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# Consistent signals or catchment specific records: paleolimnology in central Scotland.

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Lake sediments contain material derived from within the lake itself (e.g. biological remains, precipitates), the surrounding catchment (e.g. dissolved nutrients, organic matter) and more distal sources (e.g. aerosols, pollen). These sediments therefore contain a variety of information that can be used to gain an understanding of the past conditions of a lake, its catchment, and climatic conditions. A multiproxy approach is therefore required to fully exploit the information contained within these sediments. One of the challenges posed by this approach is the interpretation and integration of multiple sources of information, especially as these can sometimes appear to contradict each other.

This study uses sediment archives from two lochs (Loch an Eilein and Uath Lochan) in the Cairngorm Mountains of Scotland to infer past environmental and landscape changes during the Holocene. Pollen, diatoms and geochemical records were independently analysed with separate environmental interpretations developed for each proxy. Relatively consistent signals were observed between the different proxy records at Loch an Eilein, although the pollen records were slower to respond to climate amelioration within the early Holocene.

The two lochs show different patterns of environmental change despite being only 8 kms apart. Pollen species which indicate anthropogenic activity are found at high concentrations in Loch an Eilein, indicating an early presence of humans within the catchment. In contrast, the relatively low abundance of these species at Uath Lochan suggests little, if any, human activity within the catchment and thus reflects regional, not localised, impact. The diatom community varies markedly between the two different sites. For example, *Tabellaria* shows a marked decrease in Loch an Eilein at approximately 9000 cal. yr BP but is present at high concentrations in Uath Lochan until 4000 cal. yr BP. Marked differences in the timing of changes in the relative abundances of *Cyclotella* and *Fragilaria* sp were also observed. These differences appear related to different lake and catchment conditions, particularly the input of organic carbon. Consequently this suggests that local environmental conditions have a greater impact than regional climatic changes during some periods.