153 Tourist carrying capacity. A turning point to a sustainable tourism model. The case of Alt Pirineu National Park – Spain.

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Introduction

In the last decades, the world population has increased its physical sports activities in the natural environment. According to the last Eurobarometer survey about outdoor sports, Spain figures in third place with 53% of the population claiming that have been involved in physical outdoor activities, after Finland (67%) and Austria (54%) (European Commission, 2018).

As a result, there has been an increase in overcrowding in Protected Areas, which has attracted the attention in the Spanish mass media revealing the consequences that have already demonstrated in various environmental (Cole, 2008; Newsome, 2014; Pickering, 2010; Salesa & Cerdà, 2020), social (Weiler et al., 2019) and security studies (Moscoso, 2004).

On that point, different public and private entities requested solutions to manage overcrowding in different natural parks through the determination of the Tourist Carrying Capacity (TCC), i.e. maximum number of people who can visit an area at the same time, without damaging the physical, economic or sociocultural environment, nor cause an unacceptable decrease in the quality of visitors satisfaction (OMT, s. f.).

This article aims to show the application of the Cifuentes' (1992) methodology about the TCC in 17 trails of Alt Pirineu Natural Park (PNAP), within Vall Ferrera to be included in the next trail guide of the park.

Study area

The PNAP is the largest protected natural area in the Catalan territory, with a total area of 79,317.21 ha. It extends to the northwest of Catalonia (in the Pyrenees), between the Pallars Sobirà and l'Alt Urgell regions, specifically in the Valls d'Àneu, Vall de Cardós, Vall Ferrera, Vall de Santa Magdalena and Macizo de l'Orri. The Vall Ferrera is the most easterly valley, belonging to the municipality of Alins, which has an area of 17,456.45 ha, under the protection of the park. See figure 1.

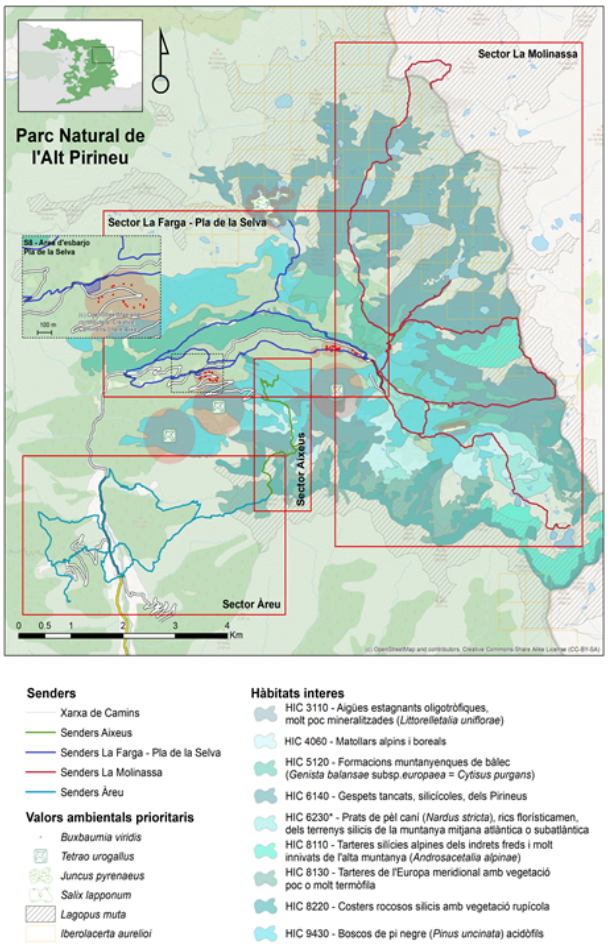

Figure 1. Study area map. Vall Ferrera divided in management units. Own elaboration.

Methodology

This study was carried out following Cifuentes' (1992) methodology. It is based on the review of three levels of analysis: Physical Carrying Capacity (PCC), Real Carrying Capacity (RCC) and Effective Carrying Capacity (ECC). The calculation parameters were adapted to the characteristics of the study area following a five-step approach to establish the tourist carrying capacity in la Capçalera of Vall Ferrera:

1. Sectorization of the Capçalera of Vall Ferrera regarding the main parking areas.
2. Selection of the main trail network based on the park guide map and the trails previously identified by Farías-Torbidoni (2011) and Farías-Torbidoni i Morera (2017) frequentation studies.
3. Initial proposal to establish a theoretical calculation of the TTC, with special reference to the identification of the reduction factors (climate, environmental, soil erosion, trail difficulty, social, trail use behavior and public infrastructures).
4. Calculation of the Tourist Carrying Capacity (TCC) and comparison against the influx (without MU Àreu, there's no counter data).
5. Draft of the first proposal for management measures.

Results

From a global perspective, the TCC in Vall Ferrera was determined to 71.125 visitors per year, which represents 5.927 and 195 visitors per month and day, respectively. The analysis of the TCC values per month compared to the influx of visitors (figure 2) showed that the carrying capacity was slightly exceeded during March, April, but largely surpassed in July and August, being these two months the most critical with 1.449 and 5.105 over visits respectively.

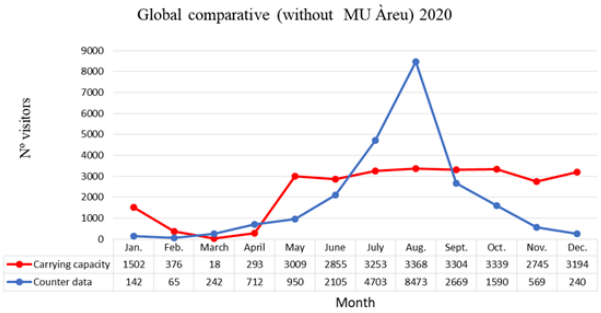

Figure 2. Global comparative of the carrying capacity versus the influx of visitors data of 2020 of the management units with available influx data (without MU Àreu).

Conclusions

This study has allowed to establish a turning point between the TCC and the influx of visitors, from which alternatives could be proposed to the management of the public use of the Vall Ferrera.
Finally, it should be kept in mind that this is an initial and limited study, who considers only theoretical aspects. As the last recommendation, it is proposed to ratify the unit management identification as a good option to manage the overcrowding of Vall Ferrera.

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