Strasbourg, 24 January 2025 **T-PVS/DE(2025)02**

CONVENTION ON THE CONSERVATION OF EUROPEAN WILDLIFE

AND NATURAL HABITATS

Group of Specialists on the European Diploma for Protected Areas

Application for the

European Diploma for Protected Areas

Sierra Nevada National Park, Nature Park and Biosphere Reserve

ON-THE-SPOT APPRAISAL VISIT

Granada, Spain

13 – 17 May 2024

Document prepared by Mr Pierre Galland

Introduction

The Spanish authorities and the Sierra Nevada National Park and Nature Park have presented in 2023 an application file for the European Diploma for Protected Areas. The application was discussed for the first time by the Group of Specialists on the European Diploma for Protected Areas in February 2024. The members of the Group of Specialists "*welcomed the application of the Sierra Nevada National Park, declared the application admissible and entrusted the Secretariat to undertake an on-the-spot expert appraisal to confirm the European interest and assess the effectiveness of existing conservation measures. The application should be re-examined in 2025 in the light of the conclusions of the on-the-spot appraisal visit*".

It must be emphasized that the file submitted a nomination for the "*Sierra Nevada National Park, Nature Park and Biosphere Reserve*"; however, the discussion of the Group of Specialist mentions only the Sierra Nevada National Park. This issue was clarified at the beginning of the visit and it is clear that a nomination should cover the 3 entities which are managed together as a single unit, with an area of 172,238 ha, under the name of *Sierra Nevada National Park, Nature Park and Biosphere Reserve.*

The quality of the application file deserves to be underlined. The information is concise but very comprehensive and presented in a very well-structured way. Most of the information summarised in the present report is directly taken from the application file.

The visit took place on 13-17 May 2024 and was perfectly organised by the Director of the National Park and Sierra Nevada Natural Park, Mr Francisco de Asís Muñoz Collado and his team. Several collaborators of the park have participated in the mission and they presented the different topics, from conservation to education and scientific research, and answered the questions of the experts with great competence. We would like to express our gratitude for the well-balanced sites visits, the quality of the various meetings as well as the very good organisation. The competence of the collaborators and the very open discussion throughout the visit should also be commended. The independent expert was accompanied by Mr Gianluca Silvestrini from the Secretariat of the Council of Europe.

The mission schedule and the full list of participants are presented in Annex I.

1. Structure and short description of the Protected Area in its regional context

The Sierra Nevada National Park (NP) is located in southern Spain, close to the Mediterranean Sea, in the Almeria and Granada provinces which are parts of the Andalusia Autonomous region. The Sierra Nevada Mountain range occupies a key biogeographic position between Europe and North Africa and offers a wide range of altitude (from 262m up to 3,479m). Despite its relatively modest size, it encompasses a broad variety of ecosystem and geomorphologic structure. As a consequence, it offers spectacular landscapes and is a hot spot for biodiversity at a European and global level.

Sierra Nevada is a part of the Baetic Ranges, which extends over the easternmost third of Andalusia. All these mountains feature a very original set of fauna and flora species, with a high degree of endemicity. Standing out from the rest, Sierra Nevada is characterised by an even more complex biodiversity, due to its wide range of elevations, its orientation, geological diversity and relative isolation from other nearby mountains.

The National Park covers most of the mid to high altitude elevations of the ranges, with an area of 85,883 ha; it is surrounded by a regional nature park (at lower elevation) with an area of 86,355 ha. In addition, both parks contribute to a Biosphere Reserve (BR).

The BR was declared in 1986. In 1989, 140,200 ha were declared as a Nature Park. Eventually the highest and best-preserved part was declared as a National Park in 1999. The NP constitutes the core area of the BR; most of the Nature Park forms the buffer zone while some parts of it constitute the transition zone. The three units are managed together, with a single management plan, and in close collaboration with the regional, provincial and municipal authorities, as well as local institutions and stakeholders' groups. The national ministry responsible for national parks and for biodiversity conservation also has some jurisdiction on the protected areas.

In 2007, the Regional Government (Junta de Andalucía) enacted a Decree declaring the Sierra Nevada Natural Space as a unitary management entity, integrating the National Park and the Nature Park, but maintaining each Park under its own legal regulation.

The Sierra Nevada National Park and the Nature Park (Sierra Nevada Natural Space):

The total surface area is 172,238 hectares. According to the data from 2022, the ownership is distributed as follows:

- Public: 103,495 hectares (approximately 60% of the total)
- Private: 68,743 hectares (approximately 40% of the total)

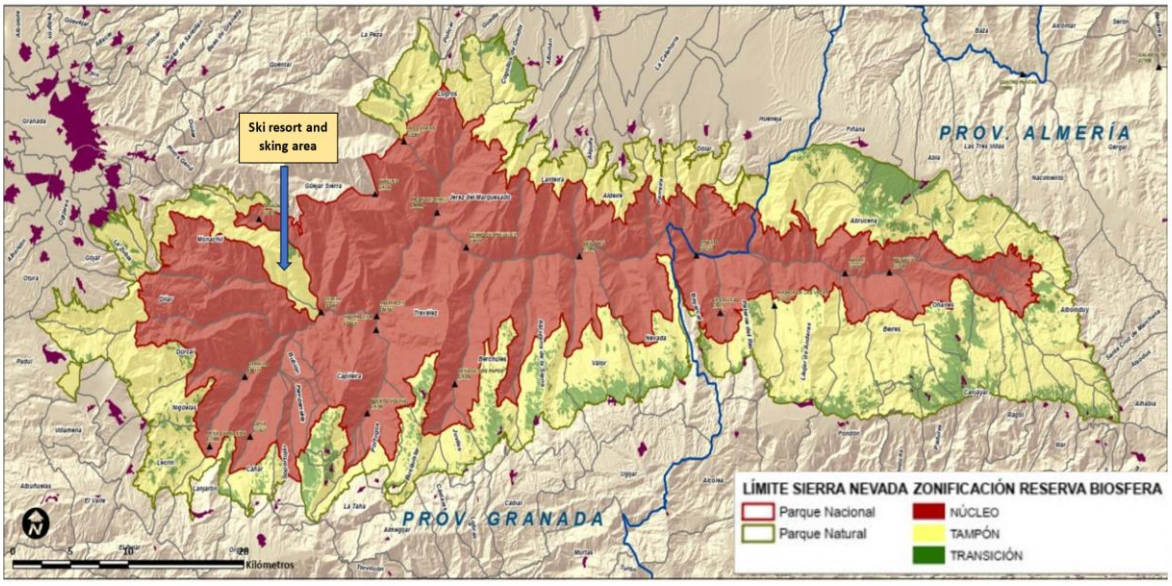
Municipalities: A total of 60 (37 in Granada and 23 in Almería)

Habitants : 98.368 (2022):

- Inside the protected area: 9,837
- Outside the protected area: 88,531

Major landscape impact caused by modern infrastructure.

- The most visible example is the ski resort which occupied the higher parts of the Monachil and Dilar river basins. It was created well before the establishment of the National Park and the whole resort area (ski lifts, ski slopes, buildings, parking lots, etc.) has been excluded from the National Park area.
- Electric powerlines are very visible, even from a distance. They especially affect the western sector of the park.



The Park annually publishes a very comprehensive publically accessible activity report: https://www.juntadeandalucia.es/medioambiente/portal/documents/20151/1534648/Memoria+Sierra+Nevada_23_10_23.pdf/4987089b-82cc-bcc4-a5d3-cbec1cba8820?t=1698330598964#page=1.

The overall transparency of the management with broad public participation deserves to be underlined.

2. European Interest

2.1. Natural values

Sierra Nevada is a mountain range 94 km long and 15-30 km wide, located in the South East of the Iberian Peninsula, very close to the Mediterranean coast (about 60 km in a straight line). It contains the highest peaks of the Iberian Peninsula: Mulhacén (3,479 meters above sea level) and Veleta (3,392 m only exceeded in western Europe by the French Alps (Mont Blanc, being the highest peak of 4,810 m).

The geological origin of Sierra Nevada is very complex, being the result of the collision between the Euro-Asian and the African tectonic plates, in a still active process. In the high summits the geologic strata placed above the tectonic layer have been eroded. At present the land is formed by materials from the Palaeozoic and Mesozoic Ages, mainly micaschists and quartzites, highly fragmented by the action of frost weathering. Carbonated materials like dolomite and limestone can be found at lower elevations forming the so-called carbonated belt, which is very rich in endemic plants adapted to the lime and to the magnesium of the dolomite. The geological origin and evolution of Sierra Nevada explain the great importance of its geological resources, some of which are extremely rare, like the ultramafic rocks with pseudo-spinifex structure.

Its vast protected area (over 172,000 hectares) includes features of exceptional natural value. Its strategic position, midway to the Mediterranean Sea and the Atlantic Ocean, and between the Palearctic and Palaeotropical worlds, make it a crossroad of multiple wildlife migrations throughout time and space.

Its orientation East-West determines a strong contrast between northern and southern slopes. Along with the great range of elevations (3,217 m between the lowest and the highest), both factors give rise to high biodiversity. Owing to the countless transitions and ecological borders, a great deal of animal and plant species can find their optimum or sub-optimum habitats.

During the quaternary glaciations many alpine species spread across these mountains and many of them can still be found, or have undergone a speciation process. To a great extent, it explains the high degree of endemicity of the highest peaks (about 40 %), one of the largest in Europe. Similarly, during arid periods of the Tertiary, when Iberia and Africa were connected by land, many plant and fauna species from the Middle East and North Africa migrated to these territories, with some of them still surviving in suitable habitats. This is why Sierra Nevada hosts Alpine, African, Atlantic, and mid-Eastern elements. Since their arrival, many of these taxa are experiencing processes of speciation and differentiation from their original ancestor.

Sierra Nevada is generally considered a hotspot of biodiversity within the Mediterranean Basin, and is recognised by Conservation International at a world level. An inventory of the biodiversity described so far has been compiled. A total of 9,241 taxa of fauna and flora have been identified to date. The group with the greatest contribution to the biodiversity of Sierra Nevada are arthropods (42.8% of all taxa, with 3,959 species) - most of them being insects (95.7% of all arthropods, with 3,787 species). Vascular plants (tracheophytes) also make a considerable contribution (25.5%, with 2,356 species) and within these, the dicotyledonous contribute with the largest number of taxa (78.9% of all vascular plants, with 1,860 species). Fungi (including lichens) are the next most important group (16.1%). Algae (4.0%), bryophytes (4.1%), vertebrates (2.8%), nematodes (3.1%), molluscs (0.9%) and myxomycetes (0.7%) are groups with lesser-known diversity in relation to those discussed above. The degree of endemicity is one of the most characteristic features of the biological communities of Sierra Nevada. In this sense, regarding plants, among the 2,356 native taxa, 82 are endemic to Sierra Nevada and 100 are endemic to the southeast Iberian mountains. Additionally, 169 species of arthropods are considered endemic to Sierra Nevada.

Occurrence of fauna species listed in Annexes of the Birds and the Habitats Directives

- A total of 182 bird species have been registered in Sierra Nevada. All of them are either sedentary, nesting or wintering. In other words, species using Sierra Nevada exclusively as a migration stopover are not considered in this list. A total of 48 inventoried species are included in the **Directive 2009/147/EC on the conservation of wild birds**. Of these, 28 are listed in Annex I, 4 in Annex II A, 14 in Annex II B and 2 in Annex III.
- As regards to the species listed in Annex II of the Directive 92/43/EEC on the conservation of natural habitats and of fauna and flora, a total of 9 species of vertebrate fauna have been recorded in Sierra Nevada: 7 species of bats, 1 reptile and 1 amphibian. Moreover, 15 taxa are listed in Annex IV (strict protection), with 2 cases being also in Annex II. As far as the 8 invertebrate species listed are concerned, 5 are listed in Annex II and 6 in Annex IV.

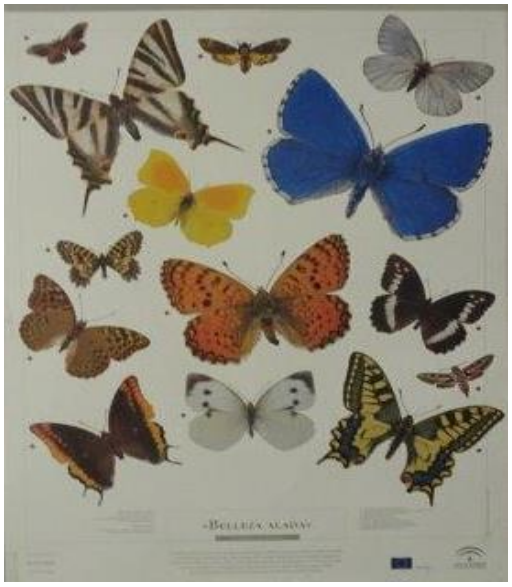
Occurrence of flora species listed in Annex II of the Habitats Directive

- A total of 15 plant species occurring in Sierra Nevada are listed in Annex II of the habitats Directive, with 7 of them considered "Endangered" or "Vulnerable" under the Bern Convention. Two more species are included in Annex IV (strict protection) of the Habitats Directive:

Occurrence of habitat types listed in Annex I of the Habitats Directive

- An inventory of the habitat types of Annex I of the Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora, existing in Sierra Nevada, amounts to a total of 39. Of these, 7 are priority types.

Above all, Sierra Nevada is the paradigm of the Mediterranean Mountain. Nearly all the bio-climatic belts described for the Mediterranean Region are represented in Sierra Nevada. Rising from the lowest elevations, five belts may be found: thermo-Mediterranean in the Almeria arid lands, followed by meso-Mediterranean, supra-Mediterranean, oro-Mediterranean and cryoro-Mediterranean belt in the summits. Only the infra-Mediterranean belt, typical of the desert areas very rare in Spain, is not represented in Sierra Nevada.



2.2. Natural heritage

Geology

Sierra Nevada hosts a great deal of geologic resources of huge interest, having been listed in the National Inventory of Geologic Interest Sites. The rock formations are distributed according to three types of geologic context:

1. In the central area, which contains the high summits, the rocks are formed by the metamorphic materials of the so-called *Nevado-Filabride* Domain. The main rocks are mostly dark micaschists and Palaeozoic quartzites older than 250 million years.

2. On the border of this first core, there is a belt of metamorphic rocks of the so-called *Alpujarride* Complex, older than 200 million years. It is mostly made up by phyllites of vibrant colours, blue, violet or bright grey, known in the region as "*launa*". On top of these, limestone and marbled dolomites generate sharp whitish and greyish reliefs.

3. The final external band of rocks is formed by sedimentary materials much more modern, of Neogene or Quaternary age. They are basically detrital materials (blocks, boulders, gravels and sands), eroded from the rocky massif while rising from the Mediterranean seabed and deposited around the river basins.

In Sierra Nevada there are two basic types of aquifers of very different behavior. On one hand those existing in the limestone fringe and on the other hand those related to metamorphic materials of the central area. In the first case the aquifers are developed within the thick strata of carbonated materials (limestone and dolomite), characterized by a great permeability and storing capacity.

Habitats

The great elevation range (between 300 m and nearly 3,500 m), the orientation East-West of the mountain range, the proximity to the coast and the diversity of climatic situations, along with the variations of the chemical and physical nature of the substrates and the historic movements of the species during the late Tertiary and the Quaternary, allow an enormous variety of ecological conditions that wild species can benefit from. Consequently, a great deal of habitat types can be found in Sierra Nevada, from the arid lands in the South East, with dwellers like the trumpeter finch (*Bucanetes githagineus*), an African species arrived to the southeastern Spain some 40-50 years ago, to the frozen desert of the highest summits, the habitat of the alpine accentor (*Prunella collaris*).

Flora

The Sierra Nevada massif in South East Spain has long ago been recognized as a biodiversity hotspot within a wider biodiversity hotspot, the Mediterranean Basin. It may be partly due to its environmental and historical conditions. The high elevation (up to 3,479 m) allows the formation of alpine habitats, albeit with Mediterranean conditions of a dry and hot summer alternating with the cold winter. The combination of different geochemical substrates, including limestone, dolomite, micaschists, and serpentine, among others, and a general arid Mediterranean climate characterizing these mountains, in a location close to the African mainland, makes Sierra Nevada the paradigm of a Mediterranean mountain.

The total number of vascular plant (Magnoliophyta and Pinophyta) taxa accounted for in the last checklist was 2356 species and 7 subspecies. This amount constitutes 39.3 % of the flora of mainland (peninsular) Spain and 33.2 % of total Spain (i.e. Mainland plus Balearic and Canary Islands). This amount is also particularly high in comparison to neighbouring countries of similar size. Some of the species, nearly 150, are endangered, 44 are strictly endemic and others are relicts.

Fauna

To date, a total of 4,583 animal species have been recorded, though new taxa are found or described each year. The Arthropods is the most diversified group, with 3,959 species, representing 86.38 % of all described animal biodiversity inventoried so far in Sierra Nevada. Among the arthropods, there are 169 species considered endemic and are not reported in any other place on the planet.

Regarding the **vertebrates**, the number of species amounts to 260, including 6 fish species, 20 reptiles, 9 amphibians, 43 mammals and 182 bird species. As far as mammals are concerned, 17 bat species, 2 lagomorphs, 1 sciurid, 5 insectivores, 1 talpidae (the Iberian endemic Spanish mole, *Talpa occidentalis*), 3 ungulates, 9 rodents, and 7 carnivorous species have been inventoried so far. It is important to mention the occurrence in Sierra Nevada of the Iberian Mountain Goat (*Capra pyrenaica*), one of the most conspicuous species, with an estimated population of over 17,000 individuals.

Birds represent the most numerous groups of vertebrate species, with a total of 182. This figure includes the sedentary, nesting and wintering species, excluding those of occasional occurrence and those that can be found only in stopover migration. Sierra Nevada hosts the best populations of Northern wheatear (*Oenanthe oenanthe*) of all the Baetic mountain ranges. Temporarily, many individuals from neighboring mountains gather in Sierra Nevada after having completed their reproductive process and before migrating to their trans-Saharan wintering sites. Other birds associated to high summits are considered unique species, not only in Sierra Nevada but also all over Europe. Worth to be mentioned are the alpine accentor (*Prunella collaris*), the common rock thrush (*Monticola saxatilis*), and the ortolan bunting (*Emberiza hortulana*). The community of other passerine birds is also rich in species (107), including 4 species of tits, 12 finches, 6 corvids, 18 sylviids, and 19 thrushes, to name a few.

Raptors are a particularly unique group from the perspective of natural resource conservation. Their position on top of the trophic chains confers them a certain bioindicator character. The diurnal raptor community in Sierra Nevada includes 15 species, including forest dwelling species such as the northern goshawk (*Accipiter gentilis*), the Eurasian sparrowhawk (*Accipiter nisus*), the booted eagle (*Hieraaetus pennatus*), the common buzzard (*Buteo buteo*), and the short-toed snake eagle (*Circaetus gallicus*). Small birds of prey like peregrine falcon (*Falco peregrinus*), common and lesser kestrels (*Falco tinnunculus* and *F. naumanni*) and Eurasian hobby (*Falco subbuteo*) are also nesting species. As for nocturnal birds of prey, Sierra Nevada hosts seven species: great owl (*Bubo bubo*), tawny owl (*Strix aluco*), long-eared owl (*Asio otus*), Scops owl (*Otus scops*), barn owl (*Tyto alba*), little owl (*Athene noctua*) and short-eared owl (*Asio flammeus*), the latter not nesting and in low numbers.

Vultures are also present in the Sierra Nevada, where they provide the essential ecosystem service of cleaning and recycling wild and domestic ungulate carcasses. The populations of griffon vulture (*Gyps fulvus*) have been continuously growing during the past fifteen years. The bearded vulture (*Gypaetus barbatus*) is the second vulture species occurring in Sierra Nevada. It became extinct in the middle of the 20th century. Its presence here has been rapidly consolidating over the past few years, thanks to

the release of individuals in the Natural Park of the Sierras de Cazorla, Segura, and las Villas and in the Natural Park of the Sierra de Castril.

Cultural values and traditional water management

Sierra Nevada is a territory historically occupied by the human being. The living conditions are often quite difficult in the mountains but also provide opportunities to supply food and shelter if the resources are wisely used. One of the most important testimonies of these abilities is the network of ancient irrigation channels locally called "*acequias*". The arrival of the Arabs to the Iberian Peninsula brought changes in many aspects and one of the most important ones was the agriculture. The abundance of water during ice and snow melting in spring and early summer prompted the initiative of building manually shallow and narrow channels following the contour lines of the mountains, to derive part of melting water for irrigation, very often quite far from the origin. This network dates back from the 8th-16th centuries and has been essential for the thriving irrigated agriculture in the mountains, in the Granada plain and in many other agricultural land surrounding Sierra Nevada.

3.3.1 The architectural heritage

The historical ensembles

The Sierra Nevada National Park and Nature Park have three Historical Ensembles considered as Cultural Interest Asset, in the Poqueira Gorge: Pampaneira, Bubión and Capileira.
They constitute the paradigm of the Alpujarra traditional architecture, notwithstanding the urban agglomeration of the remaining villages.

Additionally, the Historic Site of the Middle Alpujarra and La Tahá gathers a heterogeneous set of elements like irrigation channels (*acequias*), mines, industrial remnants, city centres, farmlands, archaeological sites, towers and churches, farmsteads, baths, natural areas and historic trails. Both adjacent Cultural Interest Assets together make up the largest territory of European protected heritage. The labyrinthine streets of the village centers, along with the construction typology, are clear examples of adaptation to the geographic, climatic and socio-economic conditions of the area. The famous "*terraos*" (flat roofs covered with impermeable clayish gravel), "*tinaos*", chimneys and stone eaves, are traditional elements of the architecture in the Alpujarra.

The defensive constructions

The defensive systems are present across the whole area of Sierra Nevada, as Medieval castles or fortresses (La Calahorra, Lanjarón), or watchtowers. The remains of fortresses are cultural attractions in Sierra Nevada that can be found in many villages like Abla, Abrucena, Alboloduy, Bayárcal, Beires, la Calahorra, Canjáyar, Fiñana, Fondón, Laujar de Andarax, Paterna del Río, Aldeire, Dólar, Ferreira, Jeres del Marquesado, Lanjarón, Lanteira, Lecrín and Pampaneira.

The hydraulic constructions

The traditional farming activity in Sierra Nevada has left a rich and varied ethnologic legacy which is highly appreciated as a cultural attraction. The infrastructures of Arab origin constructed to collect water (qanats and mines), for water storage in ponds, pools and cisterns –like the existing in Lanteira or the Abla castle- and for water transport and distribution to the users by means of channel (*acequias*) networks, still functioning, constitute singular elements characterising the agricultural landscape of this territory.

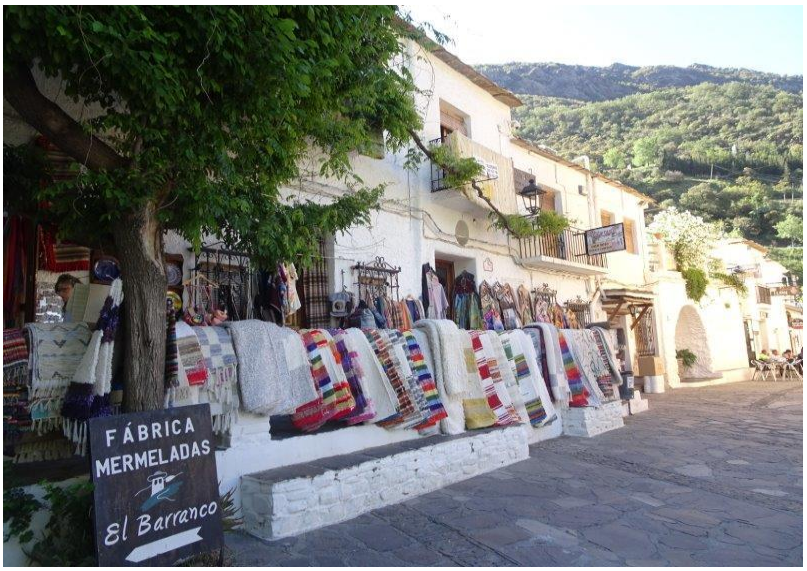
The principle "sowing for harvesting water" maintain its important ecological role, since beyond its cultural footprint, also provides hydric resources to the wild mountain ecosystems and feeds the agricultural grounds of the foothills and surrounding areas, often quite far from the origin. The Administration and the irrigation communities maintain this secular knowledge and tradition and maintain these infrastructures according to the ancient methods, tools and materials.

The still existing water mills are the material testimony of the hydraulic knowledge of the Arabs, allowing them to benefit from the water energy to move mills and other hydraulic devices for different purposes (*batanes*, *trapiches*, flour mills, ...). The Arab Baths of Ferreira, Aldeire, Jéres del Marquesado, Huéneja and La Zubia are also manifestations of their hydraulic skills.

4.1.3 - The anthropological heritage

Arts and crafts

The artisanal tradition derives from social and economic needs of the earliest settlers in Sierra Nevada. At present, the traditional rural culture has been evolving and some of the usual activities identifying these villages have got lost. However, in most villages of the Sierra Nevada several artisan works still reproduce the original forms and styles in many products that the visitor may buy. This is an added value offered by this natural area. Traditional products made of esparto, pottery with Nasrid drawings, leather or the famous fabrics ("*jarapas*") manufactured in old looms, are a few of the craft elements still being produced in the Sierra Nevada rural area.



3. Conservation measures

Besides its protection status according to the national legislation (National and Nature Park, Biosphere Reserve), Sierra Nevada is also covered by other international designations:

- Ramsar Site "Turberas y Humedales del Padul" (Padul peatbogs and wetlands) since 2006
- Special Protection Area (Birds Directive) since 2002. Natura 2000 code ES6140004
- Special Area of Conservation (Habitats Directive) since 2012. Natura 2000 code S6140004
- Area of Special Conservation Interest (ASCI) of the Emerald Network under the Bern Convention
- IUCN Green List of well managed protected areas, since 2014. The renewal process has just been concluded (valid until April 2029).

Sierra Nevada is legally protected in Spain and Andalusia. The first protection category granted was its declaration as Biosphere Reserve in 1986. Shortly after, the Regional Government enacted the Law 2/1989 on the Inventory of Natural Protected Areas in Andalusia by which the mountain range was declared Nature Park (IUCN Category V), with 140,200 ha. The importance and the good state of conservation of its natural values led to the declaration of higher mountain areas as National Park (IUCN Category II) by means of the National Law 3/1999. The two protection categories co-exist, in agreement with the philosophy of MaB Biosphere Reserves: The National Park acts as the Core zone, most of the Nature Park as the Buffer zone and the most altered area of Nature Park as the Transition zone.

3.1 Management and Governance model

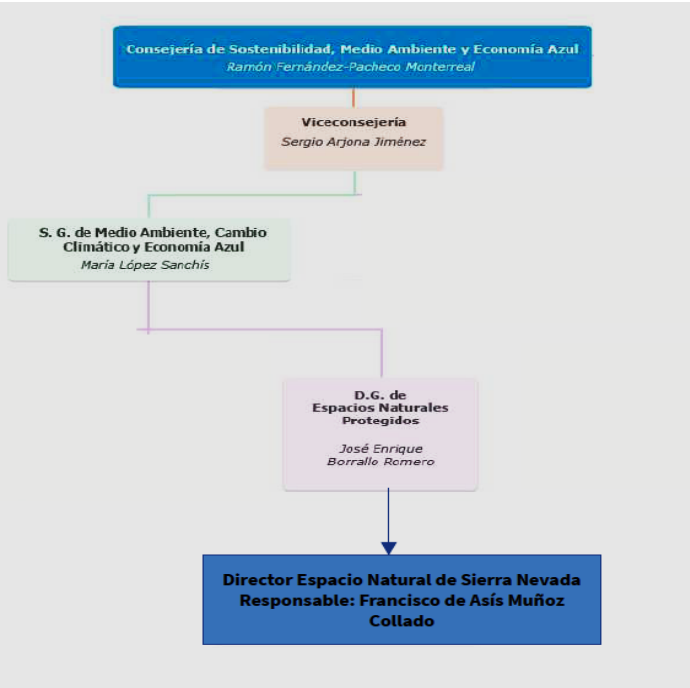
The governance model of Sierra Nevada and of protected areas at regional and national level is characterised by the following features:

Legal framework: The conservation and management of Sierra Nevada is based on a robust statutory legislation, both at regional (Andalusian), at national and at international scale. The latter applies by the membership of Spain not only to the European Union but also to International Conventions like Ramsar, Bern or Biological Diversity.

Since 2006, a decentralisation has taken place in Spain, with transfer of a large part of responsibilities for the management to the Regions. However, the national ministry responsible for National Parks and for biodiversity conservation also still has some jurisdiction on the protected area, in particular in relation to the international representation, the scientific research and the coherence of the National Network of National Parks.

Organigramme of the Management of the national parks at national level
(Consejería Sostenibilidad Medio Ambiente y Economía Azul_Espacio Natural de Sierra Nevada)

Structure of the departments dealing with Sierra Nevada conservation and management at regional level



Transparency and accountability:

The Administration of Sierra Nevada National Park and Nature Park produces two extraordinarily comprehensive reports every year, which are sent and discussed at the Participation Council mentioned below: the "Annual Report of Activities and Results" of the previous year and the "Advanced Annual Plan of Investments and Works" for the following year. Moreover, the Administration of Sierra Nevada cooperates with the national authorities of the Autonomous Organism of National Parks in drafting the Annual Report of the National Network of National Parks. All these reports are available via the web pages of the Administrations concerned.

Public participation

The participation of the public in the ordinary development of works for Sierra Nevada conservation and management is guaranteed in at least three main ways:

- The Sierra Nevada National Park and Nature Park has a specific participatory organisation with an advisory role, in which all sectors of the Administration, stakeholders of any kind, private owners and corporations involved, non-governmental organisations, and municipalities are represented. This organisation, called the Participation Council, has its own specific regulation and its Plenary meets periodically at least twice per year for the discussion and approval (or rejection) of the "Advanced Annual Plan of Investments and Works" and the "Annual Report of Activities and Results" (see below "Management Body").

  The Council currently has 4 working groups: infrastructures, equipment and services, conservation and research, socio-economy and water. There are usually 2 plenary meetings per year and between 4 to 17 working group sessions.

- There is specific legislation, both at regional and at national level, to guarantee that any person, stakeholder or legal entity may address their observations or complaints to the competent administration if they feel affected by the decisions. In addition to the ordinary ways to introduce the demands, there is a web portal where the citizens can communicate directly with the Department involved, with immediate acknowledgement of receipt.

- The Management Plans are periodically renewed and updated. The process is very comprehensive and includes several opportunities to participate in the draft, at the very least either during the public consultation phase, open to any citizen / organisation, or during the specific consultation open by the competent authority.

3.2. Management plans

There are three different Management Plans in Sierra Nevada. All of them have been legally approved by means of the Decree 238/2011, of 12 July, of the Regional Government (Junta de Andalucia) establishing the ordination and management of Sierra Nevada.

- **Master Plan of Natural Resources** (Plan de Ordenación de los Recursos Naturales – PORN).

It covers the whole territory of the National Park and the Nature Park. After a description and a diagnosis, this Plan establishes the general regulation of authorised and non-authorised uses and activities and the general zoning of both Parks.

- **Sierra Nevada National Park Management Plan** (Plan Rector de Uso y Gestión – PRUG).

This document only concerns the National Park and establishes the objectives and management criteria, defines the four zones established in the PORN, develops in detail the rules for the protection of the National Park, defines the compatible and non-compatible activities, design the guidelines of the Public Use System, establishes the activities to be implemented during the period of validity of the Plan and the indicators of fulfilment.

- **Sierra Nevada Nature Park Management Plan** (Plan Rector de Uso y Gestión – PRUG).

This document is equivalent to that previously described, but covers only the Nature Park. The structure of both documents is very similar. The main difference with the PORN is the degree of development of its provisions.

The management plan for the National and Nature Parks has been approved in 2011; it will be updated in a one-year process which should be concluded by the end of 2025.

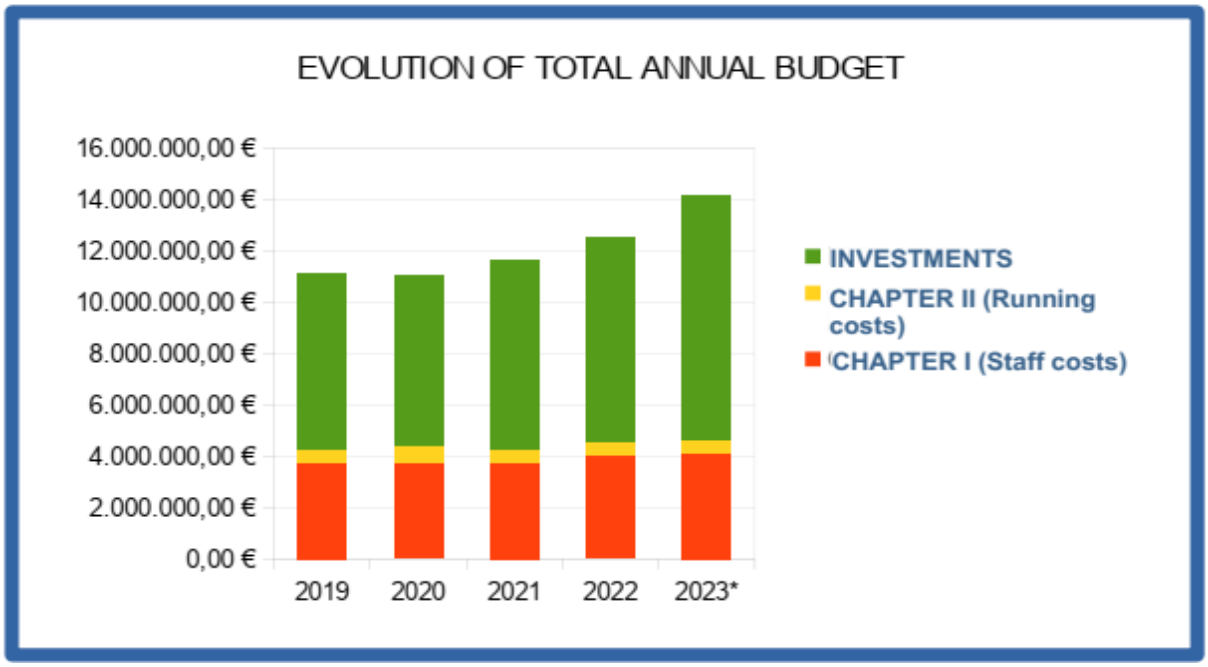
Other planning instruments concerning specific issues are also operative in the protected area:

- The Sierra Nevada Public Use Sectoral Plan
- The Sierra Nevada Livestock Sectoral Plan
- The Sierra Nevada Sustainable Development Plan

At national level, there is also a regulatory instrument considered as a management instrument: the Master Plan of the National Park Network. It has been approved by the Royal Decree 389/2016, of 22 October. It also applies to Sierra Nevada National Park.

3.3. Budget and management structure

Evolution and distribution of the budgets over the last 5 years



YEAR	CHAPTER I (Staff costs)	CHAPTER II (Running costs)	INVESTMENTS	TOTAL BUDGET
2019	3.741.200,00 €	499.551,00 €	6.885.349,00 €	11.126.100,00 €
2020	3.763.394,81 €	676.660,69 €	6.609.883,00 €	11.049.938,50 €
2021	3.755.029,53 €	505.553,71 €	7.393.004,00 €	11.653.587,24 €
2022	4.070.549,00 €	472.477,00 €	7.947.036,00 €	12.490.062,00 €
2023 (Provisional estimated expenditure)	4.100.000,00 €	540.209,00 €	9.500.000,00 €	14.140.209,00 €

Park's management body

The current Director is Francisco de Asís Muñoz Collado

Administrative Center and Staff

The administrative center is located in Pinos Genil, between the City of Granada and the entrance of the National Park.

At the end of 2023, the total permanent staff in Sierra Nevada was 104 persons, either civil servants (66), employees (33) or external support staff (5). This total can be split into the following categories:

- Executive Team: 3
- Surveillance and law enforcement staff: 65
- Technicians of the Conservation Area: 6
- Public Use technicians and Guides: 7
- Administration staff:18
- External support team: 5

4. Land use and socio-economic activities

4.1. Human influence on the landscape:

The secular human presence has left its footprint in the Sierra Nevada landscape. The main testimonies are the following:

- Agriculture
  In past times the human occupation of the Sierra Nevada was much higher than at present. In particular, during the first half or two thirds of the 20th century, dwellers used the territory as their source of subsistence for cropping, collecting firewood for heating, livestock farming etc., always at small scale on small plots of land. Progressively these properties or leases were abandoned by the farmers who relocated to the big cities in search of better opportunities. The woody vegetation started to recover the abandoned crops in an on-going process. At present, remains of ancient crops can be distinguished in the mountains, by the stone walls limiting the arable terraces built into the slopes. The resultant landscape is very characteristic and only recently some new farmers are occupying with their families these grounds to recover the ancient ways of life with modern advances. This development makes the landscape more diverse, since the farmland shows different degrees and stages of recovery or regression.

- Livestock
  As in the case of agriculture, livestock farming was more practiced in the past and the composition of the species was also different. Sheep and goats were more abundant decades ago, whereas at present cattle are the dominant species. These changes have implications at landscape scale. In general, the progressive reduction of domestic ungulates is allowing the woody vegetation to recover their ancient realms and the forests are increasing and getting older across the Sierra Nevada, in particular at the upper limits. Local breeding of cattle, like the "*vaca pajuna*" a cow very well adapted to the local climate, is an expanding activity, which produces very good results, both in terms of maintaining the vegetation in good condition and in terms of income for local breeders.

- Tourism
  Traditionally Sierra Nevada has been very frequented by the inhabitants of nearby cities and mountaineering clubs are very active. During the recent decades, and singularly since the COVID-19 pandemic, the demands of visitors has increased significantly. At a landscape scale, tourism can be perceived by the abundance of trails, information panels, garbage containers, signs and roads, allowing an approach to wild sectors of the mountains, in particular the highest summits. Whilst these impacts are limited, uncivil behavior from a small proportion of visitors increases the negative effects upon the Park. For example, opening new mountain-bike trails on the slopes, building walls with rocks to stay overnight and protect themselves against nocturnal cold and wind, leaving rubbish, these behaviors leave a footprint difficult to remove and are counteracted with wide effort for education and information before being prosecuted and punished.

Impacts of infrastructures

Some specific areas show important landscape impacts caused by modern infrastructures:

- One of the most important is the ski resort, which occupies the higher sectors of rivers Monachil and Dílar, at the foot of the Veleta peak. Ski lifts, ski courses, buildings for restaurants and machinery and wooden fences to maintain the snow on the desired sites, provoke landscape impacts, some of which are easily perceived even from the city of Granada, on the Veleta slopes.

- The electric power lines, particularly those of high voltage, are also very visible infrastructures, even from the distance. They specially affect the western sector of Sierra Nevada, where the villages are more numerous and closer to the mountains, needing to count on electric supplies.

Dispersed buildings

Fortunately, the housing is mostly concentrated in urban cores surrounding the protected area. Only scattered farmstead can be seen all over the countryside, although normally they are quite small. The reconstruction of old buildings is permitted by Sierra Nevada legislation, and can be authorised with limitations, such as maintaining the same size (unless some increase can be justified), not using brilliant colours, utilising appropriate materials and respecting traditional construction methods and features.

Astronomic observatories: As mentioned in section 5 (Educational and scientific interest) there are 3 research infrastructures in Sierra Nevada for the astronomic study of the universe. They produce an undeniable landscape impact. However, on one hand these facilities have been installed before the declaration of Sierra Nevada as protected areas. On the other hand, they are placed in the area of the ski resort, already altered. The high quality of their research results is a consequence of their privileged placement that cannot be undertaken anywhere else.

4.2. Socio-economic context

According to the Spanish legislation on national parks, besides the area formally designated as such the declarative Law also defines the so-called Socio-Economic Influence Area. It is made up by the aggregation of municipalities where the National Park is placed, contributing with their territory. This is not a category of protection, but rather the area where the Administration of the National Park must favour with more emphasis the institutional relationship. This concept has also been applied to the Nature Parks. For the case of Sierra Nevada, the Socio-Economic Influence Area is formed by 60 municipalities, 37 in Granada province and 23 in Almería province. According to the population data of 2022, a total of 98.368 people live in the 60 municipalities

Very few people live in the protected area, mostly in isolated farmsteads, scattered in the landscape, mainly in the Alpujarra area. At overall level, it is relevant to underline that after a few years of recession, the population tends to stabilise, or even to show a slight increase for the whole area.

The local economy is mostly based on livestock and forest exploitation, since the agriculture is marginal and is progressively abandoned. Livestock still persists, but is also declining. It has always been an itinerant activity, moving the animals (mostly cattle and sheep) to feed on high-mountain pastures in summer, to bring them back to the villages or even to the coast during the winter.

During the recent years, the relative weight of the economic sectors is the following:

- Services: 69.3 %
- Farming: 17.4 %
- Industry: 7.3 %
- Construction: 6 %

Within the “services” economic sector, tourism is especially important. During the last years hotel places have increased to 73.53 places per 1,000 inhabitants in 2020, although there are differences among districts.

A consultation has been made to the local entrepreneurs to know their assessment concerning the influence of Sierra Nevada on their activity. In general, they welcomed the economic activity generated by the Parks but not so much the management of the protected area. In any case, the majority of them recognised the positive influence of the proximity of Sierra Nevada and that the relationship contributed to their entrepreneurial success.

Tourists are mostly domestic and Andalusian, mainly from the Granada and Almería provinces. Overseas visitors account for only 20% of the total. Tourists are mainly motivated by making acquaintance with the area, being in contact with nature, spending leisure time, walking around, enjoying the landscape, resting and sunbathing. Whilst cultural tourism is also very important in this region, hiking is the most practised activity by visitors of the parks. Tourism is quite seasonal, since a majority of visitors come in May and June, followed by April, December, July and March. February, January, September and August are relatively less frequented months.

Some properties devoted to the primary sector, both to the agriculture and livestock, have recently found in eco-tourism an important economic source of income and this has a revolutionary effect. The conservation of local cattle breeding, like the "*pajuna*" cow, and of the traditional agriculture with local producers, is a rising activity and with good forward-looking, thanks to the eco-tourism. This responsible tourism can provide a great impulse to the economy of all the villages of Sierra Nevada and serve as socio-economic development driver, helping to prevent the rural depopulation.

Vaca Pajuna – traditional breed of cow

Main socio-economic targets of the protected area

The main task of the Sierra Nevada Administration is to serve as catalyst, helping to facilitate contacts and supporting all the entities participating in the equation: producer and consumer

- Promoting socio-economic conditions avoiding the rural communities to lose their roots and allowing their progress, strengthening the economic and social use of the territory compatible with the conservation of the natural resources.

- Place value on the natural and cultural heritage of Sierra Nevada as a potential resource to support the sustainable development policies. Promoting its wise use as an instrument of cultural and economic development, conditioned to the conservation of natural and cultural resources.

- Pay special attention to the wise use of hydraulic resources. Sierra Nevada, provides water for large territories outside of the protected area. Inside the protected areas a centuries old water channel system has been maintained by local communities, using gravity to share the resource among villages, allowing to practice farming and to maintain livestock breeding.

5. Threats and vulnerability

Sierra Nevada is a protected territory provided with efficient legal and administrative instruments for its long-term conservation and management. However, some vulnerabilities can be identified. The most significant challenges for the future are the followings:

1. **Climate change** is by far the most threatening factor with capacity to dramatically modify the structure and functions of ecosystems, ecosystem services and biodiversity. Medium term climate scenario (1971-2022) foresees an increase of average temperatures of 0.36°C per decade. As a matter of fact, average temperature has risen 1.85°C from the beginning of the 1970s. In regard to precipitation patterns, a decrease of 131.7 mm has been detected from 1950. This implies a reduction of 25.3 mm per decade from mid-20th century. Additionally, a reduction of the precipitation and an increase of extreme weather events, like droughts and torrential rainfall, are expected. In other words, this means an increase of aridity.

The whole Iberian Peninsula is under an intense pluriannual drought and record warm temperatures are broken year after year across the four seasons. The most vulnerable natural elements are the species adapted to alpine biotopes and those needed of soil and air moisture. At present these species are moving upwards, to find colder and wetter conditions, but the available sites are limited.

2. **Desertification** is a natural risk in wide areas associated to features inherent to specific parts of the territory, like for example soft or unstable grounds, steep slopes, abandonment or bad design of agricultural practices, wildfires, etc. These factors can obviously be worsened by climate change.

3. **High biodiversity and geodiversity**. Occurrence of many endemic and relic species whose knowledge is still incomplete. The uncertainty about the real consequences of the global change makes more necessary to count on accurate information to assure their conservation.

4. **Changes of the traditional farming methods** towards the intensification or the abandonment of the compatible systems of livestock breeding. A significant proportion of the biodiversity is linked to farming activity. The use of chemical products to increase productions, to prevent cattle diseases and pests and/or for other purposes is causing the non-natural mortality of invertebrates. For example, coprophagous beetles are killed in large numbers by the use of ivermectin to prevent and remove parasites in cattle. When they are eaten by predators the poison continues to act in a deadly chain. The continuous population reduction of the red-billed chough (*Pyrrhocorax pyrrhocorax*) is thought to be a consequence of this chronic toxicity. The problem of the pollinator mortality by neonicotinoids and other chemicals is a problem worldwide and Sierra Nevada is not an exception.

5. **Reduction of the hydric resources** caused by water extractions for farming, for mini hydropower plants and for the artificial production of snow in the ski resort.

6. **Risk of big wildfires**, especially in big surfaces occupied by reafforestation with conifers made some decades ago. Big surface areas have been planted with different species of pines between the 40s and the 50s, to a total of about 40,000 hectares. The densities of trees are very high, mainly by lack of silvicultural treatments. Eventual wildfires are a very worrisome risk.

7. **Increasing demands** of soil, water and supplies for urban developments and the ski station. The progressive increase of living standards requires more and more resources that the local environment often cannot supply at the demanded level.

8. **Emergent diseases and pests**. The progressive warming temperatures are modifying the climate conditions and many pest species are moving to areas where previously did not occur. The same can be said about pathogens, which are also moving around because of goods traffic and other factors and provoke damages in different wild and domestic species of fauna and flora. This factor is under follow-up by the Sierra Nevada Global Change Observatory.

9. **Lose or deterioration of cultural assets**, landscapes, traditional tools and practices, constructions, etc. The important heritage elements existing in Sierra Nevada, often quite old, need continuous revisions and restoration in some cases. The lack of sufficient financial resources of different competent administrations and private owners prevent to adequately cover these needs.

10. **Poaching** and illegal fishing. The presence of the best population of mountain goat (*Capra pyrenaica*), and to a lesser extent of wild boar (*Sus scrofa*) raise the desire of trophies by illegal hunters. At the same time, common trout (*Salmo trutta*) inhabit many of the mountain rivers of Sierra Nevada inthe southernmost distribution area. Fishing trout is allowed under permits, but the captured fishes cannot be killed and they must be returned to the river.

11. **Overcrowding emblematic sites by visitors**. At present there are no limits to walk around the Sierra Nevada, with some exceptions if conservation or security reasons recommend prohibiting entering some area. Mountaineering is a very popular activity in Sierra Nevada and many visitors enjoy the highest peaks in summer, attracted by the Mulhacén and Veleta peaks, the highest of the Iberian Peninsula. There are specific moments when these areas are extremely crowded and create confusion, noise, rubbish and trampling in very sensitive areas with high proportion of endemic plants and invertebrates. In view of the increasing impact of this situation, increasing efforts are made to study and design some control measures.

6. Scientific research

Sierra Nevada has always aroused curiosity among naturalists and scientists. The occurrence and abundance of particular species, both animal and plant, raised their interest in improving knowledge on the assets of this territory. The earliest scientific expedition that can be considered as such dates from 1754 and it was made by Antonio Ponz. He is the precursor of a consolidated scientific tradition of naturalists and specialists in different disciplines (often from Western and Central European countries) which since the 19thcentury have left important testimonies on its natural wealth and diversity, based on these initial studies, continuing with the intellectual curiosity of the pioneer naturalists. An impressive scientific literature is available and the proximity of several universities, in particular the University of Granada, have stimulated very high-level scientific inventories and researches. Since 2022, more than 60 projects have been initiated.

Since the very early attempts to protect Sierra Nevada in the 80s decade of 20th century, these mountains were known for the richness, diversity and endemicity of plant species. Some studies made, mainly by the University of Granada, revealed that Sierra Nevada was a major biodiversity hotspot within the Spanish context and also at European scale. For that reason, its protection was considered urgent and necessary, not only for its botanic interest, but also for other values like the following:

- Occurrence of the most important population of Iberian Mountain Goat (*Capra pyrenaica*), endemic to the Iberian Peninsula.

- The bird community, with species quite rare in similar areas, like the blue rock-thrush (*Monticola solitarius*), the mountain greenfinch (*Serinus citrinella*) or the alpine accentor (*Prunella collaris*). The group of the birds of prey with good populations of valuable species like Bonelly's eagle (*Hieraeetus pennatus*), golden eagle (*Aquila chrysaetos*), greatowl (*Bubo bubo*) and many other raptors, was also considered as very relevant.

- Some species of invertebrates of restricted distribution area, like the grasshopper *Eumigus rubioi*, the cricket *Baetica ustulata*, both apterous as an adaptation to the elevation, the *beetles Dinodes (Iberodinodes) baeticus* and *Iberodorcadion lorquini*, or the butterfly *Parnasius apollo* subsp. *nevadensis*;

- Remarkable geomorphologic features, like glacialism in the siliceous highest summits, karstic and tectonic processes in the peripheral limestone belt, hydric erosion processes associated to steep slopes, siltation in foothills with impressive alluvial fans, etc.;

- Lithologic diversity: along with common materials covering most of the surface area, either siliceous rocks (mostly schist and quartzite) or carbonated (limestone and dolomite), many other geologic resources appear across the massif, some of them very original and even rare. Among the most striking there are ultramafic rocks with pseudospinifex structure, formed as a consequence of metasomatic processes of peridotites occurred in the ocean floor, and later emerged due to the Alpine orogeny;

The Sierra Nevada Global Change Observatory (https://obsnev.es/en/) is an innovative joint institutional initiative whereby the scientific community and the decision makers responsible for the management of the Sierra Nevada National Park and Nature Park, work together. The overall aim is to generate the necessary knowledge to be used for improving the strategies, programmes and projects for the long-term conservation of this protected area. This common platform has generated a number of tools to automate the management of huge amounts of information. At this point it is relevant to

mention the application “Biblionevada” (https://biblionevada.obsnev.es/), which has been designed to gather all documents published containing information of any kind on these mountains.

This platform of joint cooperation has been possible thanks to the proximity of Sierra Nevada to Universities (in particular the Universities of Granada, Almería, Murcia and Jaén) and research centres, mostly belonging to the Superior Council of Scientific Research (Consejo Superior de Investigaciones Científicas – CSIC), interested in this privileged scenario, owing to its geographical situation, where high altitude can be achieved at low latitudes. It is particularly worth to highlight the role of this protected area as natural laboratory for studies on the impact of climate and global change on the natural ecosystems, functions and ecosystem services they provide.

The participation of Sierra Nevada in international research projects is also a result of this strategic approach. The Sierra Nevada Observatory of Global Change, through the University of Granada, has been involved in projects like ECOPOTENTIAL (http://www.ecopotential-project.eu/), or most importantly LIFEWATCH ERIC (https://www.lifewatch.eu/), a European Research Infrastructure Consortium designed to provide e-Science research facilities to scientists investigating biodiversity and ecosystem functions and services in order to support society in addressing key planetary challenges. It is also relevant the participation in long-term international biodiversity monitoring projects like EUBON, EUROGEOSS, LTER, etc.

According to the regulations of Sierra Nevada, a permit is obligatory to carry out research activities in the protected area. The national ministry responsible for the environment (at present Ministry for the Ecological transition and Demographic Challenge), maintains a few responsibilities on the existing 16 Spanish National Parks, in particular those established to maintain the coherence of the national park network. A very important issue still kept by the national authorities is the periodic call for research proposals through the Autonomous Body of National Parks (Organismo Autónomo Parques Nacionales – OAPN).

As a proof of the interest that Sierra Nevada rises among the scientists, the number of requests of research projects per year is very high. The following table summarises the results of these calls for proposals. The years 2016, 2018 and 2019 these subsidies were not called.

Year	Research projects requested	Number of projects awarded	Amount (€)
2010	29	1	90.014,00 €
2011	16	3	366.143,00 €
2012	14	7	605.747,00 €
2013	19	6	314.442,00 €
2014	6	0	0 €
2015	10	2	104.714,00 €
2017	24	8	564.467,00 €
2020	43	1	60.419,00 €
2021	14	9	751.508,90 €
2022	7	4	391.393,30 €
2023	11	8	705.523,39 €

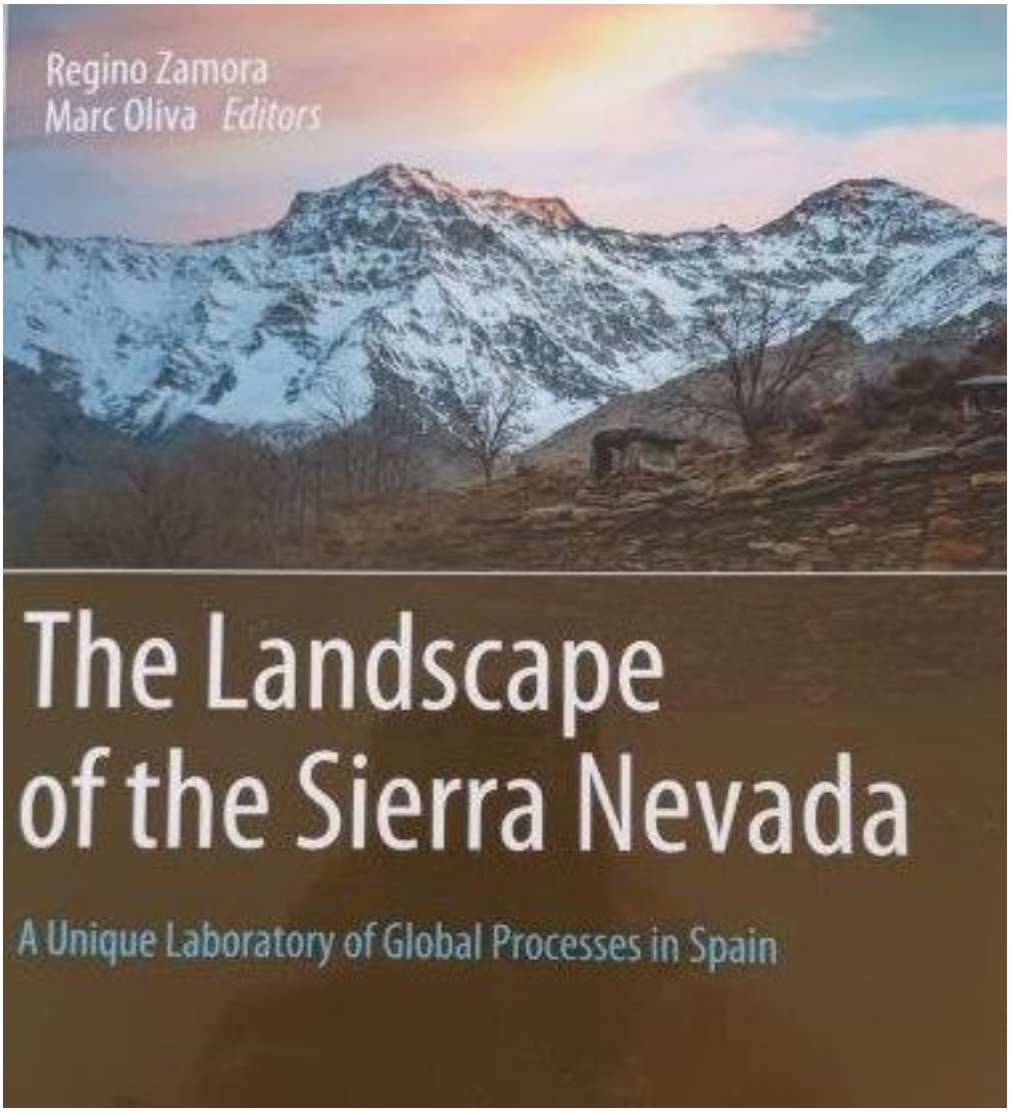
One of the most important research topics in Sierra Nevada is the astronomy. Its geographic situation, the altitude and the high quality of the air layers have long ago attracted the scientific institutions to build their infrastructures in these mountains. At present there are three operating facilities of this kind:

- Observatory of Mojón del Trigo peak, belonging to the University of Granada

- Radio-telescope of 30 meters in the Loma de Dílar (2.850 m.a.s.l.), belonging to the Institute of Milimetric Radio-Astronomy (Instituto de Radio Astronomía Milimétrica – IRAM), a Spanish-French-German consortium. This facility is one of the most advanced of the world.

- Observatory of the Institute of de Astrophysics of Andalusia (Instituto de Astrofísica de Andalucía – IAA/CSIC). It is located near the radio-telescope in Loma de Dílar and develops a cutting-edge research activity at world scale.

Sierra Nevada is also a very attractive area for university students to complete their practical training. During the last 10-15 years many Agreements have been signed or renewed with Universities from Alicante, Almería, Córdoba, Granada, Jaén, Málaga, Autónoma de Barcelona, Extremadura, León, Murcia or Politécnica de Madrid.



7. Education and communication

The Sierra Nevada receives an estimated number of 700'000 visitors annually. It is close to large and very touristic cities, and offers spectacular views, fresh air in Summer, and possibilities to escape from the civilisation and be in contact with wild nature. It maintains … information centers and a large number of information points all over the mountain range. A very well-maintained botanical garden, open to public, is located close to the road to Veleta, at mid-elevation. It displays most of the typical plants of the Sierra Nevada.

The Park, in association with the municipalities and private companies, offer a very large choice of information materials: maps, leaflets, guidebooks, information points, etc. An extensive network of marked trails and a fairly large number of mountains huts offers many possibilities of excursions for the visitors. Some tourist organisations offer transportation (shuttle), guided tours, etc. The collaboration with the park administration is very good.

Since the declaration of Sierra Nevada, firstly as Nature Park and later as National Park, 35 and 25 years ago respectively, an Environmental Education and Training Programme has been implemented by the Sierra Nevada Public Use staff, along with the educative community of the surrounding area. The different Primary Education Centres and High-School Institutes of the 60 municipalities within the territory of the National or the Nature Park (Socio-Economic Influence Area), have participated in activities implemented either in their own Centres or in itineraries in Sierra Nevada, in which the natural assets and the environmental problematic have been addressed. Each year, about 1.300 pupils participate in these activities.

8. Conclusions and recommendations

- The Sierra Nevada National and Nature Park constitute a very important biodiversity hotspot in the Mediterranean area which is without doubt of the highest European interest.
- The area is very well protected legally.he management of the Sierra Nevada National and Nature Park is very efficient, under the supervision of the Autonomous Region of Andalusia and in close collaboration with the national ministry, the provinces, the municipalities, diverse NGOs and the private sector. A comprehensive management plan was adopted in 2011 and a revision is planned for 2024.
- Scientific research has a long history in Sierra Nevada and very active programmes are implemented; the establishment of the Sierra Nevada Global-Change Observatory by the Regional Government, the University of Granada and many other partners has to be especially commended.

We therefore recommend awarding the European Diploma for Protected Areas to the ***Sierra Nevada National Park, Nature Park and Biosphere Reserve*** for an initial period of 5 years without condition and with the following recommendations:

Recommendations

1. Prepare and adopt a revised version of the Management Plan by the end of 2025.

2. Continue to support the long-term research on the impact of climate change, and in particular the activities of the *Laboratory of Global Process in Spain.*

3. Continue to monitor the impact of tourism in the most popular places, in particular the alpine areas, and take the necessary measures to limit this impact on the very fragile vegetation and vulnerable fauna.; pay special attention to actual and potential invasive species.

4. Study the potential for greater use of solar energy for heating water and electricity production, while respecting the traditional architecture and cultural heritage of the villages.

5. Pay special attention to the use of water within and outside the park territory; in particular, maintain and restore as appropriate traditional water channels system to provide water for agriculture and cattle breeding.

6. Use the European Diploma logo on information displays and material, in combination with the other national and international recognitions.

Annex I

EUROPEAN DIPLOMA SIERRA NEVADA NATIONAL PARK
On-the-appraisal-visit 13-17 May 2024

Visit program

Monday May 13th

Accommodation.
Reservation:

- Hotel Maciá Real de la Alhambra. https://www.maciahoteles.com/maciarealalhambra/

Tuesday May 14th

9:00. - Reception and welcome at the Pinos Genil offices.
Program organization meeting and evaluation visit with the park management team.
10:00. - Departure to the Veleta peak (up to the moment the snow allows). Meeting with:

- Inmaculada Hernández-High Peak Area Environmental Interpreting Service-Northern Side
- Miguel Galiana- Nivologist

12:30. - Visit to the "Hoya de Pedraza Botanic Garden". Meeting with:
José Algarra- Manager Hoya de Pedraza Botanic Garden
14:30. - Lunch at "La Higuera Restaurant"
16:00. - Return to Pinos Genil: meeting with different stakeholders:

- The president of the Participation Council, D. Manuel Titos.
- Territorial Delegate for Sustainability, Environment and Blue Economy, Junta de Andalucía, D. Manuel Francisco García Delgado
- The coordinator of the Global Change Observatory, Dr. Regino Zamora, Professor of Ecology at the University of Granada.
- Member of the European Charter for Sustainable Tourism (ECST) Business Association, Dra. Belén Pérez Pérez
- A representative of the SEO-BIRD LIFE, Juan Francisco Jiménez López

Wednesday May 15th

8:00. - Departure to the Alpujarra
10:00. - Visit Pampaneira village. Meeting with:

- Antonio- Pampaneira organic farmer
- D. Ángel Pérez Rodríguez- Pampaneira Mayor
- Tourism business in the area: Fernando Roca- Nevadensis (mountain activities company) and Angelines Martín Martín (restaurant Ruta del Mulhacén).

11.30.- Visit to Ana Martínez Martínez -Hilacar, Handicraft
12:00.- Climb to Puerto Molina, visiting the traditional water ditch, SIAC (High Peak Area Environmental Interpreting Service-Southern Side), high mountain restauration projects (footpath, refuges…)
15:00. -Lunch at Finca Los Llanos- Capileira hotel, ECST member. Meeting with Gloria López Manager of Finca Los Llanos
17:00 - Return to Granada

Thursday May 16th

8:00. - Departure to Rambla Los Yesos (Alboloduy, Almería). Meeting with Sonia Mª Guil Soriano, Alboloduy Mayor.
12: 00.- Visit recreative area El Serbal, and environmental education centre Paredes.
Meeting with:

- Torcuato Aguilera- Pajuna cattle breeders
- ECST business: Jorge Ridao Manager of Natures S.C.A

14:00. - Lunch at "Posada del Tío Peroles" (Abla, Almería), ECST member. Meeting with, Antonio Herrerías, restaurant manager.
17:00 - Return to Granada

End of the visit

EUROPEAN DIPLOMA SIERRA NEVADA NATIONAL PARK

List of interviewees

13-17 May 2024

Tuesday May 14th

- **Mr. Manuel Francisco García Delgado.** *Territorial Delegate for Sustainability, Environment and Blue Economy, Junta de Andalucía.*
- **Mr. Francisco de Asís Muñoz Collado.** *Director of the Sierra Nevada National and Natural Park.*
- **Mrs. Linarejos Rosario Pérez Béjar.** Conservator of the Sierra Nevada National and Natural Park.
- **Mr. Miguel Fernández Córdoba.** *Manager of the Sierra Nevada National and Natural Park.*
- **Mrs. Carmen Cabrera Martel.** *Interpreter guide.*
- **Mrs. Raquel Monterubio Sanz.** *Interpreter guide.*
- **Mrs. Inmaculada Hernández.** *High Peak Area Environmental Interpreting Service-Northern Side.*
- **Mr. Miguel Galiana García.** *Nivologist.*
- **Mr. José Antonio Algarra Ávila.** *Manager Hoya de Pedraza Botanic Garden.*
- **Mr. Manuel Titos Martínez.** *The president of the Participation Council.*
- **Mr. Regino Zamora Rodríguez**. Coordinator of the Global Change Observatory. Professor of Ecology at the University of Granada.
- **Mr. Juan Francisco Jiménez López**. A representative of the SEO-BIRD LIFE.
- **Mrs. Belén Pérez Pérez.** Member of the European Charter for Sustainable Tourism (ECST) Business Association.

Wednesday May 15th

- **Mr. Ángel Pérez Rodríguez.** *Pampaneira Mayor.*
- **Mr.Fernando Roca Díaz.** *Tourism business in the area: Nevadensis (mountain activities company).*
- **Mrs. Angelines Martín Martín.** *Restaurant Ruta del Mulhacén.*
- **Mr. Antonio.** *Pampaneira organic farmer.*
- **Mrs. Ana Martínez Martínez.** *Hilacar, Handicraft at Bubion.*
- **Mrs. Gloria López.** *Manager of Finca Los Llanos.*

Thursday May 16th

- **Mrs. Sonia Mª Guil Soriano.** *Alboloduy Mayor.*
- **Mr. Jorge Ridao.** *Manager of Natures S.C.A . ECST business.*
- **Mr. Antonio Herrerías.** *Restaurant manager at Posada del Tío Peroles.*
- **Mr. Gines Guevara Torres.** *Pajuna stud book.*
- **Mr. Torcuato Aguilera Cabrerizo.** *Member of the Pajuna Cow Association.*