

>> SYNTHESIZE MOUNTAINS OF KNOWLEDGE <<

## Submitted Abstract

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## Abstract

The Caucasus Mountains harbor high concentrations of endemic species and provide an abundance of ecosystem services, yet are significantly understudied compared to other ecosystems in Eurasia. In the country of Georgia, at the heart of the Caucasus region, forest degradation has been the largest land change process over the last thirty years. The prevailing narrative is that poor, rural Georgians are primarily responsible for this process, largely via legal and illegal cutting of trees for fuelwood. Yet, since independence from the Soviet Union in 1991, the country and the Caucasus mountains, which define the country's geography as well as that of neighboring countries, has undergone rapid socioeconomic and institutional changes which have not been explored as drivers of forest change. We combine newly available land cover change estimates, Georgian statistical data, and historical institutional change data to examine socioeconomic drivers of forest degradation. Our analysis controls for concurrent changes in climate that would affect degradation and examines variation at the regional (state) level from 2011-2019, as well as at the national level from 1987-2019. We find that higher earnings and road access are associated with higher degradation at the regional scale, whereas major institutional changes and drought events explain higher forest degradation at the national level. We find that the Rose Revolution of 2003 (representing the end of Soviet-era leadership and a new orientation towards Europe and the U.S.) is associated with a significant increase in forest degradation. Natural gas access, the major energy alternative to fuelwood, had no significant association with degradation. Our results challenge the narrative that poverty and a lack of alternative energy infrastructure drive forest degradation and suggest that government policies banning household fuelwood cutting, including the new Forest Code of 2020, will be unlikely to reduce forest degradation. This evidence is directly applicable to pathways for sustainable mountain development in, both in the Caucasus and in other mountain regions. Given these results, more research on the commercial drivers of degradation and their links to economic and political shifts is urgently needed to better inform forest policy in this mountain region, especially given ongoing risks from climate change.