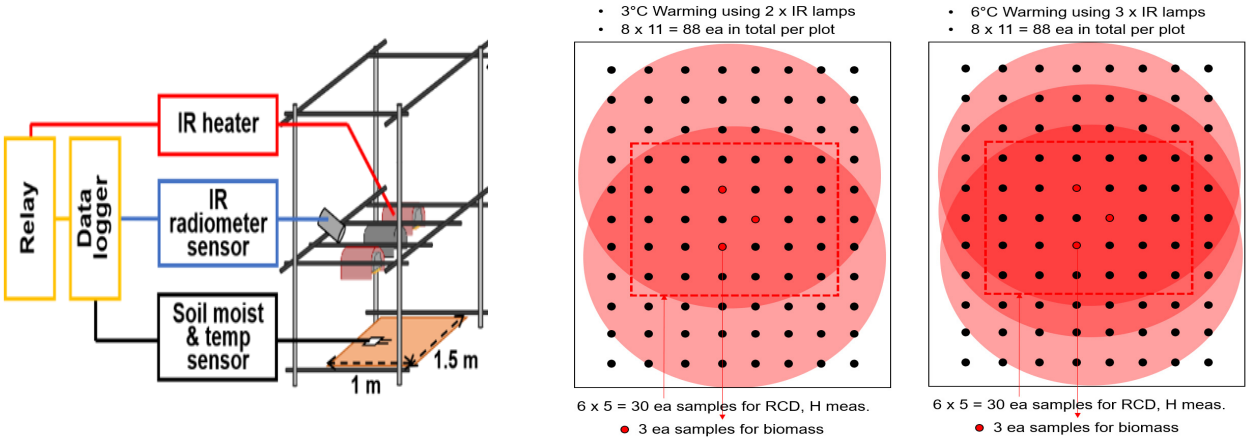
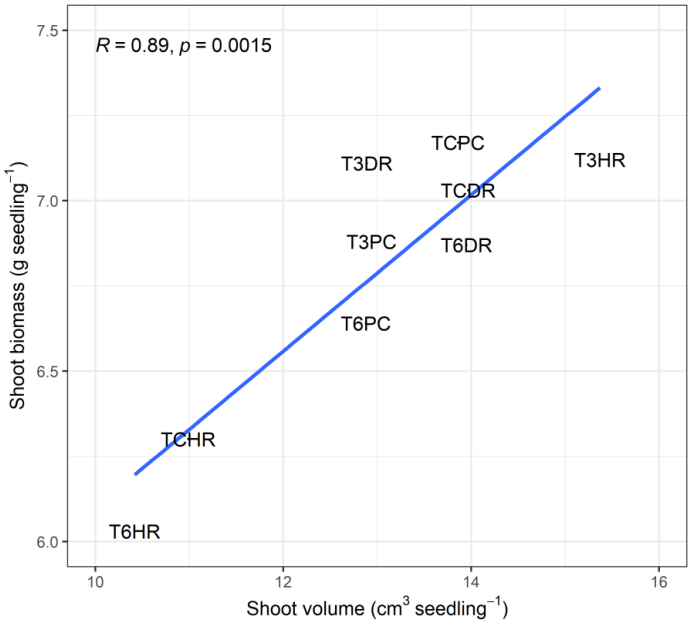
Supplementary Table S1. Survival rate, root collar diameter, height, stem volume, H/D, S/R, and T/R ratios of *Larix kaempferi* seedlings under extreme climate events by temperature and precipitation manipulations. TC: ambient temperature, T3: +3 °C warming, T6: +6 °C extreme warming, DR: drought, PC: ambient precipitation, HR: heavy rainfall. Values are means ± S.D. (n=3 for survival rate, n=90 for RCD, height, stem volume and H/D ratio, n=9 for S/R and T/R ratios. Values with different letters in a column indicate statistical differences among treatments within a species at 5% levels by Tukey HSD test.

Meas. month	Treatment		Survival rate (%)	RCD (mm)	Height (cm)	Stem volume (cm^3)	H/D ratio	S/R ratio	T/R ratio
May	TC	DR	-	3.17 ± 0.06 a	31.11 ± 0.30 a	1.68 ± 0.62 a	100.0 ± 2.0	-	-
		PC	-	3.20 ± 0.05 a	30.02 ± 0.38 a	1.65 ± 0.58 a	95.3 ± 1.7	-	-
		HR	-	3.31 ± 0.05 a	30.33 ± 0.41 a	1.77 ± 0.55 a	92.9 ± 1.9	-	-
	T3	DR	-	3.13 ± 0.06 a	30.42 ± 0.30 a	1.61 ± 0.68 a	99.7 ± 2.1	-	-
		PC	-	3.22 ± 0.06 a	30.63 ± 0.40 a	1.70 ± 0.69 a	96.7 ± 1.9	-	-
		HR	-	3.19 ± 0.05 a	30.55 ± 0.35 a	1.65 ± 0.55 a	97.2 ± 1.9	-	-
	T6	DR	-	3.26 ± 0.06 a	29.74 ± 0.37 a	1.71 ± 0.66 a	93.0 ± 1.7	-	-
		PC	-	3.24 ± 0.06 a	31.08 ± 0.55 a	1.76 ± 0.77 a	97.3 ± 2.4	-	-
		HR	-	3.31 ± 0.06 a	29.51 ± 0.46 a	1.72 ± 0.78 a	89.8 ± 1.9	-	-
October	TC	DR	92.8 ± 8.8	6.96 ± 0.99 a	55.98 ± 8.83 ab	13.97 ± 72.69 a	80.7 ± 9.8 ab	3.02 ± 0.17	4.02 ± 0.17
		PC	92.4 ± 3.7	6.94 ± 0.89 a	52.64 ± 9.90 ab	13.86 ± 62.83 a	75.7 ± 11.7 bcd	2.82 ± 0.07	3.82 ± 0.09
		HR	92.4 ± 4.7	6.74 ± 0.91 a	45.94 ± 7.04 d	10.99 ± 47.39 b	68.8 ± 10.0 e	2.81 ± 0.17	3.81 ± 0.17
	T3	DR	97.7 ± 1.1	6.89 ± 0.89 a	51.92 ± 8.57 bc	12.89 ± 57.16 ab	75.5 ± 11.3 cd	3.07 ± 0.10	4.07 ± 0.10
		PC	93.9 ± 1.3	7.03 ± 1.15 a	52.59 ±11.08 bcd	12.94 ± 80.29 ab	74.6 ± 10.4 cd	2.75 ± 0.21	3.75 ± 0.21
		HR	95.4 ± 3.0	7.30 ± 0.98 a	57.49 ± 9.92 a	15.37 ± 78.40 a	78.9 ± 10.5 abc	3.30 ± 0.34	4.20 ± 0.35
	T6	DR	95.1 ± 3.5	6.93 ± 1.00 a	56.00 ± 9.72 a	13.95 ± 65.58 a	81.2 ± 11.2 a	3.09 ± 0.29	4.09 ± 0.29
		PC	92.6 ± 0.8	6.94 ± 0.91 a	49.81 ± 7.08 bcd	12.88 ± 66.52 ab	72.1 ± 8.3 de	3.00 ± 0.24	4.00 ± 0.24
		HR	94.3 ± 1.6	6.84 ± 0.90 a	48.57 ± 9.90 cd	10.42 ± 73.58 b	70.9 ± 7.8 de	3.42 ± 0.52	4.41 ± 0.52



(**a**) (**b**)

Supplementary Figure S1. The descriptions of (**a**) warming treatment system and (**b**) areas warmed by infrared heating lamps and locations of the sampled seedlings (30 samples for root collar diameter and height growth measurements and 3 samples for biomass measurement. (modified from Kim et al., under review)



Supplementary Figure S2. The relationship between stem volume and stem biomass of *Larix kaempferi* seedlings across the temperature and precipitation manipulations. TC: ambient temperature, T3: +3 °C warming, T6: +6 °C extreme warming, DR: drought, PC: ambient precipitation, HR: heavy rainfall. Values are means ± S.D. (n=9 for stem biomass, n=60 or 90 for stem volume per treatment). Result from Pearson correlation analysis is shown in the figure.