Table S1. The basic information of 10 seed collection sites.

MAT = mean annual temperature, MAP = mean annual precipitation, NON = NO_3^--N, NHN = NH_4^+-N, AP = available phosphorus.

Population	MAT (°C)	MAP (mm)	NON (mg/kg)	NHN (mg/kg)	AP (mg/kg)
a	1.54	747.36	14.87	10.54	3.74
b	1.67	711.53	5.37	16.64	4.28
c	1.41	687.99	5.92	12.87	3.81
d	0.88	683.37	4.22	14.08	4.16
e	2.35	630.14	8.25	14.46	3.37
f	1.15	629.38	9.34	10.47	2.96
g	1.31	622.40	7.53	12.36	3.95
h	1.72	600.27	2.53	11.18	3.81
i	2.61	577.03	11.57	15.94	4.01
j	3.41	498.22	4.33	5.71	3.55

Figure S1. Germination percentage and germination speed for fresh seeds of 10 *E. nutans* populations at four temperatures.
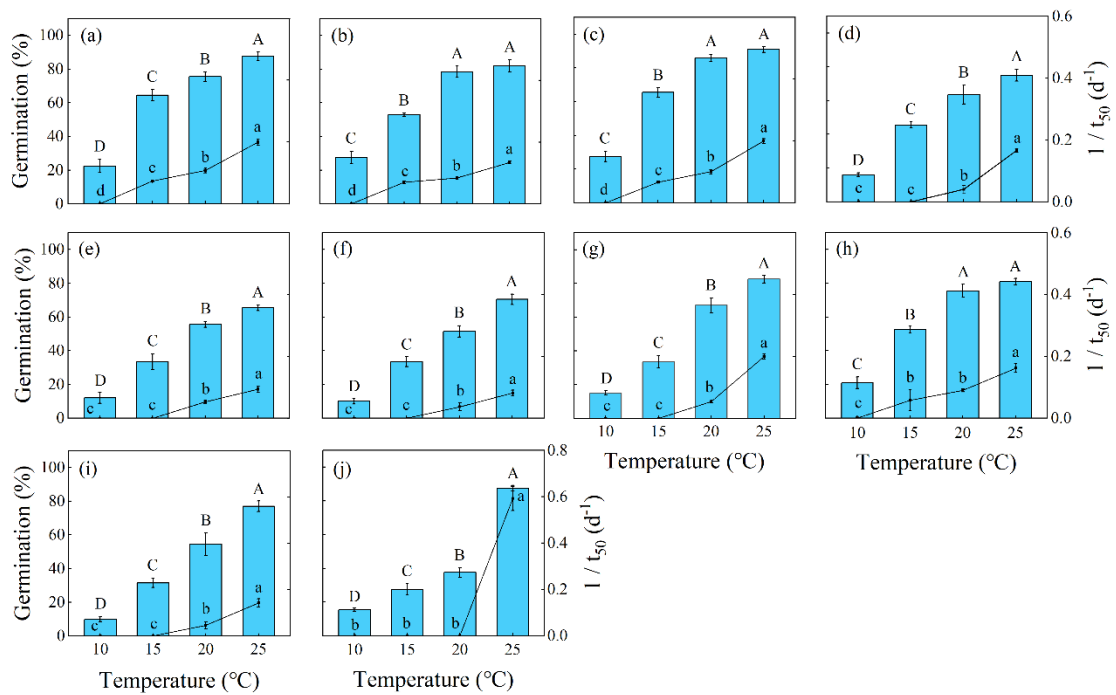
Figure S2. Germination percentage and germination speed for stored <mark>(6-months storage)</mark> seeds of 10 *E. nutans* populations at four temperatures.

<mark>Bars labeled with different uppercase letters indicate significant differences in germination percentages at different temperatures ($P < 0.05$), while lines with difference lowercase letters indicate significant differences in germination speeds at different temperatures ($P < 0.05$).</mark>
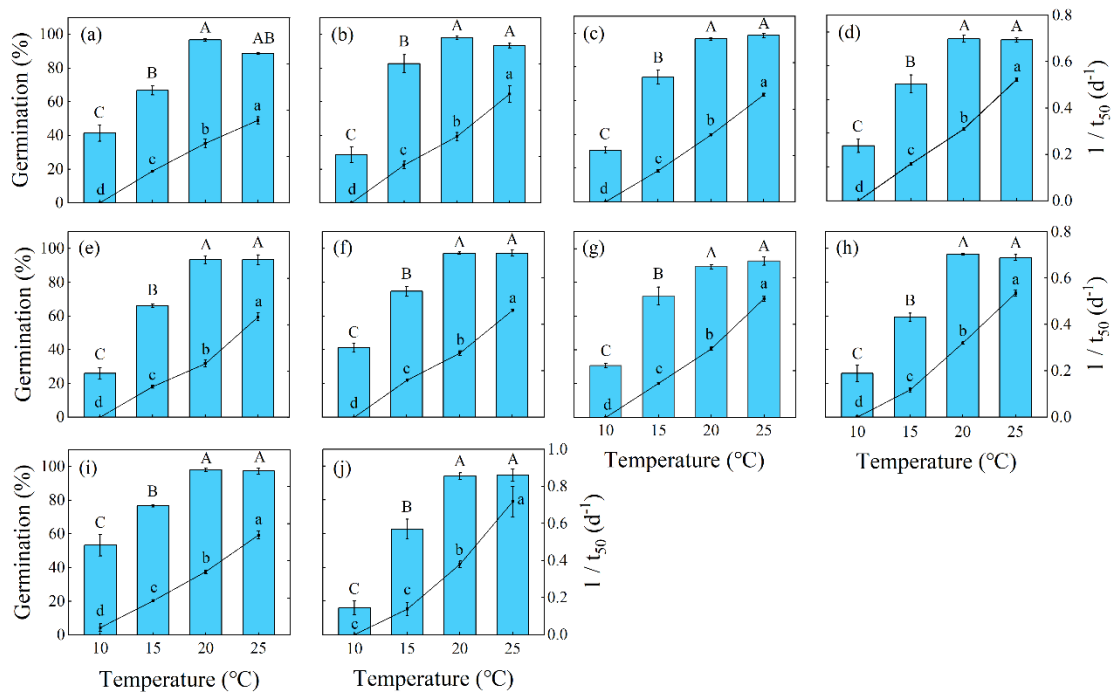
Figure S3. The results of redundancy analysis (RDA) between temperature thresholds for germination and seedling characteristics of fresh and stored seeds.

Red and blue arrows indicate response and explanatory variables, respectively. T_b = base temperature, $\theta_{T(50)}$ = thermal time for 50% of seeds to germinate at suboptimal temperature ranges, $\sigma_{\ln\theta T}$ = standard deviation for $\ln(\theta_T)$.
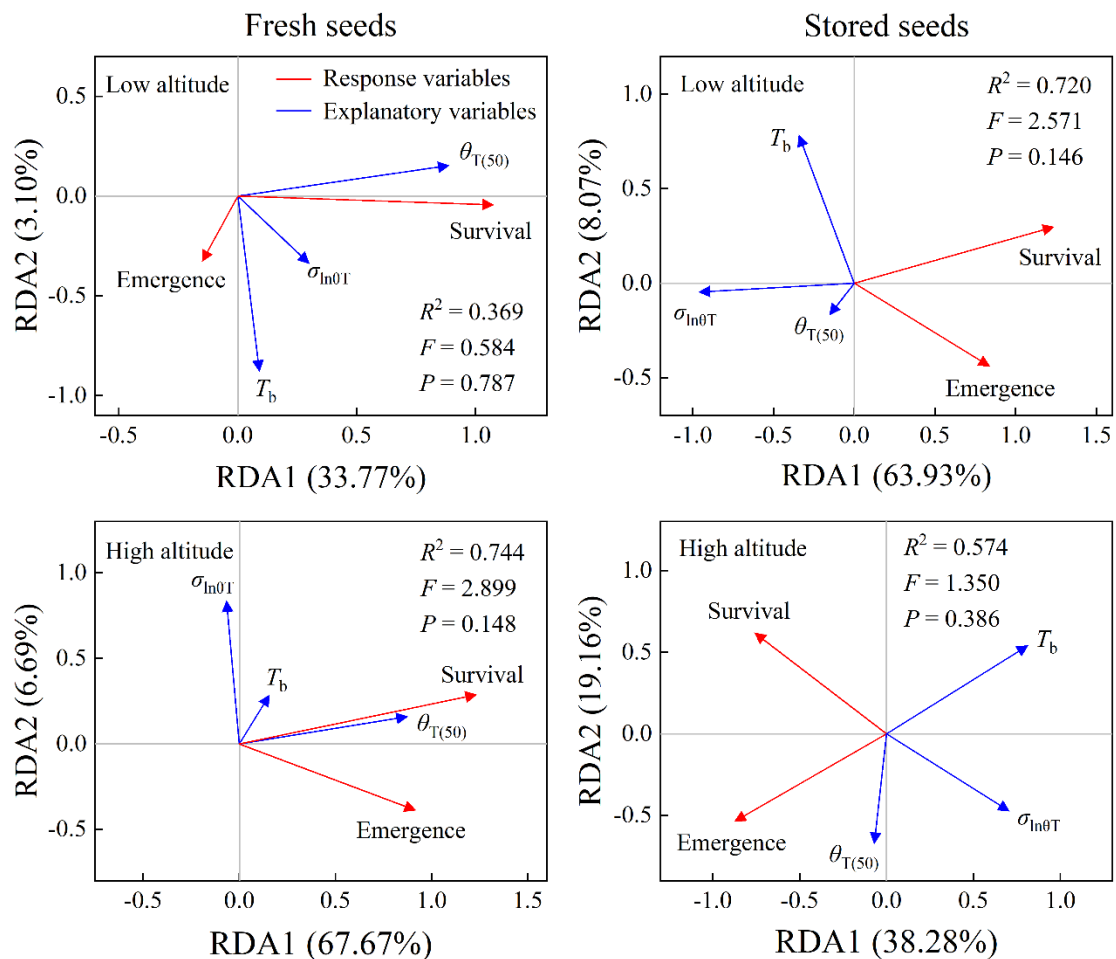
Figure S4. Mean monthly precipitation from 2016 to 2017 in both common gardens.

Data from meteorological station of Xiahe and Maqu.
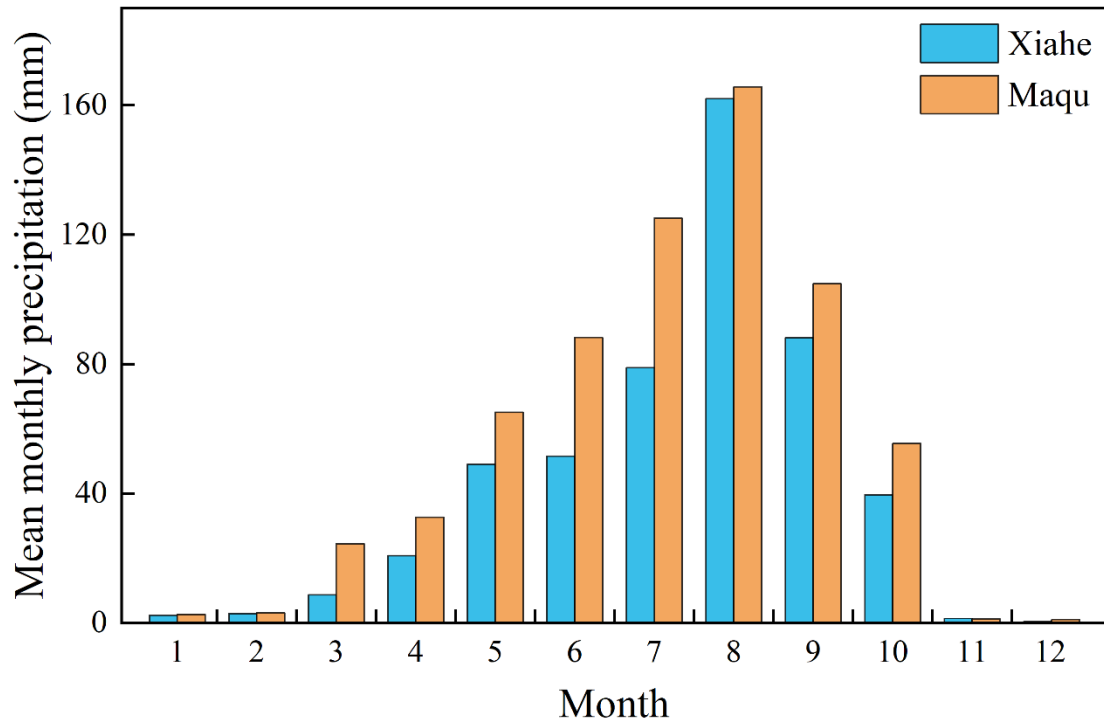
Figure S5. Mean daily temperature from 2016 to 2017 in both common gardens.

Data from meteorological station of Xiahe and Maqu.