



*Supplement of*

## **Treeline dynamics with climate change at the central Nepal Himalaya**

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## Supplementary Information

# Treeline Dynamics with Climate Change at Central Nepal Himalaya

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8 This supplementary information includes four tables and three figures.

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12 Transect 2 (T2) at the treeline ecotone of Kalchuman Lake area, MCA. \*Includes all  
13 seedling, sapling and tree individuals.

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24 **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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27 **Table S2.** Descriptive statistics of structural parameters of trees at Transect 1 (T1) and  
28 Transect 2 (T2) at the treeline ecotone of Kalchuman Lake area, MCA. \* Includes all  
29 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> <i>spectabilis</i>	Mean	1.9	2.2	22.6	10.9	18.2	22.1
	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						
<i>Betula</i> <i>utilis</i>	Maximum	18	6.5	66	32	160	52
	Mean	6.35	4.72	22.2	13.3	111.3	79.0
	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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32 **Table S3.** Number of seedlings, saplings and trees at study plots.

Transect	Species	Number of individuals			
		Seedling	Sapling	Tree	Total
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

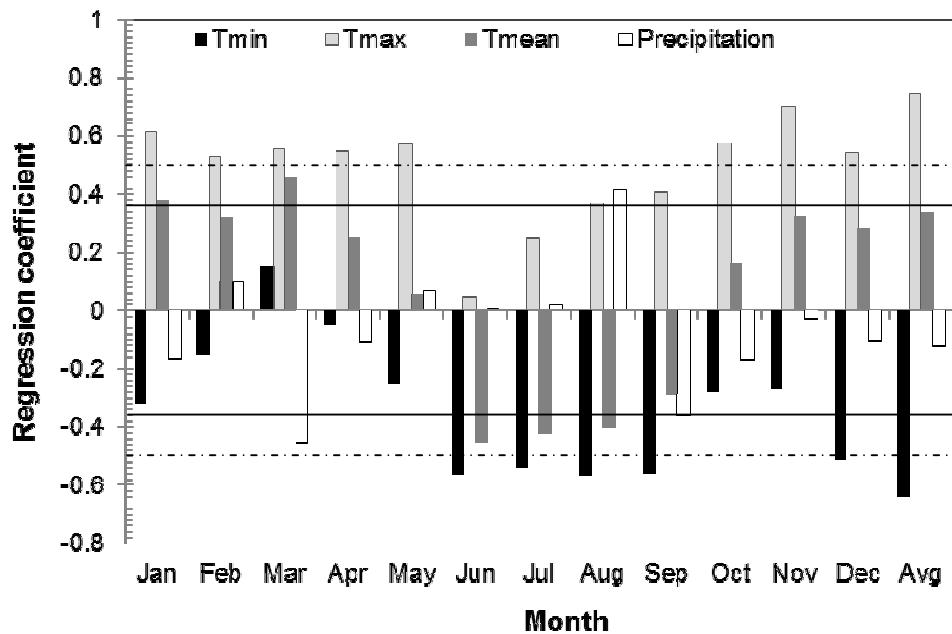
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34 **Table S4.** Selected statistics of tree-ring chronology of *Abies spectabilis* from Kalchuman  
35 Lake area, MCA.

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%

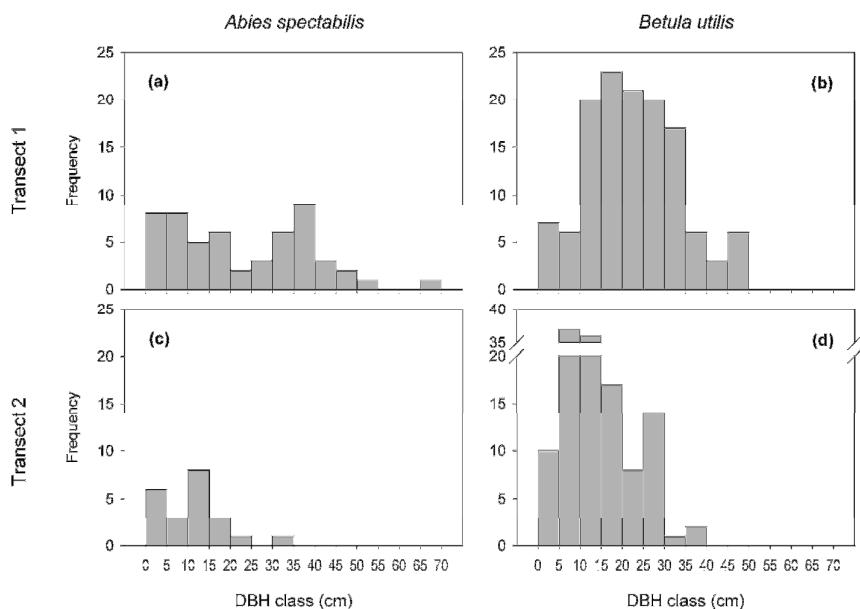
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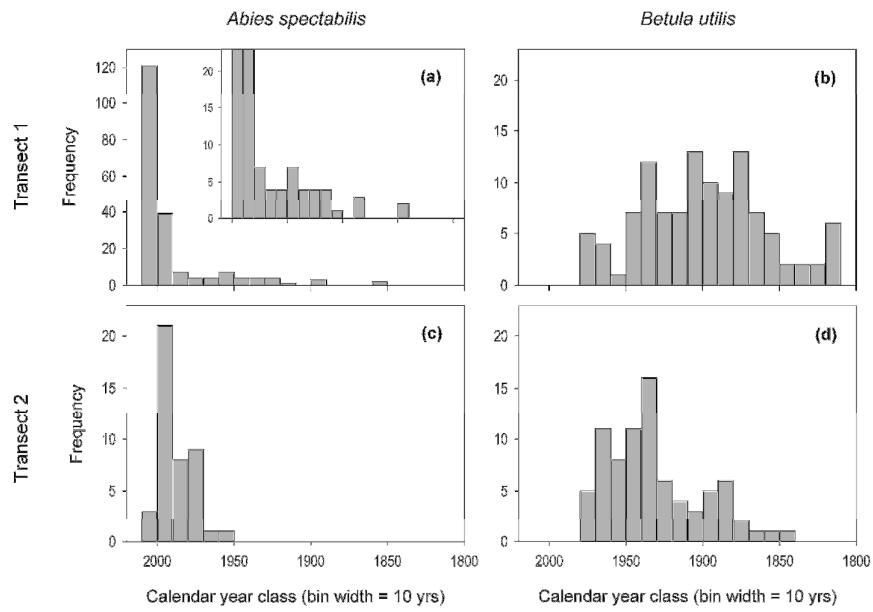


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39 **Fig. S1.** Monthly climatic trend in the Chame station during 1980 to 2009. The black  
 40 horizontal solid line indicates a significant correlation at the 95% confidence limit for a two-  
 41 tailed test and dashed horizontal line indicates a significant correlation at the 99% confidence  
 42 limit for a two-tailed test.



45 **Fig. S2 (a-d).** DBH class distributions of major tree species in T1 and T2.



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48 **Figs. S3 (a-d).** Age distribution (10yr class) of tree species with calendar year in T1 and T2.