

Initiating community commitment to trail management and the need for research contributions: a case of Sagarmatha National Park, Nepal

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Research on trail degradation (erosion) has made great progress because of technological advancements in creating three-dimensional maps using photographs taken by UAVs (drones) and pole photography. For example, in Japan's Daisetsuzan National Park, trail erosion rates have begun to accumulate and are now being used by national park managers. Three-dimensional data on trail surface morphology are also being used to verify the effectiveness of trail repair work involving volunteers (Kobayashi and Watanabe 2023). Trail erosion has also been observed in mountain national parks in developing countries (e.g., Nepal and Nepal 2004). The latest UAV data on trail erosion have been collected in Sagarmatha National Park by a Japanese team including the presenter. The results of this study were presented at an international conference held in Kathmandu in December 2022. The trail administrator of Khumjung Village in Sagarmatha National Park heard our presentation at the conference. In the spring of 2023, he and the locals took the initiative to maintain the section of the eroded trail. To the best of the presenter's knowledge, this is the first time in the world's mountain national parks that a local trail administrator has carried out trail maintenance after hearing a presentation at an academic conference. However, during a field survey in October 2023, 'excessive repair work' was found in some sections of the trail. The methods applied also require improvement. One of the reasons for the lack of appropriate repair work is that the Department of National Parks and Wildlife Conservation of the Nepali government is not in charge of trail maintenance but has given the authority for maintenance to local communities. Local communities do not have any experts with basic knowledge of trail maintenance methods and erosion processes. Sagarmatha National Park, including the village of Khumjung, has a Sagarmatha Pollution Control Committee (SPCC), and during a meeting with the locals in November 2023, representatives of the SPCC voiced their opposition to 'excessive repair work.' There was no forum for those involved in the trail to discuss their differing opinions. It is imperative to establish a mechanism that enables internationally acceptable maintenance/repair works with the involvement of foreign experts to enhance the trail maintenance and management system by local stakeholders.

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