

Visitor monitoring in the Protected Area Aletsch Forest

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Introduction

The Aletsch Forest is one of the oldest larch-Swiss stone pine forests in Switzerland. The forest, with an area of about 0.4 km², is under protection since 1933 managed by an NGO named Pro Natura. The Aletsch Forest is located besides the ending of the longest glacier in the Alps, the Great Aletsch Glacier, the gateway to the UNESCO World Heritage site Swiss Alps Jungfrau-Aletsch. A trail network of 18km crosses the protected area. In July 2008 a new connection with the neighbouring village Belalp was built. Pellet and K upfer made visitor monitoring surveys in the years 1978 and 1994 in the Aletsch Forest.

Social carrying capacity is often used as a concept to describe how much recreational use can be accommodated in a protected area. Indicators and quality standards provide information about carrying capacity and help the management in planning and taking required action (Manning 2002, 2007).

In this study the visitor monitoring was continued; Spatial and temporal visitor use was analysed, such as the influence of the newly opened trail. Furthermore, a social carrying capacity for the Aletsch Forest was worked out.

Method

During the hiking season in 2008 a survey was implemented. 415 questionnaires could be used for analysis. Content of the questionnaire was the visitor's characteristic, spatial behaviour and impression of the protected area. Questions from previous monitoring studies were picked up and compared; new questions of spatial behaviour and crowding were faced.

Four automatic counting devices, acoustic slab sensors from eco-compteurTM, were installed on the main trails. They were calibrated according to Wernli et al. (2009). In the survey visitors were asked to map their passage. To estimate the visitor number, the automatic counting had to be combined with these data eliminating multiple counted visitors.

According to Needham et al. (2003), social norm curves were analysed based on the people at one time method (Manning 1999). Two user groups were examined, differentiating the importance of meeting a minimum of tourists. The one sided Mann-Whitney test was performed to analyse the connection between special use patterns and reported encounters.

Results

The accuracy of the automatic counting devices was more than 90%. In 2008 a total of about 55,000 visits were estimated. K upfer (1994) estimated about 60,000 visits for 1994. She detected a strong decline of visits between 1978 and 1994. Pellet (1978) estimated about 90,000 visits for 1978. Looking at the spatial distribution before and after the opening of the bridge confirms a big change in distribution (Fig. 1). The lower trail showed a strong increase in use when the new trail opened in week 28 (July 2008). While the middle trail lost visitors only in the beginning, the moraine trail was less used until the end of season.

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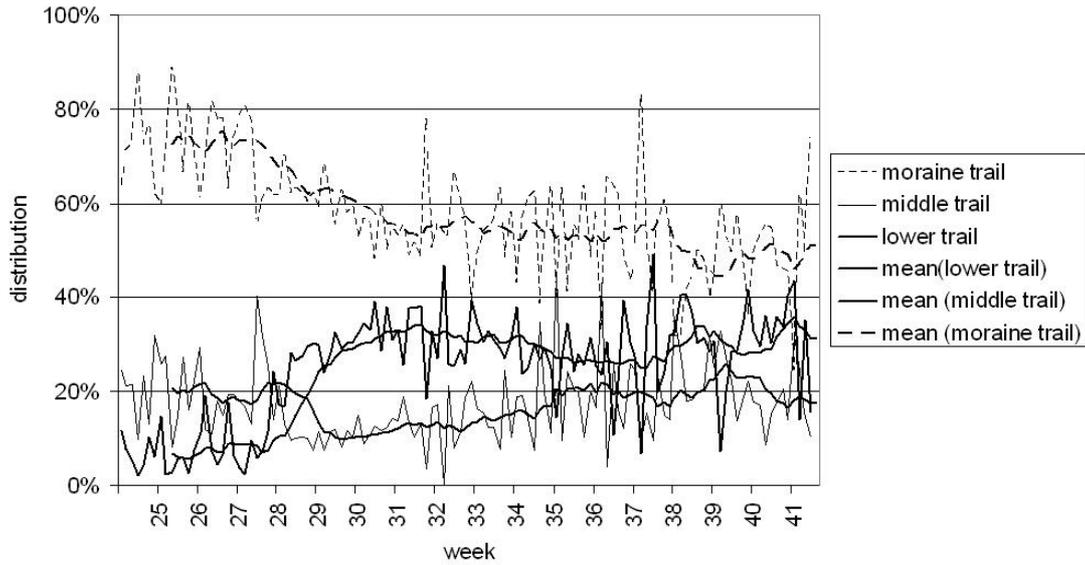


Fig. 1: Relative distribution of visitors on the three main trails in the Aletsch Forest.

Visitors were significantly less satisfied concerning crowding questions when there were more people in the park. Differences between the two groups expecting to meet a minimum of tourists could be worked out with the people at one place method (Manning 1999) (Fig.2). Visitors who want to meet a minimum of tourists are less tolerant if there are a lot of people visible on the picture.

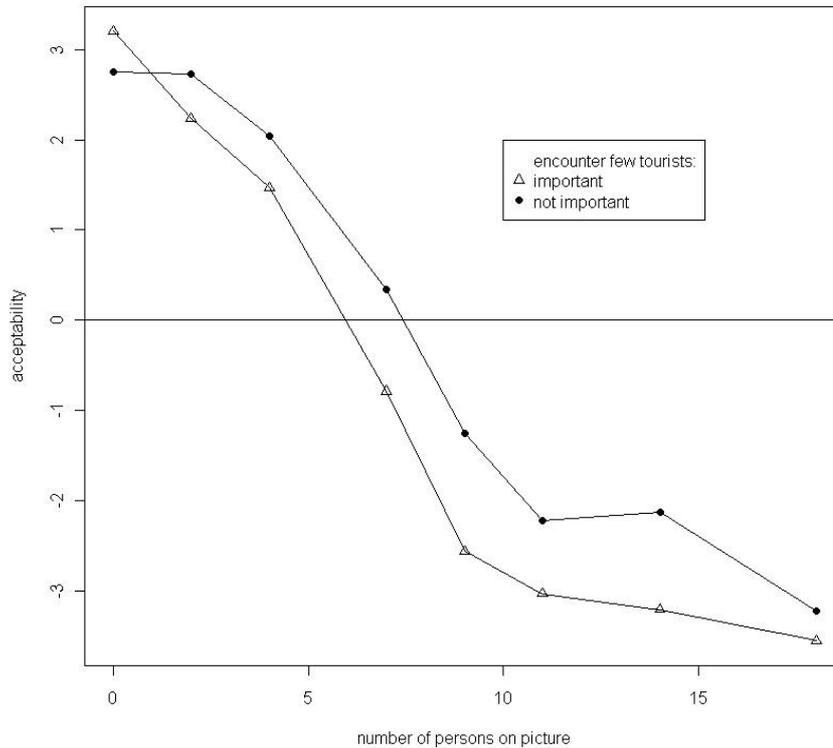


Fig. 2: Social norm curve using the people at one time method.

Conclusion

The total visitor number for 2008 were estimated to be about 55,000 which is comparable with 1994 (Küpfer 1994), but much less than 1978 (Pellet 1978). The tendency of declining visitor numbers could be expected to continue until now, though summer overnight stay in the hotels

declined about 25% in the same period. But the accessibility of the region changed as there was a new railway tunnel built. In July of 2008 (week 28) an impressive rope bridge was opened allowing an attractive one day hike from Belalp to Aletsch Forest, changing visitor's distribution (fig. 1). Methodological differences of the three studies could also be a possibility of the decrease in visitor number. It would be interesting to repeat the survey in the next years to observe the tendency of visitors behaviour.

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