

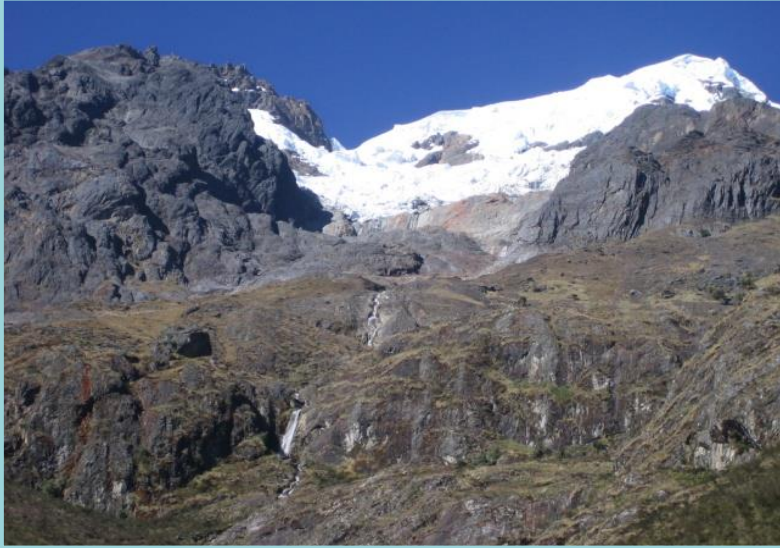
Elevational shifts in the topographic control of the Andean treeline forest distribution

Toivonen, Johanna¹ jomito@utu.fi,
Gonzales-Inca, Carlos¹; Bader, Maaïke²; Ruokolainen, Kalle¹;
Kessler, Michael³

¹University of Turku, Finland; ²University of Marburg, Germany;

³University of Zurich, Switzerland

Andean treelines: **natural** vs. **anthropogenic** causes on forest distribution

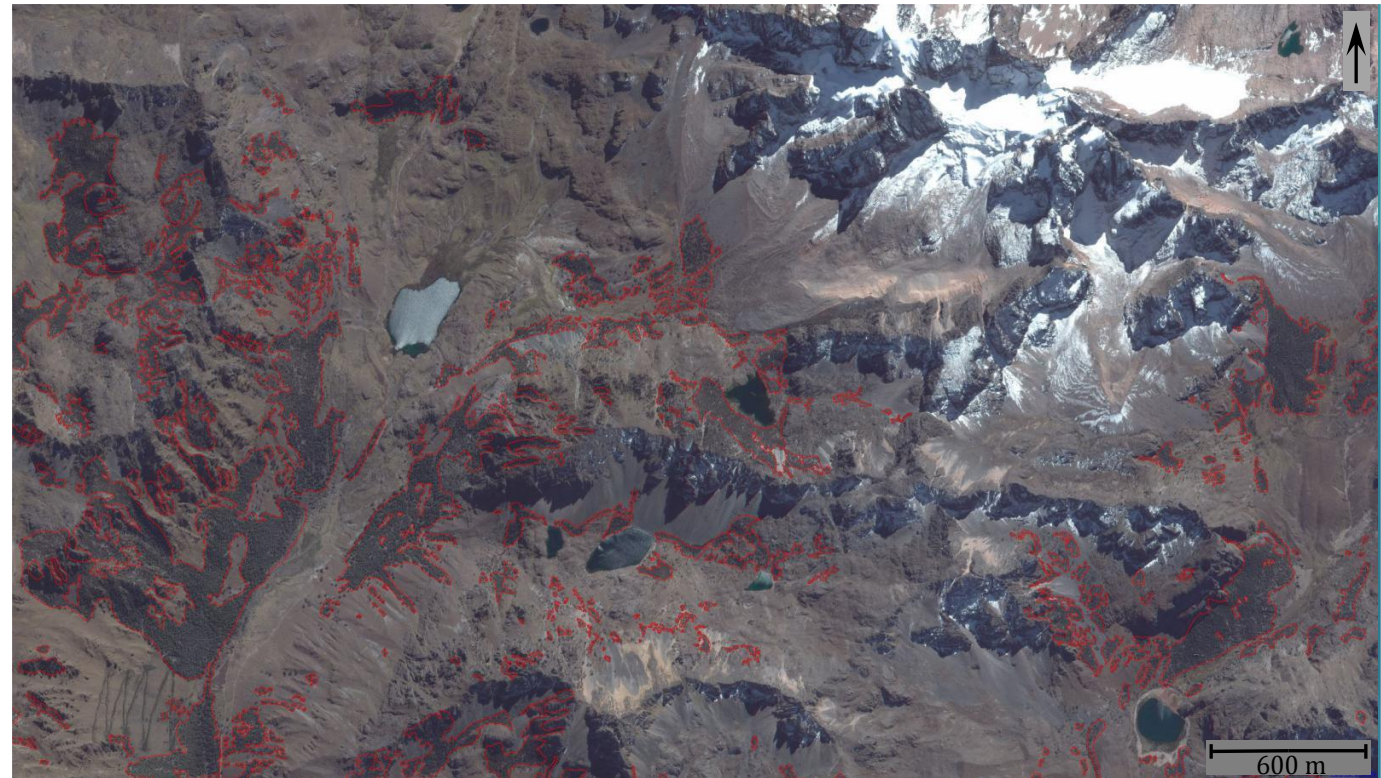


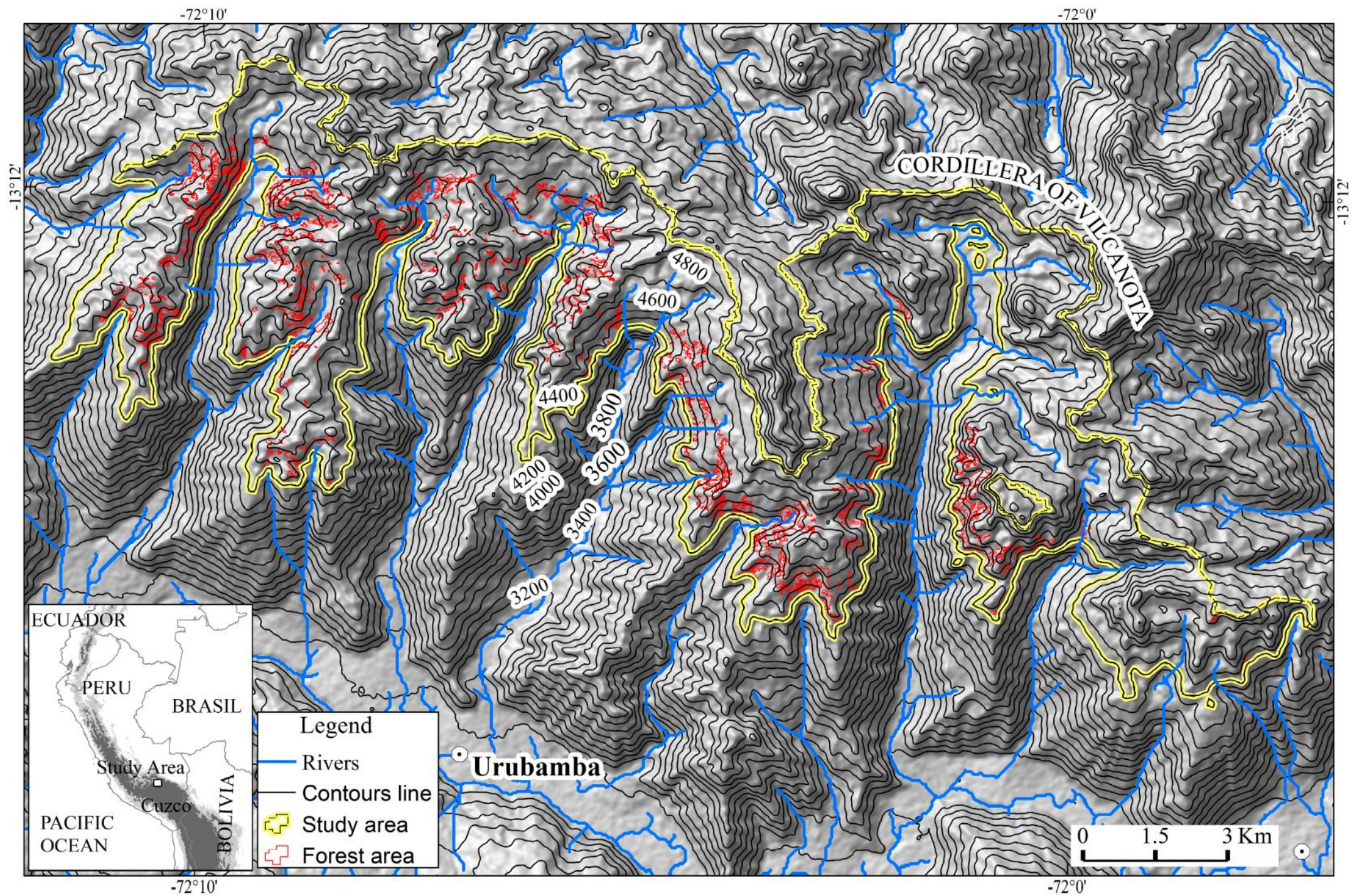
Topographic control of the Andean treeline forest distribution

- 1) What are the best topographic predictors of *P. subsericans* treeline forest cover?
- 2) Does the role of different topographic predictors changes with elevation?

- ✓ BingMaps aerial photograph (2 m x 2 m)
- ✓ Aster DEM (30 m x 30 m)

- Northern exposure (NORTH)
- Eastern exposure (EAST)
- Topographic wetness index TWI)
- Solar radiation (SRD)
- Overland flow distance (OFD)
- Morphometric protection index (MPI)





Results:

Forests at lower elevations grew mostly in topographically protected sites close to rivers, whereas at higher elevations in north-facing, sunnier and well-drained sites.

Implications on the modelling of suitable sites in the current and future climatic conditions >> Topographic effect may differ by elevation belt.

