

Preserve and manage Mercantour National Park using pedestrian data collection

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Introduction

Counting pedestrians in natural areas is essential for effective space management. Permanent counting stations have allowed natural area managers to understand attendance by period, compare hiking trail use with other activities and perform weather impact analyses using meteorological data.

About Mercantour National Park

Mercantour National Park is one of the ten national parks in France. It has a long history of fauna and flora protection and has been a protected area since King Victor-Emmanuel II made the territory a « Réserve royale de chasse » in 1859.

The area became an official national park in 1979 and is twinned with the neighboring regional park Parco natural Alpi Marittime in Italy. In 2018, Mercantour National Park and Parco delle Alpi Marittime submitted a procedure to be listed as UNESCO World Heritage sites.

The protected area covers 1066 km², including a central uninhabited zone comprising seven valleys - Roya, Bévéra, Vésubie, Tinée, Haut Var/Cians (in the Alpes-Maritimes) plus Verdon and Ubaye (in the Alpes-de-Haute-Provence) - and a peripheral zone, comprising 23 villages.

Since its creation in 1979, Mercantour Park has proven increasingly popular - many visitors each year enjoy 550 km of marked footpaths and visit its villages. Visitors mostly use the area for outdoor recreation activities, including hiking, rock-climbing and cross-country skiing.

Among the most visited sites:

- the « Merveilles » valley with its 40,000 prehistoric engravings;
- the Allos lake, the widest natural high-altitude lake in Europe;
- the Boréon - la Gordolasque et la Madone de Fenestre for their unique subalpine and alpine atmosphere.

Count methodology

Mercantour National Park established a count data collection program more than ten years ago. Working with estimates was a first step towards a data-oriented management approach, but the need was bigger and led to the development of a new count program a year ago. The goal was to be able to compare accurate, objective figures collected from automated counters with subjective user estimates on key trails in the area.

For this purpose, Mercantour National Park managers use both macro and micro-level monitoring to count on-site visits. A macro monitoring solution measures attendance between valleys and inside specific valleys, using data collected from GSM emissions. Automatic pedestrian counters have been installed to measure attendance permanently on specific, iconic

trails. Permanent vehicle counters are also used on several mountain passes to measure the impact of noise pollution on wildlife.

Results

Counters have been installed very recently, so global yearly attendance is not known yet, as it is one of the goals of the program. However, an attendance study was published in 2001 and estimated a total number of 427,000 visits between June, 15 and September, 15. These figures will be used as a reference for the upcoming data to understand the attendance of the area.

Trail operations

Park managers are already able to anticipate trail erosion by correlating pedestrian attendance with the level of erosion observed on trails, notably on the popular Allos lake trail. These correlations allowed managers to forecast erosion and react with appropriate trail operations for maintenance purposes. The data is also used to assess the number of cross-country skiers using the trails and analyze the ratio of summer to winter attendance, giving an accurate overview of year-round activities.

Finally, automatic counter data was used for one of the most popular trails in the park which has a parking lot located very close to the trail. The use of automated counting systems will enable Mercantour National Park authorities to size and schedule electric shuttle buses accordingly. Count data will also be used in this project to prevent summer site saturation by closing the parking lot if needed.



Fig.1 Pedestrian counter installed on a natural trail.

Sky conservancy actions

The project manager of the Mercantour National Park has recently been developing an “astro-tourism” activity to attract amateur astronomers to the park. Balancing the need of nature preservation with the desire to open the park to the public, the National Park is working towards becoming an “International Dark Sky Reserve”, a certification created by the International Dark Sky Association to acknowledge efforts made in reducing light pollution. Actions were undertaken by the managers of the park to extinguish lampposts near-by, reduce the overall lighting of the area and therefore increase natural night.

Through these actions, the Park aims to attract amateur astronomers and will use pedestrian data to measure the success of this initiative.

Conclusions

The Mercantour National Park uses pedestrian and vehicle counters to analyze visitor flows and take action towards preserving nature on site. Reliable and objective figures are important tools to limit trail erosion, develop appropriate services and activities and manage attendance on site while preserving wildlife.