Experimental Long-Term Evaluation of a Campaign to Reduce Freeriding-Wildlife Conflicts of Snow Sports

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Introduction

The appearance of outdoor recreation activities has increased significantly all over the world (Manning & Anderson, 2012) as well as in Switzerland (Hunziker et al., 2011). This development can lead to conflicts, in particular between snow-sports participants and native wildlife populations in subalpine areas (e.g. Arlettaz et al., 2007). The Swiss and Austrian campaign "Respektiere deine Grenzen" so far successfully reduced such conflicts by positively influencingthe respective behaviour of people who engage in ski-touring and snow-shoeing by means of information and sensitization (Immoos & Hunziker, 2015).

However, it has been known that one group of snow-sports participants can hardly be influenced by such information campaigns, the so-called freeriders: skiers and snowboarders who use the transport facilities of ski resorts but ride down off the ski-runs (e.g. Zeidenitz et al. 2010). Thus, a specific freerider campaign, called "respect wildlife", was launched in Switzerland, focussing on this group using its media and language.

Our study aimedat evaluating the effectiveness of this campaign. Furthermore, it aimed at comparing and understanding the influence of different elements of the campaign in order to enable future improvements of visitor-management measures focussing on targets groups not accessible by traditional information campaigns.

To reach these aims the following research questions were to be answered:

1. How effective is freerider-specific campaign "respect wildlife" regarding the desired wildlife-responsible behaviour of people who engage in freeriding in ski resorts?
2. What are the significant influencing factors on the desired wildlife-responsible behaviour of the freriders? What role dothereby play thedifferent elements of the "respect-wildlife" campaign? What other factors, beyond the campaign, are also important?

Methods

To answer the research questions, surveys in ski resorts (i.e. handing out questionnaires that were returned by post) were conducted that only included freeriders (selected due to their visible behaviour, equipment and/or by an oral filter question). Thereby, an experimental design was applied, i.e., surveys were conducted in a treatment area where the campaign was active on site as well as in a control area where no on-site measures were taken. In addition, the surveys were conducted in four waves (with increasing treatment intensity in the treatment area) during the skiing seasons 2013/14 and 2015/16:

- The first wave 2013/14 represented a pre-intervention state where no measures were taken at all, neither in the control nor in the treatment area.
- Wave 2, later in the season 2013/14, measured the effect of the first step of the campaign with a video clip shown at divers places in the treatment area (but not in the control area).
- Waves 3 and 4 (early resp. late in skiing season 2015/16) measured, on the one hand, the effect of additional measures taken during this season in the treatment area (further, even more "freerider-attractive" video clips as well as reminding sign-posts at the boarder of wildlife reserves). On the other hand, these two waves also captured the effect of the long-term diffusion of the campaign's message since it's start two years before.

Finally, the comparison of the treatment- and control-area measurements allowed to investigate the influence of other factors beyond the freerider-specific respect-wildlife campaign such as general related persuasion work elsewhere.

Results

The analysis of the survey results of the four waves in the treatment and control areas clearly showed that the respect-wildlife campaign positively influenced the (reported) wildlife-responsible behaviour of the freeriders (Fig. 1) as the treatment intensity (waves 1-4) and the location (treatment vs. control) turned out to be significant factors in ANOVA, and as the percentage of freeriders who knew the campaign also differed significantly between these waves and locations.

However, as the reported behaviour as well as the knowledge of the campaign and further factorsalso improved in the control area, other factors than the perception of the on-site campaign itself seems to have influenced it. Diffusion of the campaign (which is welcome!)might have taken place, but there might have been other influences more. The latter was corroborated by the regression analyses we conduct-

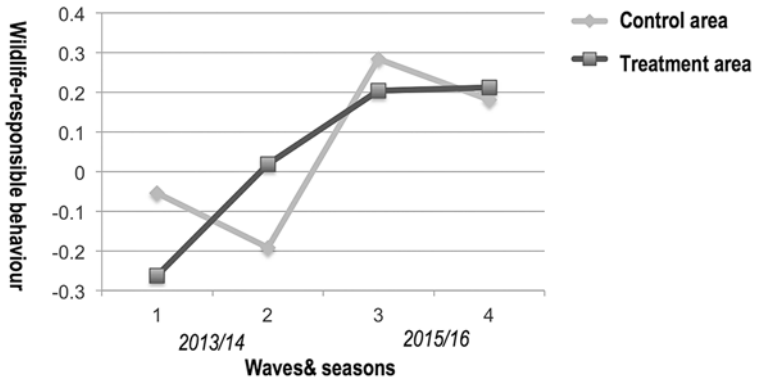

Figure 1. *Reported wildlife- responsible behaviour (un-rotated factor based on two variables measuring reported behaviour regarding two respective rules) in the treatment (Laax) and Control (Flums) area in the Swiss Alps in four waves 2013/14-2015/16*

ed. They revealed that some predictors of the reported wildlife-responsible behaviour, such as the attitude towards the behaviour, are not directly influenced by the "respect-wildlife" campaign.

Management implications

The results support the value of specific target-group oriented on-site measures. They can influence the behaviour and related influencing factors in the desired way within quite a short period of time (i.e., within a skiing season). At the same time the results also demonstrate the value of general measures such as campaigns in the internet and other media. These are effective not only in a "treated" area but more generally and show rather log-term effects (such as between 2013/14 and 2015/16 in our treatment and control areas). It is therefore highly recommended to apply both types of persuasion techniques, on-site and general ones, of course always in a target-group oriented way.

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