

# Monitoring document

## *Tourist office San Vigilio Dolomites*

San Vigilio di Marebbe and San Martino in Badia

San Vigilio di Marebbe and San Martino in Badia are two tourist localities in South Tyrol that have always paid attention to the environmental, social and cultural impacts of tourism. Our tourist destination is made up of two municipalities, Marebbe and San Martino, respectively populated by 3124 people and 1756 people, which together generate more than 170,000 arrivals per year. Our two localities are located in the heart of the northern Dolomites and in the shadow of the Puez-Odle group, two of the nine areas protected as UNESCO Dolomites heritage sites. We would like to remind you that more than 56 per cent of the territory in the municipality of Marebbe and in the municipality of San Martino in Badia has been declared a UNESCO World Natural Heritage Site, and represents the largest protected area in the Dolomites.

The Cooperativa Turistica San Vigilio San Martin is an institution established with the aim of representing the accommodation facilities, businesses and restaurants in the area. Our job is to promote the tourist destination taking into account the interests of our members, who share with us the idea of pursuing sustainability and sustainable development of our destination. In order to succeed in our aim of becoming a sustainable destination, we have set ourselves concrete goals that can add value to the area, while at the same time preserving it and its present resources for future generations.

To take care of our territory and our tourism, we have chosen a few main themes on which to work, setting concrete objectives to be achieved in the near future. We consider it fundamental to involve in these initiatives not only the tourist, but also the local community, whose support is absolutely necessary in achieving sustainable development targets.

In March 2021, the idea matured within the Tourist Cooperative to obtain international certification for sustainable tourism, which is why we decided to undertake the Global Sustainable Tourism Council (GSTC) certification process. This document is designed to respond in an aggregated manner to those criteria that require monitoring and reporting, so that all relevant information is gathered in one place.

## Long-term objectives

### *- Increasing the number of facilities with environmental certification*

We consider essential to promote environmental certification in our territory, in order to spread awareness and attention to environmental and cultural protection issues even more widely.

### *- Measuring and reducing emissions and energy use*

Produce statistical tools to measure emissions and energy use, and then identify effective strategies to reduce them.

### *- Waste reduction*

Conduct awareness-raising campaigns to optimise resource consumption and consequently reduce waste. Use renewable materials (recycled paper) for documents and booklets produced by the Cooperative. Introduce waste monitoring tools in the destination

- *Protection of biodiversity*

Create biodiversity areas to protect pollinating insects

- *Better water management*

Awareness-raising campaigns against water wastage. Promote increased use of tap water rather than in plastic bottles. Installation of additional fountains in the destination

- *Better traffic management*

Optimisation of mobility in hotspots (Pederù, Passo delle Erbe). Introduction of new bus routes and mobility hubs.

## Tourist monitoring

Data collected on a continuous basis

We created a trilingual (Italian, German and English) questionnaire in collaboration with Prof. Linda Osti of the University of Bozen/Bolzano to collect a range of information from our guests. The questions in the questionnaire cover a wide range of topics, investigating a wide variety of aspects related to the holidays experienced by visitors. Examples of these are the quality of infrastructure, trail management and the use of drinking water.

The questionnaire for tourists is available online on the following website:

<https://forms.office.com/r/61VQjFnTTw>

## Residents monitoring

Again in collaboration with Prof. Linda Osti, a further questionnaire was carried out to capture the perceptions and impressions that residents have regarding the impact of tourism on the area. Awareness of how the local population experiences tourism in the destination is fundamental in outlining common development strategies that can meet the expectations and needs of the inhabitants.

The questionnaire for residents can be found at the following link:

<https://forms.office.com/r/FCX7dtwvFr>

## Year-round visitor flux management

- *General data*

The analysis of tourist flows enables informed choices to be made in the context of destination management. Through computerised information collection systems, the Co-operative collects data such as arrivals, stays, overnight stays and activities undertaken by visitors during their stay.

Some of the data collected has been published by ASTAT (Provincial Statistics Office), which has drawn up documents for each South Tyrolean municipality

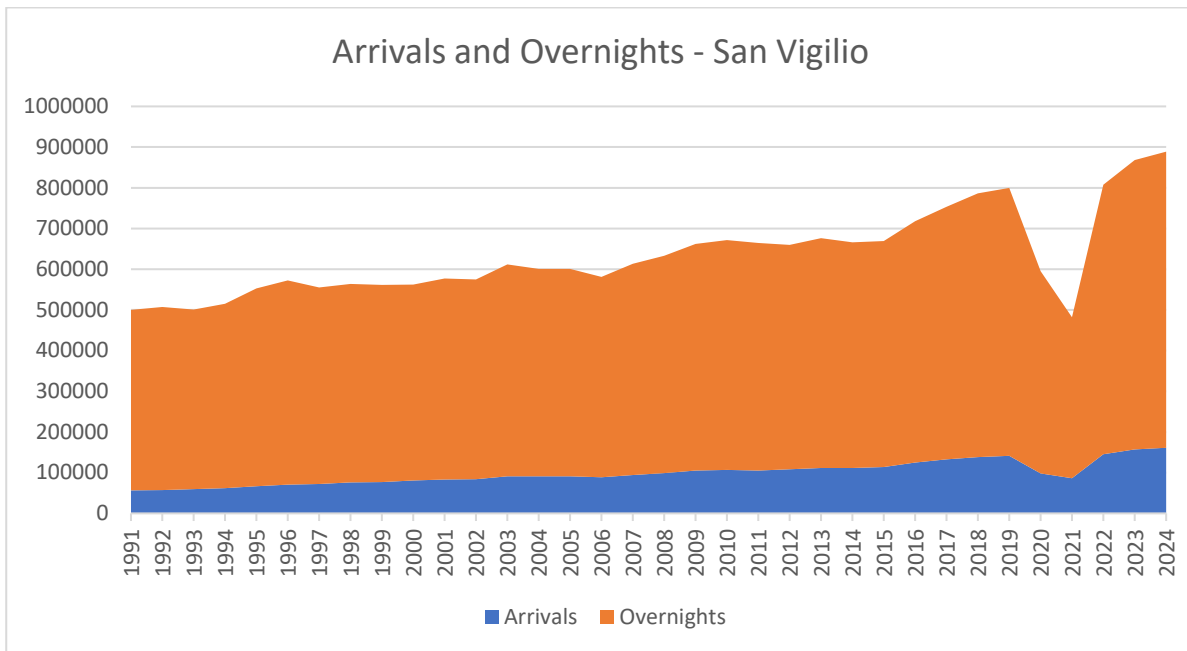


Fig.1 Marebbe municipality, arrivals and stays. ASTAT data

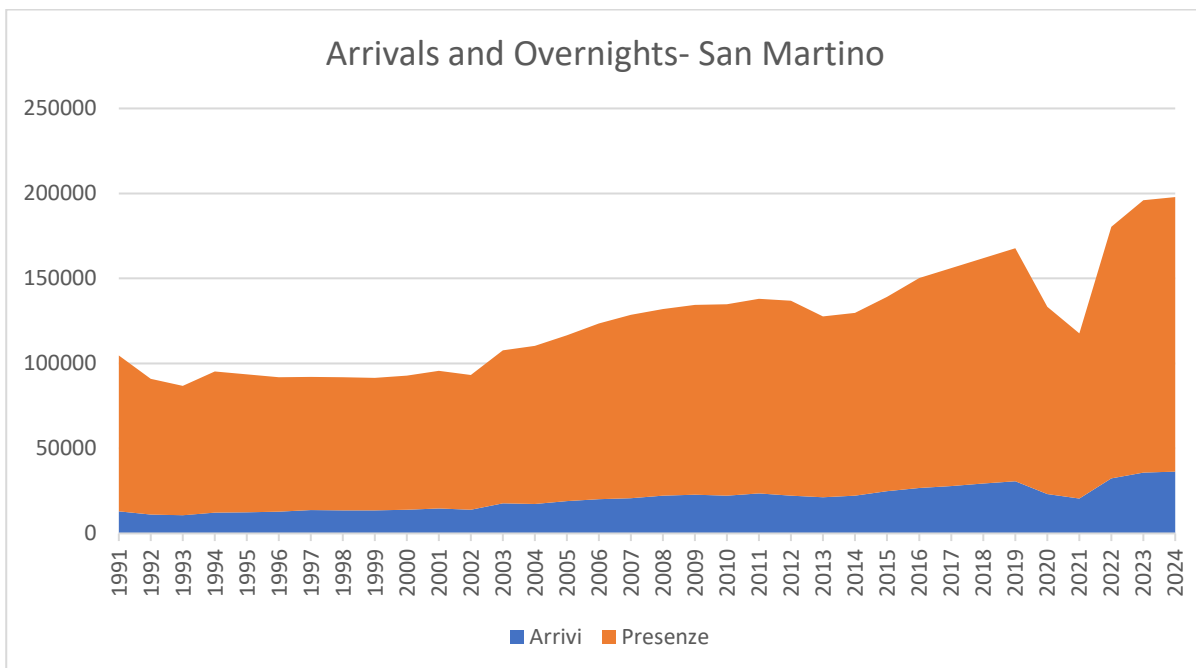


Fig. 2. Municipality of San Martino in Badia, trend in arrivals and presences. ASTAT data, 2024

#### - Seasonality

Continuing our analysis, we focused on collecting data on arrivals and presences for the individual seasons, so as to understand which season is more 'important' for the municipality of Marebbe.

The winter season starts in November and ends in April, while the summer season starts in May and ends in October. As far as the municipality of Marebbe is concerned, the season with the greatest influx of tourists, around 58% of the total number of presences, is the winter season. San Vigilio, moreover, directly overlooks the important Kronplatz ski resort.

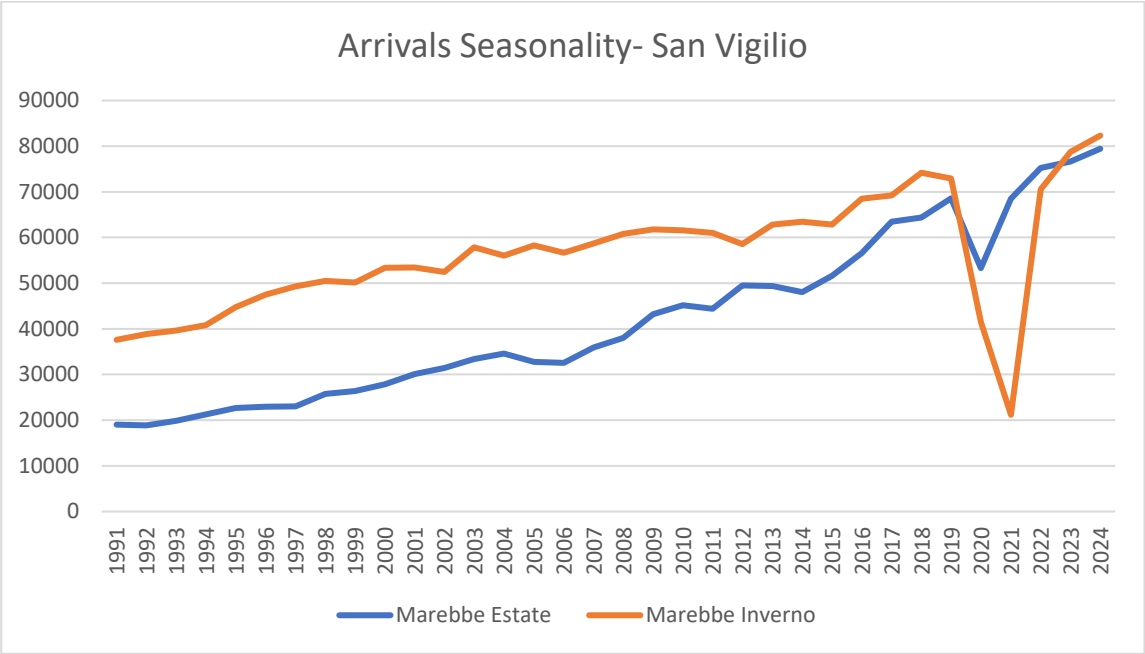


Fig. 3. Arrivals comparison – Marebbe 2024

The municipality of San Martino in Badia presents an inverse situation to that of Marebbe; in fact, the driving season in this case is summer, which accounts for almost 60 per cent of the total number of visitors.

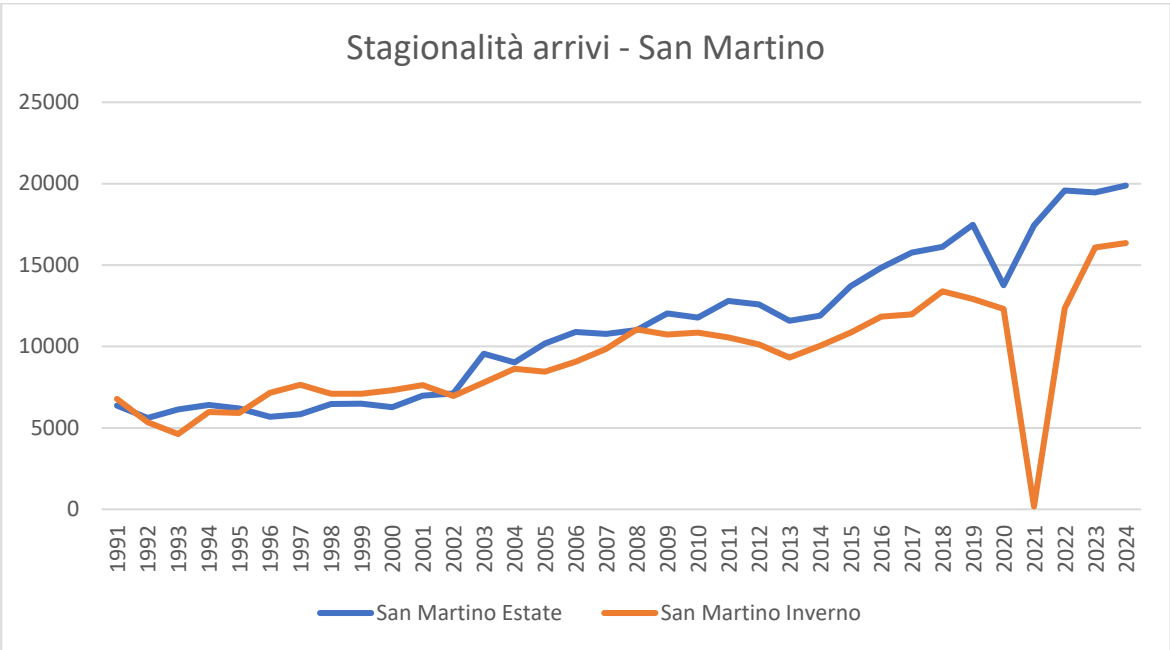


Fig. 4. Arrivals comparison – San Martino

## Economic impact of tourism

The economic structure of our two municipalities is predominantly made up of the primary sector and the tertiary sector, within which the activities of accommodation and catering services stand out in number. This is because tourism plays a very important role in our economy, both in the summer and winter seasons. Data from the Institute for Economic Research of the Bolzano Chamber of Commerce confirmed the predominance of activities linked to these sectors.

In particular, the accommodation sector is fundamental for the local economy, as it generates important economic inflows. These flows concern both activities that are directly linked to tourism (e.g. accommodation facilities) and a whole range of other services that are indirectly linked, making monitoring much more complex.

The questionnaires we have prepared for tourists also tries to investigate these aspects, by including a question on average expenditure on restaurants and various shops during the stay. In this way we hope to obtain a general estimate of how much tourists on average think they spend here and to be able to offer a better indicator of the economic influx that tourism generates within our destination.

Another important income from tourism comes from the tourist tax, which in South Tyrol is structured according to the type of accommodation. The revenue from this tourist tax can be used for the construction and maintenance of infrastructure and services as well as for the organisation of cultural and sporting events.

## Monitoring of energy and water expenditure

Data collected on a yearly basis

### - *Energy*

In 2011, South Tyrol promulgated the South Tyrol Climate and Energy Plan 2050, a document in which it confirms its commitment to steer its future development in a more sustainable direction. This document defines strategic objectives with reference to European and international guidelines. The main sectors examined are transport, private households and the provincial economy. Among the most important objectives of the Plan are

- To limit energy consumption per inhabitant to less than 2500 watts per year by 2020 and less than 2200 watts per year by 2050.
- Reduce its CO<sub>2</sub> emissions to less than 4t per year per capita by 2020 and less than 1.5t per year by 2050

- Increase the proportion of energy needs covered by renewable energy to at least 75% by 2020 and more than 90% by 2050.

As far as the specific consumption of our tourist destination is concerned, data from the SEA cooperative, the energy supplier for most of the municipality of San Martino, show that the energy produced by methane gas and that received from other distribution networks is marginal compared to that from renewable sources. The allocation is therefore in line with the forecasts of covering energy needs with renewables defined in the Climate Plan.

As the Cooperative, we are also identifying facilities in our territory that use green energy, produced by providers that make use of renewable sources, thus significantly reducing the impact related to its normal consumption and use. Similarly, we take into account which structures meet the requirements of the klimahaus/casaclima programme, i.e. a certificate for the structural characteristics of dwellings that meet specific thermal insulation and sustainability standards.

- *Water usage*

In general, our entire territory does not present a risk of water shortage, since the subsoil is rich in aquifers and the territory is criss-crossed by numerous streams. Average household consumption per capita stands at approximately 181.2 m<sup>3</sup> of water per year. The main problems are not related to future availability for direct consumption, but concern management during peak tourism periods. Especially in the winter months, water consumption exceeds the amount that enters the reservoirs from the springs in the mountains. At the moment, the Water Consortium, which manages the water resource in the San Vigilio area, is carrying out analyses and studies to identify new springs that can increase the amount of water available during the peak season.

- *Water losses*

The problem of leakage in the water network is particularly severe. On a national level, the percentage of water lost is around 40 per cent, with higher peaks if only the civil sector is considered. Reasons for such a high leakage rate are linked to the age of the pipes, a large proportion of which were laid more than 30 years ago. At a time when more and more attention is being paid to limiting the wastage of drinking water, the need for investment to solve such a problem is very pressing. Therefore, in the 2021-2022 season, the Province of Bolzano conducted an analysis of water losses in the area, identifying areas of water loss in the hydraulic system of the municipality of San Vigilio. The analysis made it possible to carry out a series of targeted interventions to contain and eliminate leaks, with the dual effect of saving money at the central level and reducing waste.

- *Production of artificial snow for skiing*

The amount of water required for the artificial snowmaking of the slopes that are part of the Kronplatz ski resort, to which San Vigilio Dolomites belongs, is monitored yearly.

In order to completely snow the 476 hectares of slopes that constitute the ski resort, 476,000 cubic metres of water are required, from which up to 1,190,000 cubic metres of snow can be produced, since snow is less dense than water. The reservoirs and water collection areas in the area, dedicated to snowmaking, contribute a total volume of 2,060,000 cubic metres of water, which is therefore sufficient to meet the initial water requirements, even if prolonged artificial snow production requires tapping into the idric system.

## Wastewater

The water purification service is entrusted to the company ARA Pusteria S.p.A, which manages the five purification plants within the district unit of Brunico, to which the municipalities of Marebbe and San Martino in Badia also belong. On their website (<https://www.arapustertal.it/de/berichte>) it's possible to download all the documentation concerning wastewater in our area, selecting ARA Tobl as the purification plant of reference for our locality. The documentation is only available in German.

## Solid Waste

The waste collection service is divided according to municipality and in both is present a recycling plant, with all the necessary information for proper waste disposal. ISPRA (Istituto Superiore per la Protezione e la Ricerca Ambientale), publishes data on waste production in the various Italian municipalities on an annual basis. The data are available at the following links:

- San Vigilio:

<https://www.catastorifiuti.isprambiente.it/index.php?pg=detComune&aa=2020&regidb=04&nomereg=TrentinoAlto%20Adige&providb=021&nomeprov=Bolzano&regid=04021047&nomecom=Marebbe&cerca=cerca&&p=1>

- San Martino:

<https://www.catastorifiuti.isprambiente.it/index.php?pg=detComune&aa=2020&regidb=04&nomereg=TrentinoAlto%20Adige&providb=021&nomeprov=Bolzano&regid=04021082&nomecom=San%20Martino%20in%20Badia&cerca=cerca&&p=1>

Note that the data for one year become available on December 21 of the following year.

As far as the municipality of Marebbe is concerned, the percentage of differentiated waste collection with respect to municipal waste has been steadily increasing, accompanied, however, by a parallel increase in waste produced, probably linked to the increase in tourist numbers. A similar trend is recorded for the municipality of San Martino in Badia.

## Car transit monitoring

Certain areas of the territory are considered 'hotspots', areas that are particularly problematic due to a combination of the number of passing cars and physical limitations of available space. In



cooperation with the provincial traffic control centre, the monitoring of passing cars has been activated in these areas in order to identify critical situations of excessive traffic. The areas included in the monitoring are Passo delle Erbe, Lungiarü, Passo Furcia and Pederü. At Passo delle Erbe, in addition to the vehicle count, the origin of the vehicle is also defined with a camera system, so as to differentiate between day-trippers and business travellers.

Being able to have an approximate picture of the number of cars passing through allows more targeted policies to be put in place, in order to deal with mobility problems and to identify any critical situations that need to be addressed with greater or lesser urgency.

## Climate change Monitoring

The Cooperative monitors a series of indicators that are useful in defining the evolution of the local climate and the effects that its changes may have on the territory.

### - Temperature and snowfall

Closely linked, changes in temperature and snowfall levels can have profound influences both on the local environment and its balance, and on the destination's economic activities, for example, determining an increase of the prices related to winter sports, especially downhill skiing.

An analysis of historical temperatures shows a steadily rising level, with an average increase of 0.8°C since the last 25 years.

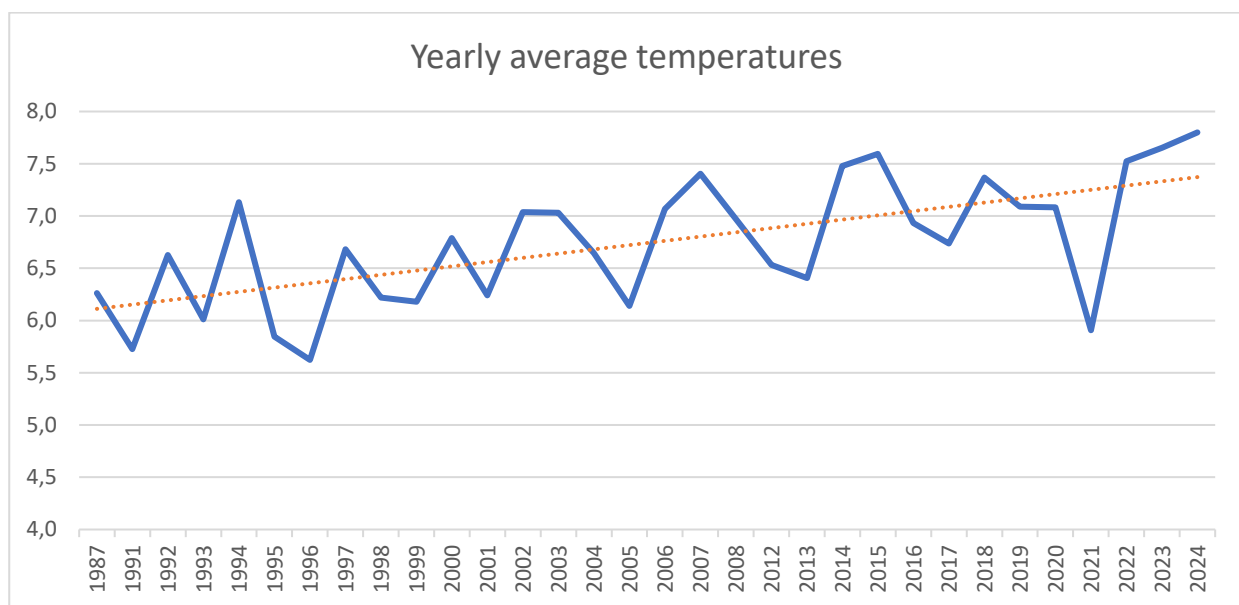


Fig.5: Temperature trends, data from Bolzano Province, San Martino measuring station, 2024

This is directly linked to a progressive reduction in snowfall, with a parallel increase in the costs of snowmaking.

Snowfall data, collected since 1978, confirm this trend.

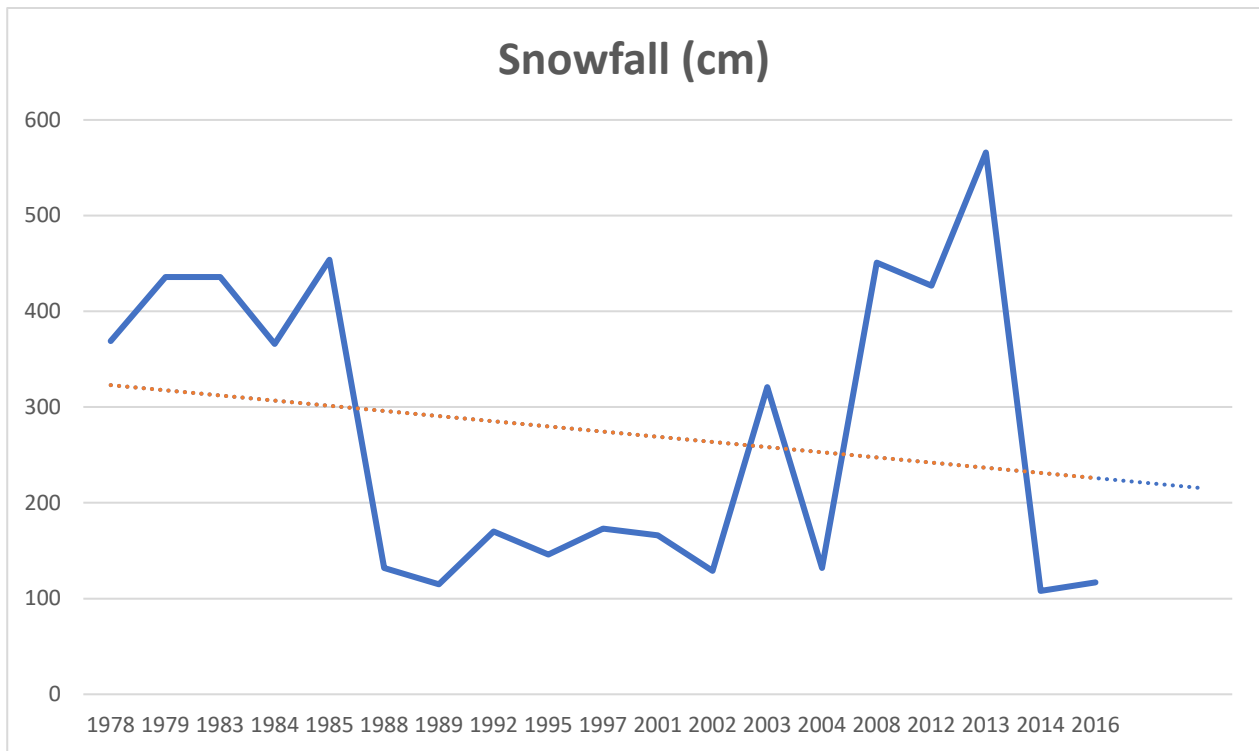


Fig. 6: Snowfall over the years; thanks to Albert Daverda and Pablo Palfrader for collecting and publishing the data, 2022.

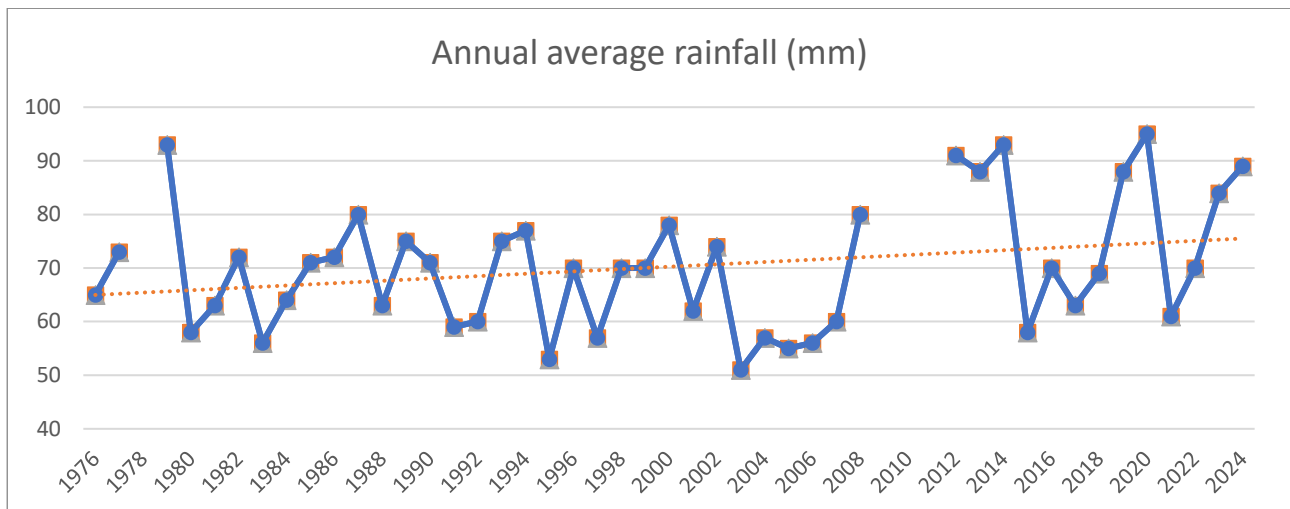


Fig. 7: Average rainfall over the years, Bolzano Province data, St. Martin survey station, 2024.

## Tourist Impact

- Monitoring of access to Cultural sites

Excessive attendance at the destination's culturally significant sites can lead to a reduction in the quality of the experience for all participants. In view of this, the Co-operative works with the sites with the highest attendance to ensure that the enjoyment of these sites remains within levels appropriate to the specific characteristics and personnel assigned to them.

The site with the greatest influx of tourists in the inhabited areas of the destination is the Ladin Museum of Ciastel de Tor, in San Martino. The museum is located inside a historical castle, which may lead to potential criticalities in the event of a high presence of tourists. The level recorded is currently not high enough to generate inconvenience, but a possible future change cannot be excluded. The Lumen and Messner Mountain Museums, on the summit of the Kronplatz, are points of great interest for the public. Due to their recent design, both structures are well prepared to accommodate incoming visitors, and here too there is no evidence of excessive attendance.

<b>MONITORAGGIO ACCESSO A SITI CULTURALI</b>					
<b>Museo Ladino Ciastel de Tor</b>			<b>Museum Ladin Ursus Ladinicus</b>		
Anno	Ingressi		Anno	Ingressi	
2019	9254		2019	5728	
2020	5266		2020	3035	
2021	6350		2021	5165	

- *Impacts on nature and land abandonment*

A particularly significant problem, resulting from excessive or disrespectful tourist frequentation of natural areas in the territory, is that of the abandonment of typical areas of animal presence, whereby the fauna of the parks moves to more inland and isolated areas, further from tourists. This can have serious repercussions on the health of the animals, which may be forced to move away from the normally frequented grazing and hunting areas, thus having difficulties in finding food and shelter.

The gamekeeper's office carries out an annual census of the animal species present in the park, particularly chamois and fawns. The data, available since the 1980s, show a gradual reduction in the number of animals present in the park. In part this is attributable to a mange epidemic, which spread at the turn of the 1990s and 2000s and led to a significant reduction in the number of animals. In part, however, the reduction is also associated with the presence of tourists and the creation of works resulting from tourism, such as the opening of new trails in areas previously devoid of human presence. Hunting, especially when poorly regulated, is a further reason for the reduction in the total number of animals.

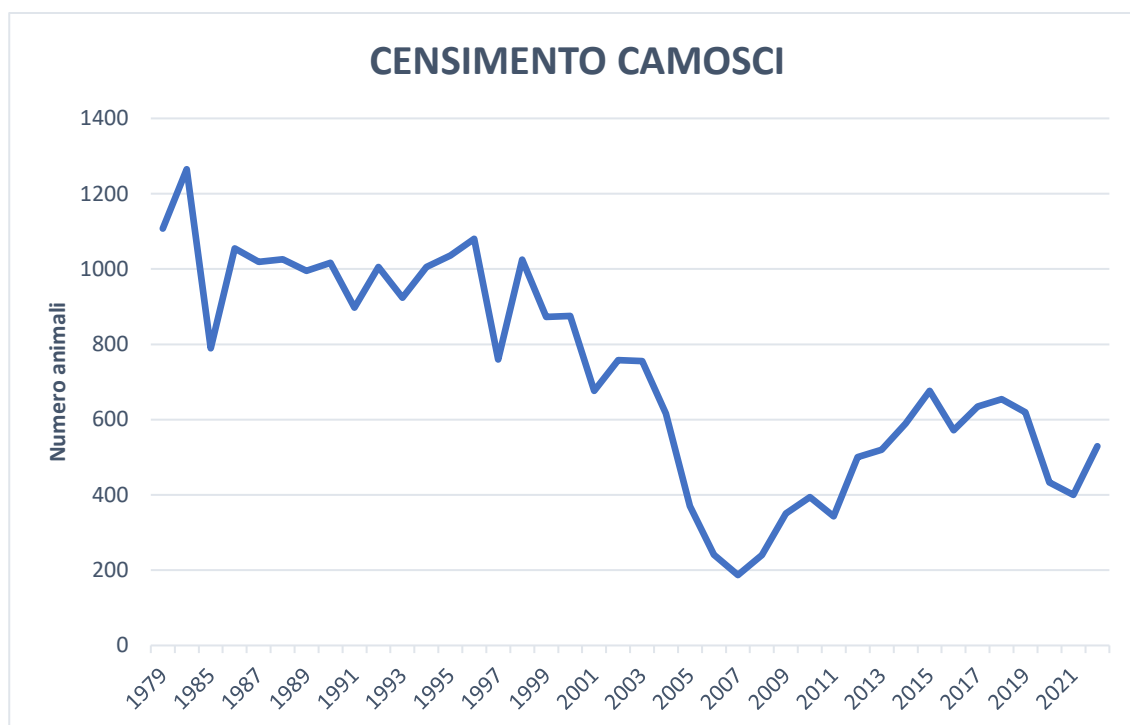


Fig. 7. Census of animals in the Fanes-Sennes-Braies Park. Data from the Office for Hunting and Fishing, 2022.

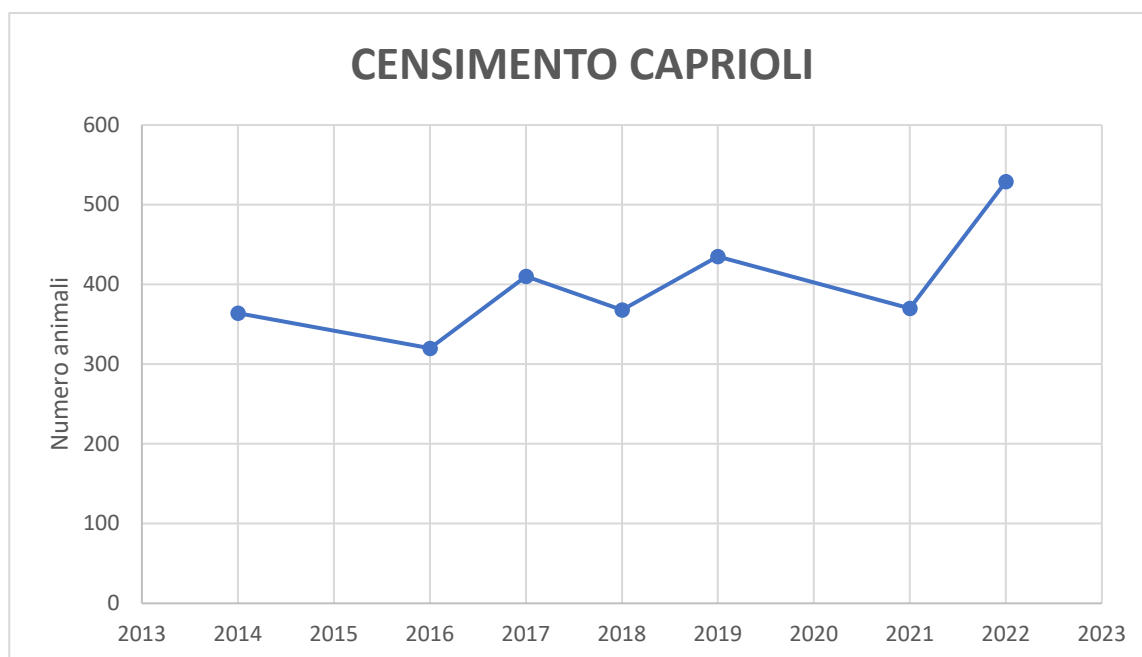


Fig. 8 Census of animals in the Fanes-Sennes-Braies Park. Data from the Hunting and Fishing Office, 2022.