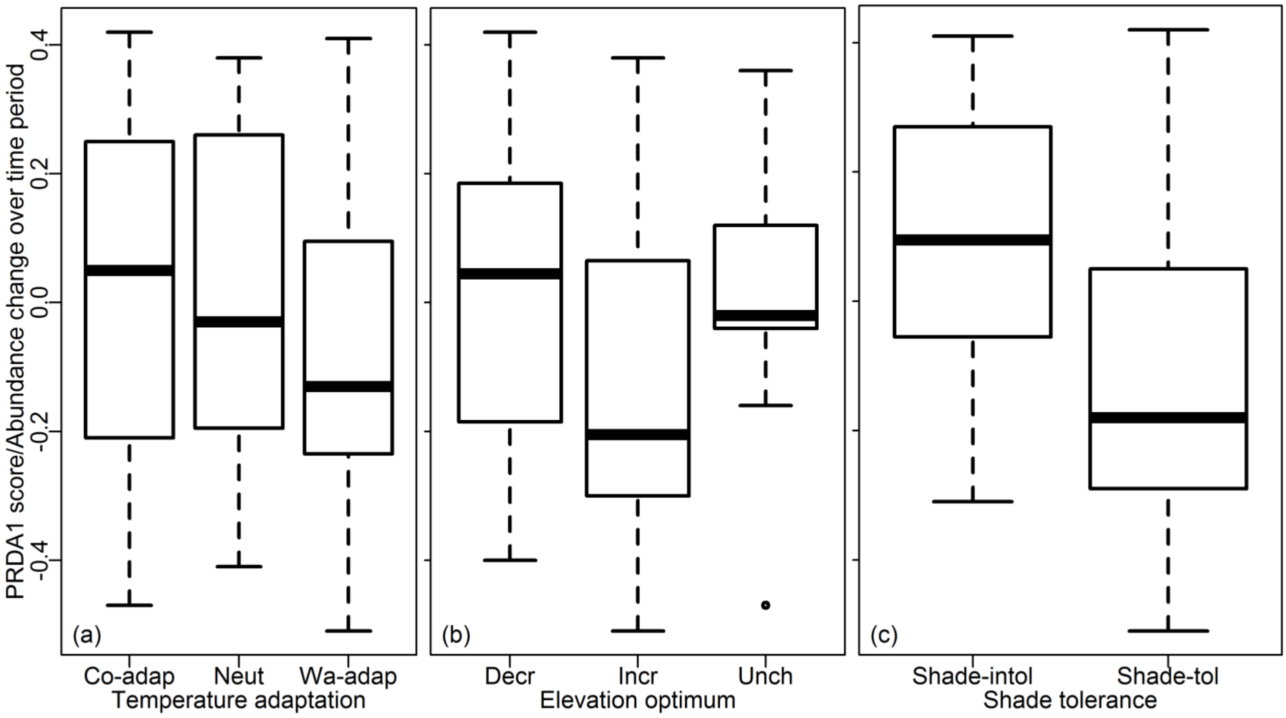
Supporting information to the paper

Bhatta, K.P. & Vetaas, O.R. Does tree-canopy closure moderate the effect of climate warming on plant species composition of temperate Himalayan oak forest? *Journal of Vegetation Science.*

Appendix 6a-c. Temporal change in species abundance (pRDA axis 1 species scores). (a) change in abundance of species according to different temperature adaptation (Co.adap = cold-adapted, Neut = Neutral, Wa-adap = earm-adapted), (b) change in abundance of species according to shifts in their elevational optima (Decr = decreased, Incr = increased, Unch = unchanged), (c) change in abundance of species according to their shade-tolerance (Shade-intol = shade-intolerant, Shade-tol = shade tolerant). The higher negative score of pRDA axis 1 represent an increase in species abundance over time period, and the higher positive scores reveal the decline in species abundance.



Procedure of parameter estimation: To test if the temporal change in abundance is reflective of their temperature range, we estimated the temperature adaptation of species by comparing the elevation range mid-point of each species (Press et al. 2000) with respect to the studied temperature-elevation gradient. Species having elevation range mid-points below the lowest elevation of the sample plots (i.e. < 2300 m a.s.l.) were regarded as warm-adapted and those having optima above the highest elevation of the sample plots (> 2600 m a.s.l.) were considered as cold-adapted species. If warming temperature is the major driver of compositional change, we would expect an increase in abundace of warm-adapted species in our sample plots. Habitat preference (shade-tolerant versus shade-intolerant) of the studied species was categorised using Press et al. (2000) and HMG-Nepal (1969).

References

HMG-Nepal 1969. *Flora of Phulchoki and Godawari*. Department of Plant Resources, Kathmandu, Nepal.

Press, J.R., Shrestha, K.K. & Sutton, D.A. 2000. *Annotated Checklist of the Flowering Plants of Nepal*. The Natural History Museum, London.