

Treeline Dynamics with Climate Change at Central Nepal Himalaya

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25 **Table S1.** Tree cores and cut stumps samples collected from MCA for this study.

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Species	Number of cores/trees	Number of cut stumps/trees	Total
<i>Abies spectabilis</i>	139/98	33/33	172
<i>Betula utilis</i>	66/33	11/6	77

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28 **Table S2.** Descriptive statistics of structural parameters of trees at Transect 1 (T1) and
 29 Transect 2 (T2) at the treeline ecotone of Kalchuman Lake area, MCA. * Includes all
 30 seedling, sapling and tree individuals.

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Species		Height* (m)		DBH (cm)		Age* (yr)	
		T1	T2	T1	T 2	T1	T2
<i>Abies</i>	Mean	1.9	2.2	22.6	10.9	18.2	22.1
<i>spectabilis</i>	Median	0.24	1.38	20.5	10.5	7	19
	Std.	3.6	1.8	15.9	7.9	27.6	10.1
	Deviation						
	Maximum	18	6.5	66	32	160	52
<i>Betula</i>	Mean	6.35	4.72	22.2	13.3	111.3	79.0
<i>utilis</i>	Median	6.5	5.0	22.0	12.0	110.5	73.2
	Std.	1.7	1.4	10.5	7.7	39.7	31.4
	Deviation						
	Maximum	11.5	8	46.5	38.0	198	166

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33 **Table S3.** Number of seedlings, saplings and trees at study plots.

Transect	Species	Number of individuals			Total
		Seedling	Sapling	Tree	
T1	<i>Abies spectabilis</i>	127	31	42	200
	<i>Betula utilis</i>	0	0	112	112
T2	<i>Abies spectabilis</i>	4	21	18	43
	<i>Betula utilis</i>	0	2	78	80
Total					435

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35 **Table S4.** Selected statistics of tree-ring chronology of *Abies spectabilis* from Kalchuman
 36 Lake area, MCA.

Statistics	Standard Chronology
Chronology Time Span	A.D. 1782-2010
Number of Trees (radii)	29 (46)
Mean Sensitivity	0.136
Standard Deviation	0.18
AR modeling order 1	0.592
Common Interval Time Span	A.D. 1920-2005
Number of Trees (radii)	24 (39)
Mean correlation among all radii	0.196
Mean correlation between trees	0.192
Mean correlation within trees	0.467
Signal-to-noise ratio	11.23
Expressed population signal	0.918
Variance explained by first eigenvector	24.4%

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38 **Table S5.** Summary statistics of regression model between tree-ring chronology of *Abies*
39 *spectabilis* and monthly mean temperature data of May-August

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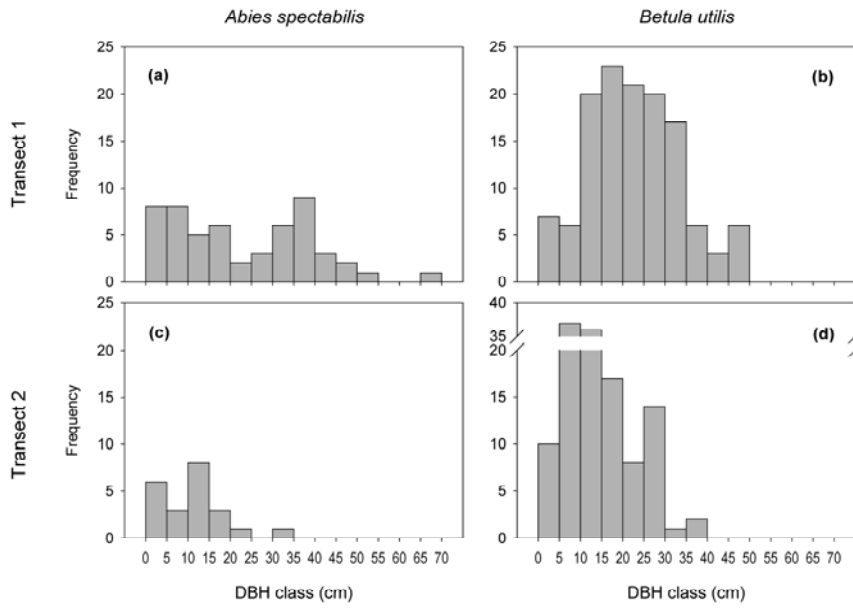
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	0.554 ^a	0.307	0.282	0.798	12.411	.001 ^a

a. Predictors: (Constant), Akt_Std

b. Dependent Variable: MJJA_Observed_Temp

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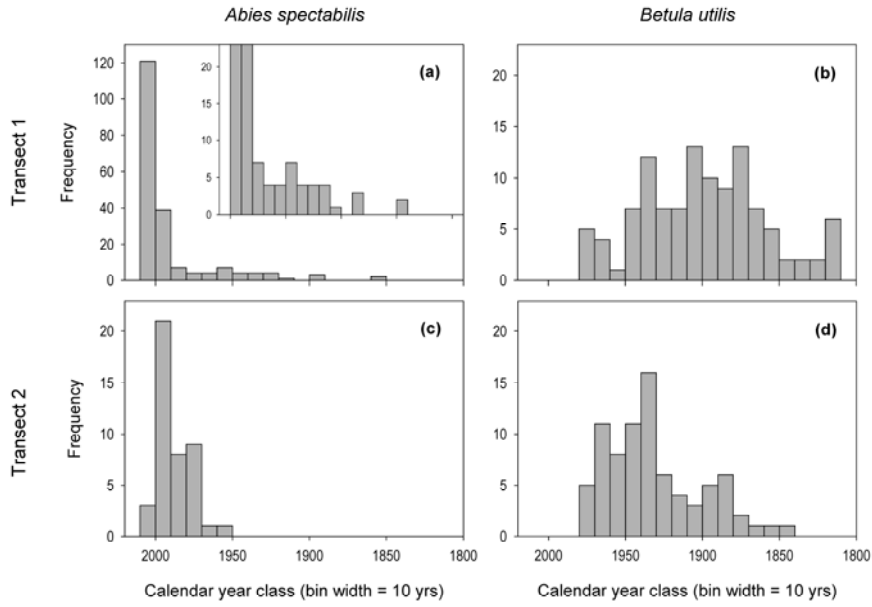
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44 **Fig. S1(a-d).** DBH class distributions of major tree species in T1 and T2.

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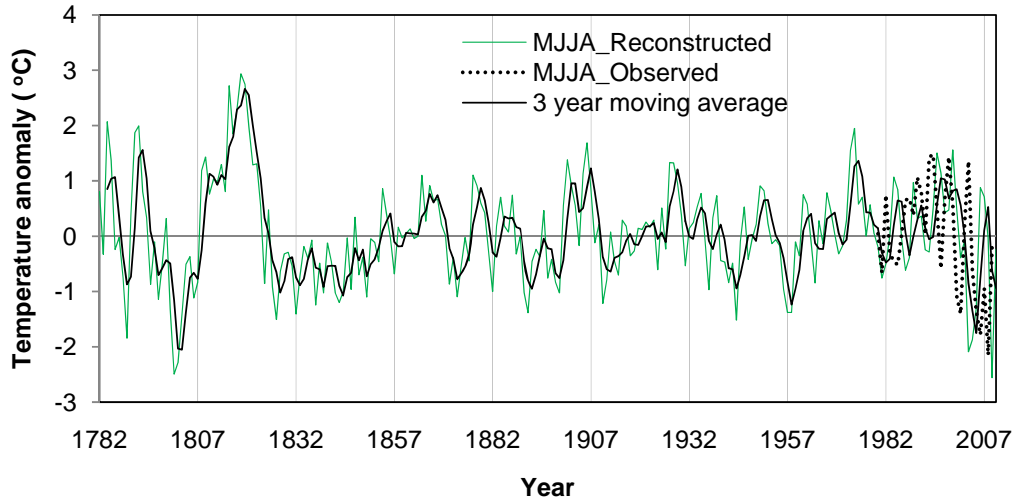
47 **Figs. S2 (a-d).** Age distribution (10yr class) of tree species with calendar year in T1 and T2.

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53 **Fig. S3.** Observed and Reconstructed average MJA temperature for central Nepal. The solid
54 black line represents the three year moving average.

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