAGGAAACAGCTATGACGGAATGGGAATTGGAATGTG R:GTGTTGGCATATGATGGATG	FAM	$(GAT)_n$	231-258
CM-10060	F:CAGGAAACAGCTATGACTTGCTGTATGACCCAAATGC R:TTTCACACTTCCACAACATTTTT	JOE	$(TGT)_n$	206-250

TABLE S2. List of sequenced diploid, triploid and tetraploid plants of *Centaurea stoebe* and their haplotypes and accession numbers.

			GenBank accession number	
Plant code and ploidy	Sampling site	Haplotype	*atp*B-*rbc*L	*trn*L-*trn*T
DK-151_2x	SAND	H1	JN053277	JN053346
DK-177_4x	SAND	H9	JN053278	JN053347
DK-186_4x	SAND	H9	JN053279	JN053348
DK-189_4x	SAND	H1	JN053280	JN053349
DK-189-P4_3x	SAND	H1	JN053281	JN053350
DK-200_2x	SAND	H8	JN053282	JN053351
DK-213_4x	SAND	H9	JN053283	JN053352
DK-225_2x	SAND	H5	JN053284	JN053353
DK-270_2x	SAND	H1	JN053285	JN053354
DK-290_2x	SAND	H1	JN053286	JN053355
DK-293_3x	SAND	H9	JF960864	JF960905
DK-296_4x	SAND	H9	JN053287	JN053356
DK-330_4x	SAND	H9	JN053288	JN053357
DK-350_2x	SAND	H8	JN053289	JN053358
SAF-2_4x	MAR	H11	JN053290	JN053359
SAF-5_4x	MAR	H12	JN053291	JN053360
SAF-6_4x	MAR	H1	JN053292	JN053361
SAF-7_4x	MAR	H1	JN053293	JN053362
SAF-9_4x	MAR	H11	JN053294	JN053363
SAF-11_4x	MAR	H11	JN053296	JN053365
SAF-10_2x	MAR	H2	JN053295	JN053364
SAF-12_2x	MAR	H2	JN053297	JN053366
SAF-13_2x	MAR	H2	JN053298	JN053367
SAF-14_2x	MAR	H2	JN053299	JN053368
SAF-15_2x	MAR	H3	JN053300	JN053369
SAF-16_2x	MAR	H2	JN053301	JN053370
Ma-134_3x	MAR	H2	JF960879	JF960920
DK-1_2x	GLA	H1	JN053302	JN053371
DK-3_4x	GLA	H12	JN053303	JN053372
DK-7_2x	GLA	H12	JN053275	JN053344
DK-9_4x	GLA	H12	JN053305	JN053374
DK-11_2x	GLA	H12	JN053306	JN053375
DK-19_2x	GLA	H12	JN053307	JN053376
DK-23_2x	GLA	H1	JN053308	JN053377
DK-29_2x	GLA	H12	JN053309	JN053378
DKW-2_4x	WEIT	H9	JN053310	JN053379
DKW-6_4x	WEIT	H9	JN053311	JN053380
DKW-16_2x	WEIT	H2	JN053312	JN053381
DKW-23_4x	WEIT	H9	JN053313	JN053382
DKW-25_2x	WEIT	H12	JN053314	JN053383
DKW-32_4x	WEIT	H9	JN053315	JN053384
DKW-34_2x	WEIT	H12	JN053316	JN053385
DKW-38_2x	WEIT	H7	JN053317	JN053386
DKW-40_4x	WEIT	H9	JN053318	JN053387
DKW-47_2x	WEIT	H2	JN053319	JN053388
DKW-49_4x	WEIT	H2	JN053320	JN053389
DKW-59_2x	WEIT	H6	JN053321	JN053390
SK6-3_2x	TLM	H4	JN053322	JN053391

SK6-18_2x	TLM	H4	JN053323	JN053392
SK6-20_4x	TLM	H1	JN053324	JN053393
SK6-26_2x	TLM	H4	JN053325	JN053394
SK6-34_2x	TLM	H7	JN053326	JN053395
SK6-41_2x	TLM	H4	JN053327	JN053396
SK6-44_4x	TLM	H1	JN053328	JN053397
SK6-46_4x	TLM	H1	JN053329	JN053398
SK6-61_2x	TLM	H4	JN053330	JN053399
SK6-76_4x	TLM	H7	JN053331	JN053400
SK6-86_4x	TLM	H1	JN053332	JN053401
SK6-88_4x	TLM	H1	JN053333	JN053402
SK8-11_4x	KOP	H10	JN053334	JN053403
SK8-20_4x	KOP	H10	JN053335	JN053404
SK8-26_4x	KOP	H10	JN053336	JN053405
SK8-33_2x	KOP	H1	JN053337	JN053406
SK8-35_2x	KOP	H1	JN053338	JN053407
SK8-37_2x	KOP	H1	JN053339	JN053408
SK8-42_4x	KOP	H10	JN053340	JN053409
SK8-67_2x	KOP	H1	JN053341	JN053410
SK8-68_2x	KOP	H6	JN053342	JN053411
SK8-72_2x	KOP	H1	JN053343	JN053412

TABLE S3. Allelic composition at four microsatellite loci of two tetraploid plants of *Centaurea stoebe* sampled at the GLA site and their progeny. Those alleles in offspring not found in their mother plants are marked by **bold**. NA, not amplified.

Mother plant / progeny	locus CM-730	locus CM-1922	locus CM-8337	locus CM-10060
DK3 (mother)	147/150	201/209	238/240/243	212/218/230
DK3-P11	**143**/147/150	201	**231**/240/243	NA
DK3-P14	147/150/**199**	201/**207**	**231**/240/243	212/218/**223**/230
DK3-P15	147/150/**157**/**199**	201/**207**/209	240/243/**252**	**209**/212/218/230
DK3-P5	147/150/**154**	201/**207**/209	**231**/238/243/**246**	**204**/212/218/230
DK3-P8	**143**/147/150/**157**	201/209	240/243	218/230
DK9 (mother)	143/147/154	201	231/243/258	209/212/218/241
DK9-P13	143/**150**/154/**199**	201/**209**	231/243/**246**	209/218
DK9-P15	**150**/154/**157**	201/**207**	231/258	NA
DK9-P16	143/147/**150**/154	201/**204**	243/**249**/258	209/212/**227**/**248**
DK9-P17	143/147/154	201/**204**	231/**246**/258/**268**	218/**227**/**230**/241
DK9-P18	143/147/154/**199**	201	243/**246**/258	209/**215**/241
DK9-P19	143/147/**150**/**157**	201/**207**	231/243	209/212
DK9-P1	143/**150**/154/**199**	201/**209**	231/**234**/**240**/258	209/212
DK9-P20	143/147/**150**/154	201/**209**	231/243/258	209/212/218/**230**
DK9-P22	143/147/154	201/**209**	231/**240**/243	209/212/218/241
DK9-P23	143/**150**/154/**176**	201	**240**/243/258	209/218/**235**/**240**
DK9-P26	143/**150**/154	**190**/201/**209**	231/**240**/**246**/258	209/218
DK9-P27	143/**150**/154/**199**	201/**209**	231/243/258	212/218/**230**/241
DK9-P2	143/147/154/**157**	201/**209**	231/243/258	209/212/**227**/**230**
DK9-P30	143/147/154	201/**209**	231/258	212/**215**/218/241
DK9-P3	143/**150**/154/**157**	**NA**	231/243/258	209/212/218/227
DK9-P4	143/147/154	201/**207**	231/**249**/**255**/258	212/**233**/**240**/241
DK9-P6	143/147/**157**/**199**	201/**209**	231/243/**246**	209/212/**227**
DK9-P7	143/147/**150**/**199**	207/**207**	231/**240**/243	209/218/**227**/**230**
DK9-P8	143/147/**150**/**157**	201	231/**240**/243/258	209/218/**230**