Supplementary Table 1: The P-element has an insertion bias into origin recognition complex (ORC) binding sites in hot evolved populations. For every replicate (rep.) and generation (gen.) we show the total number of P-element insertions (#), the expected (exp.), and the observed (obs.) number of insertions in ORC binding sites as well as the enrichment of P-elements in ORC binding sites ($enr. = obs./exp.$). sig.: significance of enrichment using a chi-squared test; * < 0.05, *** < 0.001

rep.	gen.	#	exp.	obs.	enr.	sig.
1	0	2	0.03	0	0.00	
1	10	10	0.16	5	31.04	*
1	20	34	0.55	16	29.21	***
1	30	111	1.79	46	25.73	***
1	40	136	2.19	46	21.00	***
1	50	158	2.55	53	20.82	***
1	60	151	2.43	59	24.26	***
3	0	2	0.03	0	0.00	
3	10	14	0.23	6	26.60	*
3	20	50	0.81	18	22.35	***
3	30	127	2.05	54	26.39	***
3	40	92	1.48	35	23.62	***
3	50	137	2.21	66	29.91	***
3	60	118	1.90	40	21.04	***
5	0	3	0.05	0	0.00	
5	10	2	0.03	1	31.04	
5	20	39	0.63	16	25.47	***
5	30	102	1.64	39	23.74	***
5	40	115	1.85	37	19.97	***
5	50	143	2.30	52	22.57	***
5	60	119	1.92	41	21.39	***

Supplementary results 2; Insertion bias of the P-element

The P-element has a strong insertion bias, with about 30-40% of all insertions occurring in 2-3% of the genome (Bellen et al., 2011). The P-element preferentially transposes into unreplicated regions because of an insertion bias into origin of replication complex (ORC) binding sites (Kofler et al., 2015a; Spradling et al., 2011). We found a strong insertion bias in both hot- and cold-evolved populations, with P-element insertions about 20-30 fold enriched in ORC binding sites (supplementary tables 1, 2). The extent of the bias does not change during the invasion and is similar for the hot- and the cold-evolved populations (supplementary tables 1, 2).

Supplementary Table 2: The P-element has an insertion bias into origin recognition complex (ORC) binding sites in cold evolved populations. For every replicate (rep.) and generation (gen.) we show the total number of P-element insertions (#), the expected (exp.) and the observed (obs.) number of insertions in ORC binding sites as well as the enrichment of P-elements in ORC binding sites ($enr. = obs./exp.$). sig.: significance of enrichment using a chi-squared test; * < 0.05, *** < 0.001

rep.	gen.	#	exp.	obs.	enr.	sig.
1	0	2	0.03	0	0.00	
1	10	4	0.06	2	31.04	
1	20	9	0.14	5	34.49	*
1	30	13	0.21	4	19.10	
1	40	45	0.72	21	28.97	***
3	0	2	0.03	0	0.00	
3	10	3	0.05	3	62.08	
3	20	14	0.23	6	26.60	*
3	30	24	0.39	13	33.62	***
3	40	34	0.55	19	34.69	***
5	0	3	0.05	0	0.00	
5	10	3	0.05	1	20.69	
5	20	10	0.16	4	24.83	
5	30	10	0.16	4	24.83	
5	40	25	0.40	6	14.90	