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Whether and how alpine organismic communities respond to ongoing environmental changes is difficult to assess quantitatively, given their intrinsically slow responses, remote locations and limited data. Here we provide a synthesis of the first five years of a multidisciplinary, highly standardized, long-term monitoring programme of terrestrial and aquatic ecosystems in the Austrian Hohe Tauern National Park and companion sites in northern Italy and the central Swiss Alps. The programme aims at evidencing the ecological state and trends in largely late-successional, high-elevation ecosystems. We present the conceptual framework, the study design and first results. Replicated over five regions, different sites and a multitude of permanent plots, the abiotic (microclimate, physics and chemistry of soils and water bodies), biodiversity (plants, animals, microbes), and productivity data (alpine grassland, lakes, streams) provide a representative reference for future re-assessments. The wide spectrum of biological baseline data presented and their spatial and temporal variation also illustrate the degree of uncertainty associated with smaller-scale and short-term studies and the role of stochasticity in long-term biological monitoring.

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