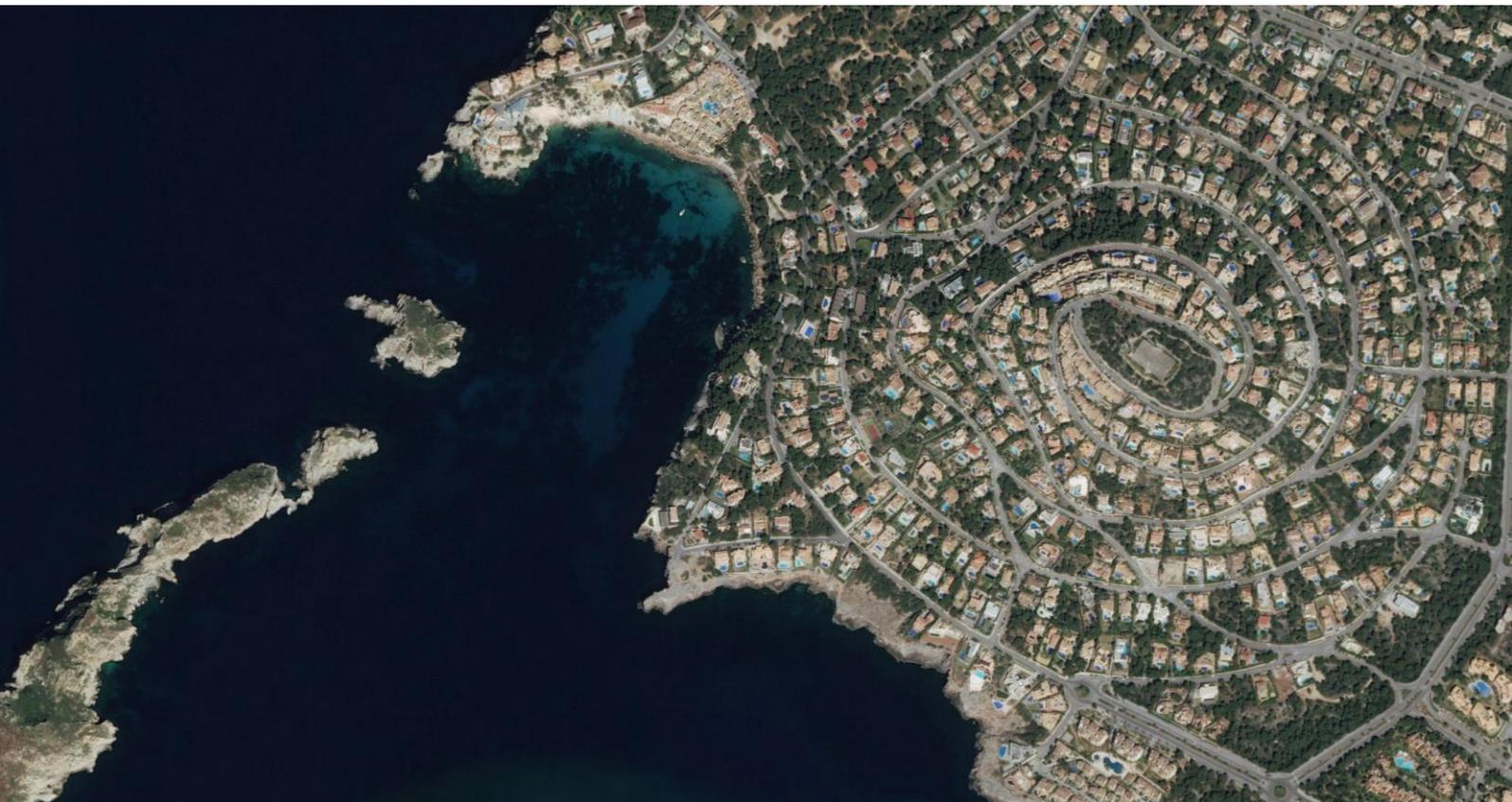


# Tourism and the environment

## Towards a reporting mechanism in Europe



### ANNEX 9. Indicator assessment TOUR005

#### Tourism pressure on protected areas



Cover design: ETC/ULS

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Layout: Francesc Romagosa (ETC/ULS)

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## Indicator name: TOUR005 – Tourism pressure on protected areas

### Assessment

#### Indicator name

TOUR005a - Number of bed places in rural areas per km<sup>2</sup> of protected areas

TOUR005b - Ski resorts' pressure on protected areas

#### Key policy question

Where are the potentially most frequented protected areas?

Are we reducing the spatial pressure from tourism infrastructures?

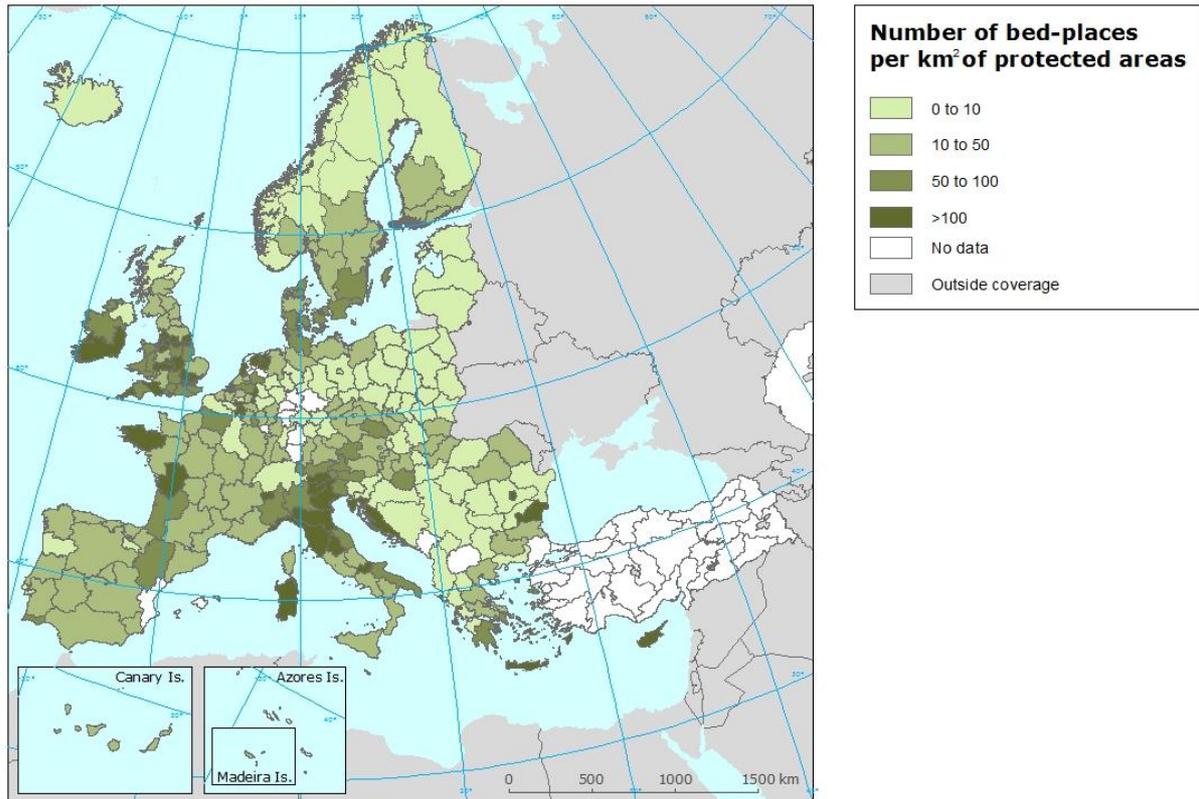
#### Key message

Protected areas (Natura 2000 and similar ones) could be very popular places given its natural and aesthetic values and, consequently, be exposed to the pressure of high levels of visitation. Leaving aside the urban and suburban parks, a good number of protected areas in Europe are located in rural areas. As we can identify the rural tourism accommodation offer (bed places in rural areas) per each NUTS2, a proxy of the potential pressure on those protected areas is to calculate the number of bed places located in rural areas in relation to the protected areas surface of the region.

Ski resorts and the related infrastructure (slopes, lifts) have a major impact on sensitive mountain environments. The construction of ski slopes and lifts damage consistently the existing high mountain ecosystems and increase the risks for avalanches. At the same time, high mountain ecosystems are protected widely through the Natura 2000 network, which lead to potential pressure of skiing activities and its infrastructures on protected areas. On the other hand, skiing is one major pillar of economic development in mountain regions and is concentrated at specific points in the different mountain ranges in Europe. The seasonal increase of population in the skiing resorts also raises questions about resource use, waste and pollution in these areas.

#### Key assessment

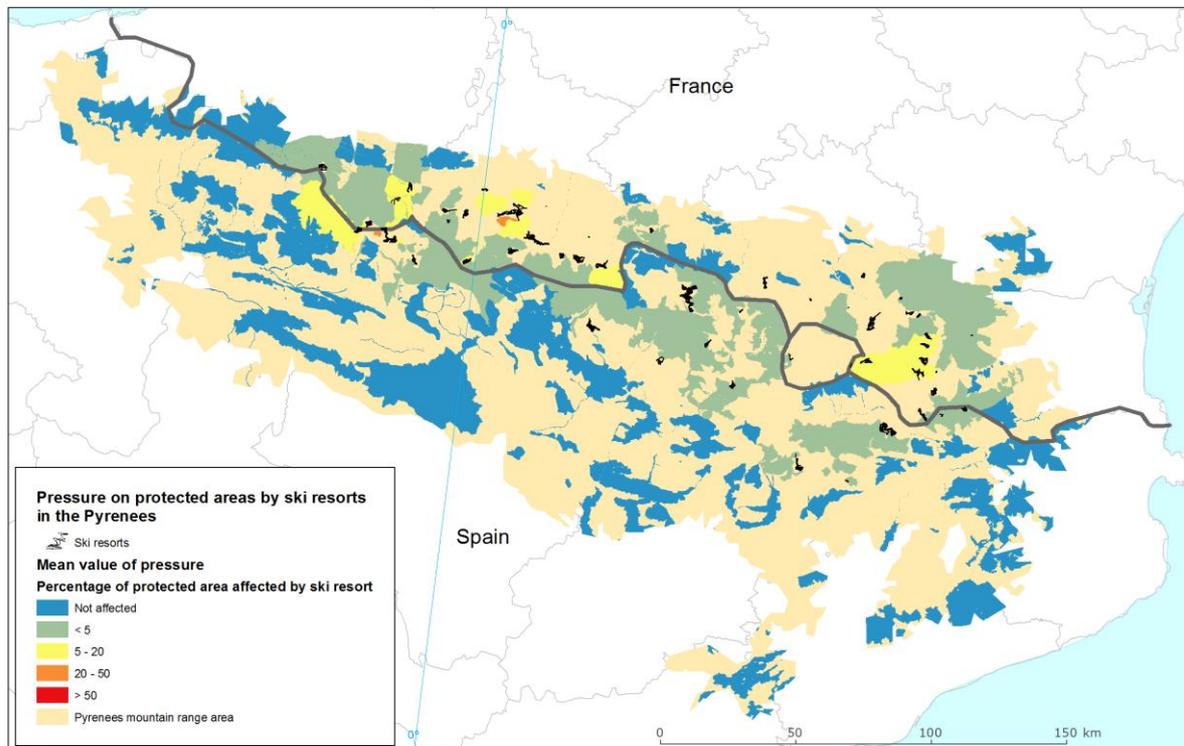
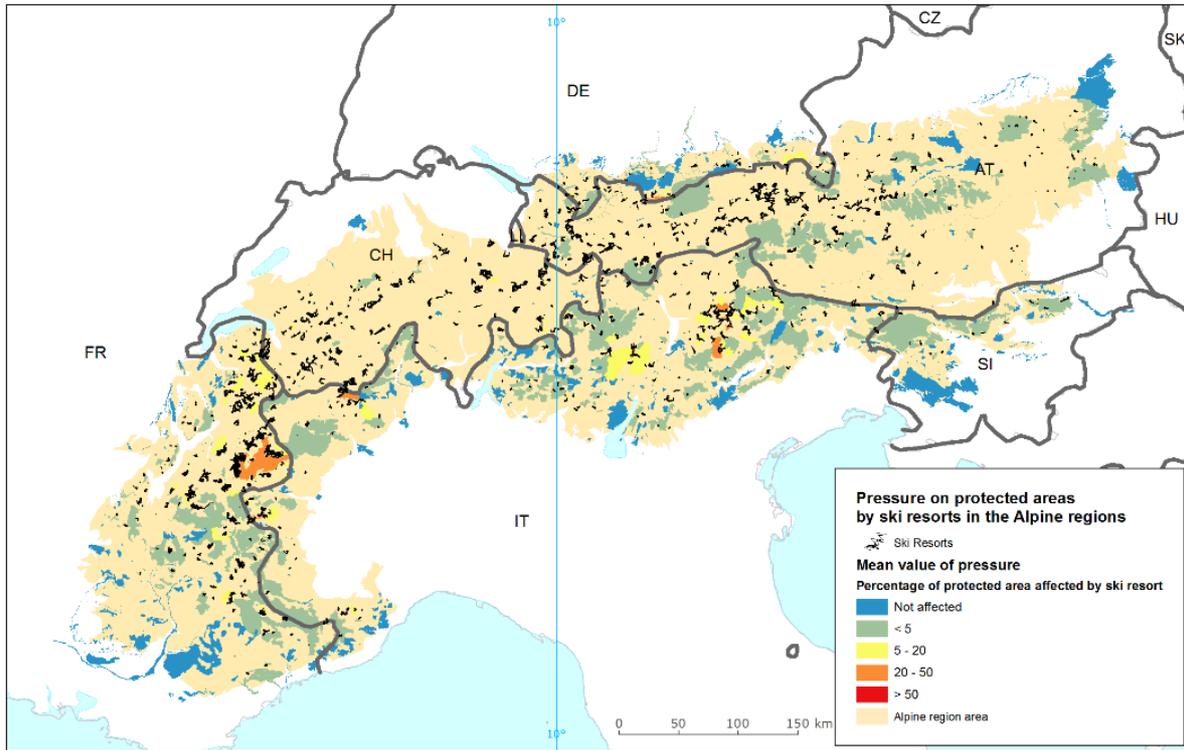
One of the approaches that can be used to understand the potential disturbance of recreation and tourism to biodiversity and the natural environment is to examine the tourism supply located around the most vulnerable and attractive areas, that is, the protected areas. In this regard, a first proxy has been calculated by combining the number of bed places offered by tourist establishments located in rural areas, with the land's protected surface (in this case, the Common Database on Designated Areas or CDDA, which includes the entire Natura 2000 network, as well as other national protected areas). The results of this exercise show that, in the majority of EU regions, there is a relatively low pressure on natural sites (although we are referring always to the regional level without look in detail at specific cases of concrete protected areas). In any case, most of the NUTS 2 regions have an average of less than 1 bed place per km<sup>2</sup> of protected area. The exceptions, with higher numbers – and potentially higher pressures – are found in Ireland, Northern Italy, Western Austria, the coastal region of Croatia, among other specific regions in other countries.



The potential pressure of ski resorts on protected areas of the Natura 2000 and the Emerald Networks, calculated for the Pyrenees and the Alps, shows the percentage of the area of the protected area that is potentially affected by ski resort. The protected areas with highest impact are located in the French Alps, particularly in the Savoie and Haute-Savoie Departments, as well as in the valleys of the Torino region on the border to France where the Natura 2000 site with the highest pressure value is located (Col Basset, 94.5) due to the high density of ski resorts. The Northern Italian NUTS-3 regions Belluno, Bolzano and Trento also include several Natura 2000 sites with relatively high (> 25%) pressure values. Both Austria and Switzerland do not show major pressure on protected areas.

In the case of the Pyrenees, the overall values are much lower compared to the Alps, being the N2000 network denser. The ski resorts are also much smaller and dispersed. The highest pressures can be observed in the French region of Hautes-Pyrénées. Generally, the N2000 sites in the Spanish Pyrenees have lesser pressure than on the French side.

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## Specifications

### Indicator definition

Number of bed places in official tourist accommodation establishments located in rural areas per square kilometre of protected areas at NUTS 2 region level. Protected areas as territory designated for protection under different protection figures included in the nationally designated areas (CCDA or Common Database on Designated Areas).

In the case of ski resorts (TOUR005b), indicator refers to their pressure on Natura 2000 sites.

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### Rationale

TOUR005a is a first proxy indicator created in order to identify those regions with a higher or a lower potential tourism pressure on the protected areas. In this case, it is calculated through 1) the tourism lodging offer in rural areas (these data substitute the unavailable tourism demand -overnight stays- in rural areas), and 2) the protected area surface, both at regional level. Combining these two types of data, it is possible to establish a potential pressure index. The specific rationale is that while it is not possible to know the actual number of visitors to protected areas at a reliable and at a whole European scale, some proxy had to be created. This proxy assumes as a hypothesis that most of the potential protected areas visitors that are tourists (excluding excursionists, that tend to be nearby residents from protected areas) are lodged in rural areas (because most part of protected areas are located in rural areas, with some exceptions of suburban protected areas). Then, the more the tourism offer (and, as a consequence, the tourism demand) in rural areas, the more the potential visitation levels of protected areas.

The ski area (TOUR005b) can be mapped which provides a rough information about the overall area of pressure of this form of winter tourism. When applying a potential pressure area around the ski resort, the potential impact on Natura 2000 area can be mapped and analysed.

### Policy context

EC and national policies on tourism and sustainable tourism.

EU regulations regarding coastal and marine ecosystems: Marine Strategy Framework Directive, Habitat Directive.

National and sub-national spatial planning regulations.

Regional development funds (Alpine Space Programme, Carpathian Convention)

### Methodology for indicator calculation

TOUR005a has been developed by dividing the number of commercial tourism lodging (bed places) located in rural areas of each NUTS 2 region (from the Eurostat classification of bed places according the degree of urbanisation) by the total surface of protected areas of the region (total surface included in the CCDA database).

Regarding TOUR005b, there is no Pan-European layer for ski slopes, lifts or areas. Data on ski runs and lifts are extracted and filtered from OpenStreetMap (OSM) data. The lines related to ski runs and lifts are tagged accordingly in the OSM files. The different line features can be summarized and overlaid with the EEA Reference grid to map the length of ski slopes and lifts per square kilometre. For the ski area, the convex hull of the line features is calculated and taken as polygon of the ski area. The potential pressure on Natura2000 site is based on a smoothing methodology elaborated originally for land cover data (see references). The results are expressed in percentage of the area of an polygon that is overlaid with the smoothing area.

**Data specifications**

Data sources for TOUR005a: Number of establishments, bedrooms and bed-places by degree of urbanisation and by NUTS 2 regions (from 2012 onwards), offered by Eurostat (tour\_cap\_nuts2d). The Common Database on Designated Areas (CDDA) is more commonly known as Nationally designated areas.

Data sources for TOUR005b: OpenStreetMap, and EEA's Natura2000 database.

**Data sets uncertainties**

Being OpenStreetMap a voluntary mapping effort, the completeness and correctness of the dataset cannot be ensured completely. Not all ski areas may have been mapped in OSM, especially in remote mountain areas.

**Ownership and contacts**

ETC/ULS.

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