

## Submitted Abstract

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## Abstract

Bofedales, are a type of peat bogs that belong to complex hydro-ecological systems on the Alpine belt of the Andes. Scattered along plateaus and glacier valleys, bofedales are critical water reservoirs that sustain fragile ecosystems and regulate surface and groundwater cycles. The rapid glacier retreat has been shown to affect the number, distribution, and health condition of bofedales but only with an inventory and distribution map would it be possible to understand their vulnerability in the face of climate and land-use changes. To obtain this inventory, we combined extensive fieldwork assessments with the analysis of thousands of Copernicus Sentinel-2 imagery on Google Earth Engine, to determine the current spatial distribution of bofedales in the Subtropical Andes. In addition, we selected 20 bofedales on a latitudinal gradient along the Subtropical Andes (14° to 22° S) to analyze the seasonal and annual trends of bofedales' vegetation from 1987 to the present. For this, we processed and analyzed monthly NDVI data, from Landsat TM and MODIS sensors. With this long-term set of observations, we obtained a climatology of the NDVI, allowing us to understand the seasonal-to-interannual trends of the vegetation as well as the existing anomalies in their seasonal and annual regime. The information produced in tables and maps will help local and national authorities to determine the next steps towards the conservation of these vulnerable mountain hydro ecosystems in the face of climate change.