

# Emerging conflicts in mountain regions: outdoor recreation vs. habitat provision



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## Introduction

According to a previously conducted **stakeholder survey**, conflicts between **recreationists and wildlife** are a major concern in mountain regions. Especially **during winter**, when wildlife species must save energy, recreation seekers practicing activities such as free-ride skiing, backcountry skiing and snowshoeing provoke physical stress and raise the energy level of wild animals. This study therefore aims at **identifying potential conflict zones** between backcountry skiers and grouse habitats in Tyrol, Austria.

## Methods

We implemented an innovative mapping approach that combines **habitat models** with **crowd-sourced data**. We map the spatial distribution of habitats for **two grouse species** (*Tetrao urogallus* and *Lyrurus tetrix*, Linnaeus 1758) using different **habitat models** as well as observation data. Frequencies of backcountry skiers were assessed over time and space using high **spatio-temporal resolution of GPS-tracked data from a social sport network**. By overlaying all information, we identify and analyse the extent of potential conflict zones as well as the level of disturbance by backcountry-skiers

## Results

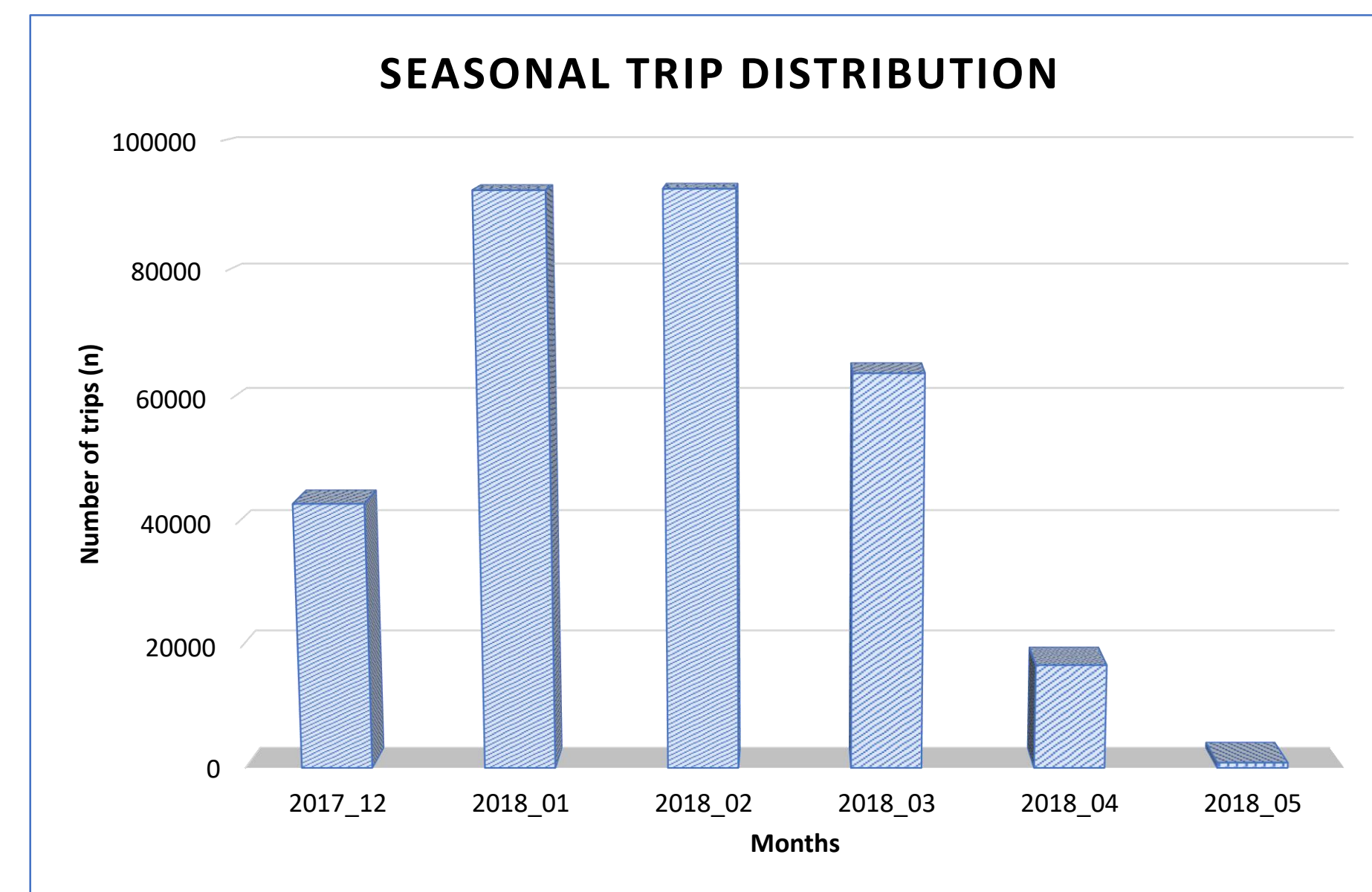


Fig. 1: Monthly distribution of backcountry skiers.

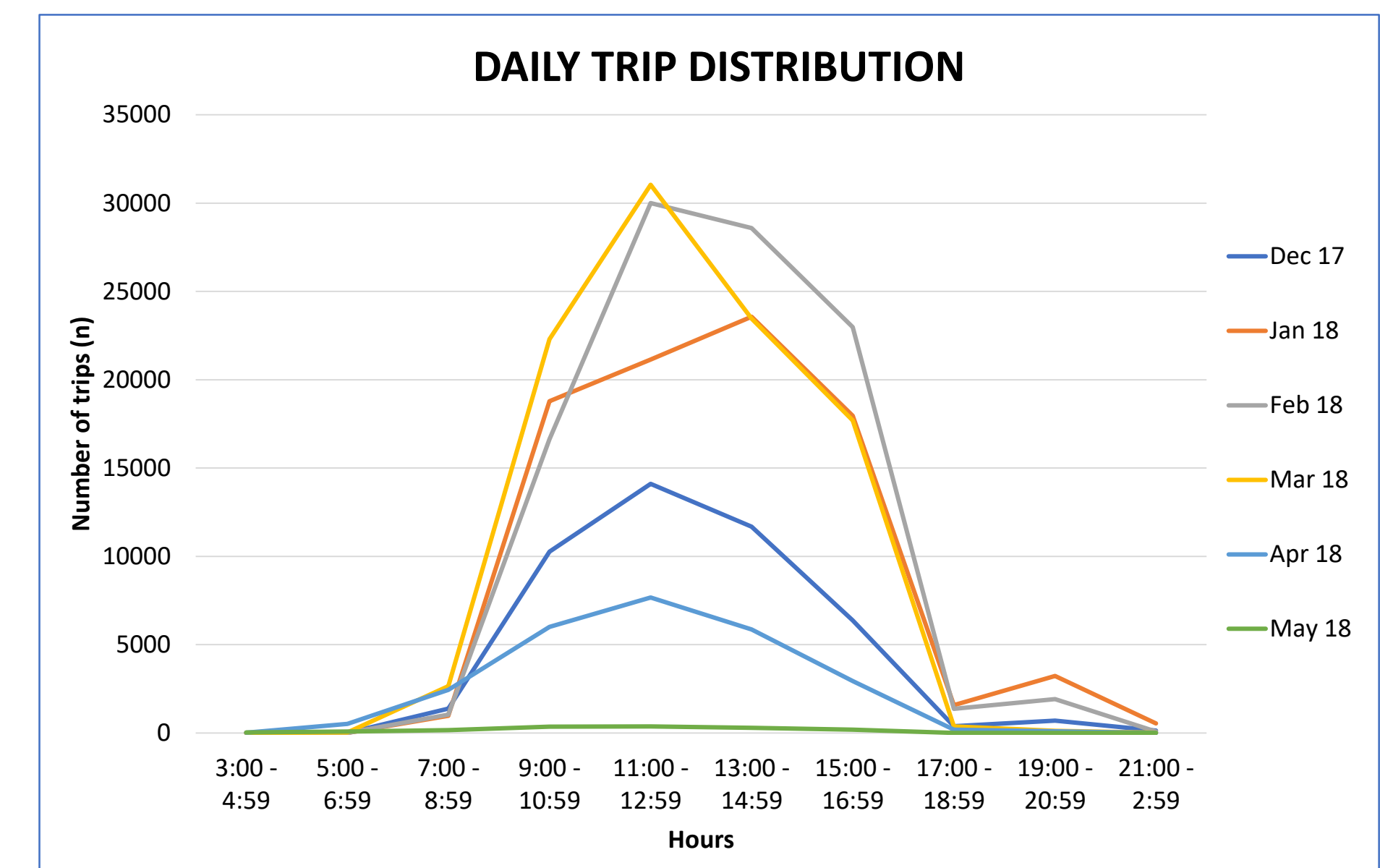


Fig. 2: Hourly distribution of backcountry skiers.

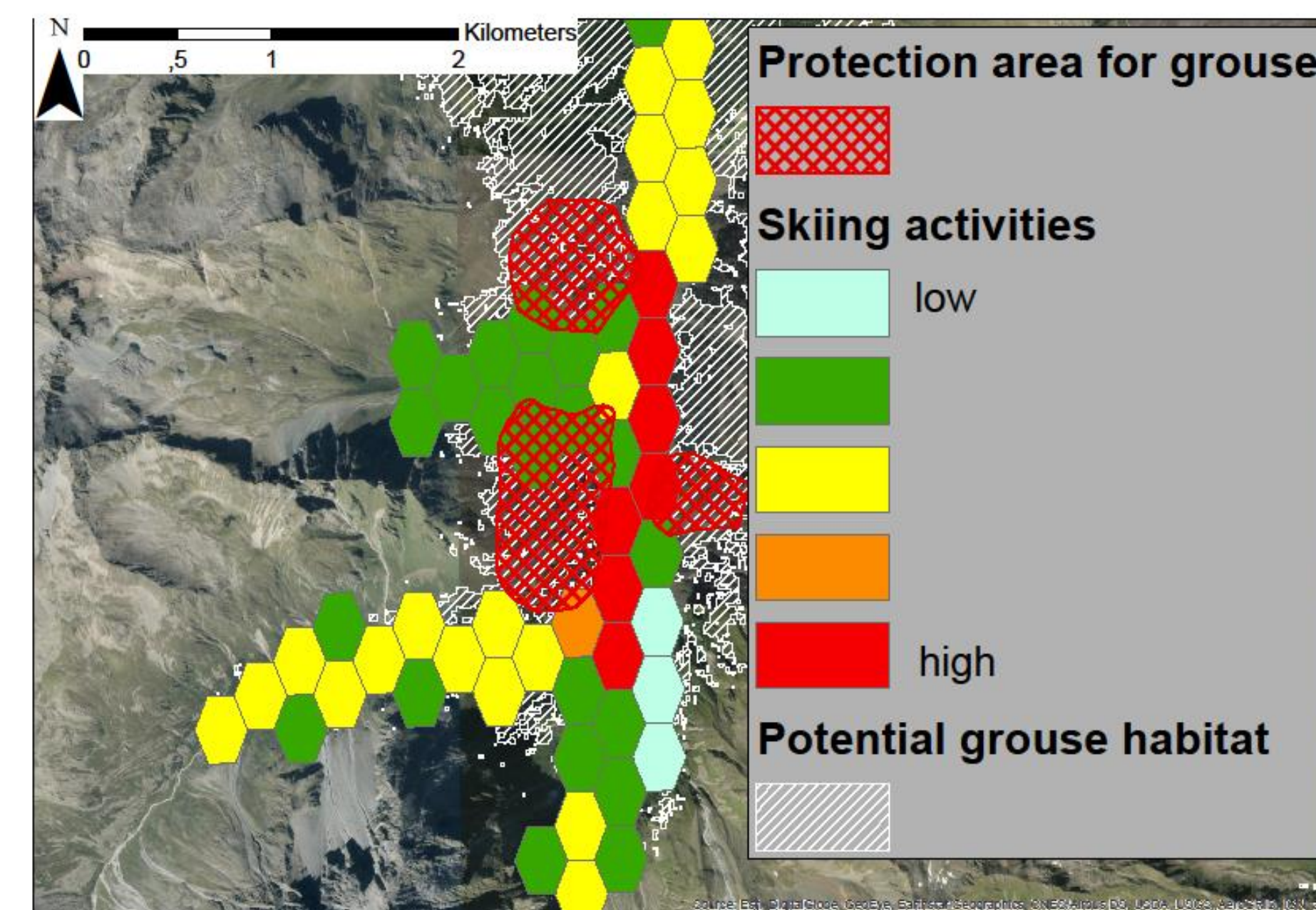


Fig. 3: Overlap of potential grouse habitat and backcountry skiing activities.

Our findings indicate **seasonal** (Fig. 1) as well as **daily hotspots** (Fig. 2) of backcountry skiing activity. **12.2 % of potential *tetrao tetrix* habitat area are used by skiers** of which **4.1 % show a very high activity**. The habitat area of *tetrao urogallus* has a size of 107.000 ha of which 10.4 % are used by skiers. Here, **6.5 % of the used area have a very high activity**.

The spatial analysis uses hexagons with 250 m diameter to locate skiing activities (Fig. 3). This may cause deviations in the actual size of the disturbed area.