2023 Edition

Report on the environment in Andalusia

Basic Data

Andalucía
se mueve con Europa

UNIÓN EUROPEA
Fondo Europeo de Desarrollo Regional

Junta de Andalucía
Consejería de Sostenibilidad,
Medio Ambiente y Economía Azul

Report on the environment in Andalusia.
Basic Data, 2023 Edition

This publication, periodical since 1995, includes relevant cartographic and statistical information on the Andalusian environment, in a synthetic and organized way, providing an overview of the environmental reality in Andalusia.

Thematic areas

The source of information for this publication comes mostly from the Consejería de Sostenibilidad, Medio Ambiente y Economía Azul, Junta de Andalucía. Other different sources, indicated in this document with a number in brackets, [], can be checked in the back cover.

Climate

The climate profile for 2022 followed on from the previous year with even lower rainfall, clearly under the average of the 1991-2020 series. The drought that started in 2019 has worsened, increasing the existing risk of desertification and negatively affecting the physiological state of the vegetation. The surface with stressed vegetation reaches 22% of the region, the highest figure since 2009. In addition, water stress of the vegetation intensifies. The average temperature in Andalusia in 2022 was 17.5°C. This figure is higher than the maximum value of the 1991-2020 series, thus classified as extremely warm. The region recorded very high positive thermal anomalies, confirming a general trend towards warming.

AVERAGE TEMPERATURE 2022

17.5°C
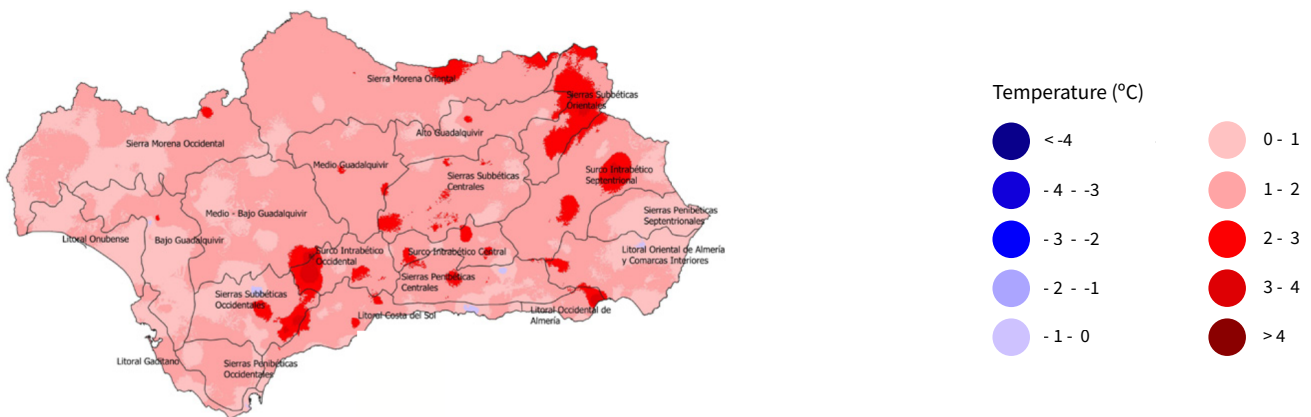
16.2°C in the period 1991-2020

AVERAGE RAINFALL 2022

458 mm

542 mm in the period 1991-2020

AVERAGE TEMPERATURE 2022

	Temperature (°C)	Average 1991-2020 (°C)
Almeria	16.8	15.8
Cadiz	18.6	17.5
Cordoba	17.9	16.5
Granada	15.4	13.9
Huelva	18.3	17.3
Jaen	17.2	15.6
Malaga	17.9	16.4
Seville	18.7	17.5
Andalusia	**17.5**	**16.2**

AVERAGE TEMPERATURES DEVIATIONS IN 2022 COMPARED TO THE AVERAGE OF THE PERIOD 1991-2020

Temperature (°C)

- < -4
- -4 - -3
- -3 - -2
- -2 - -1
- -1 - 0
- 0 - 1
- 1 - 2
- 2 - 3
- 3 - 4
- > 4

TOTAL RAINFALL DEVIATIONS IN 2022 COMPARED TO THE AVERAGE VALUE DURING THE PERIOD 1991-2020

Rainfall (mm)

- < - 600
- - 600 - - 400
- - 400 - - 200
- - 200 - - 100
- - 100 - - 50
- - 50 - - 0
- 0 - 50
- 50 - 100
- 100 - 200
- 200 - 400
- 400 - 600
- > 600
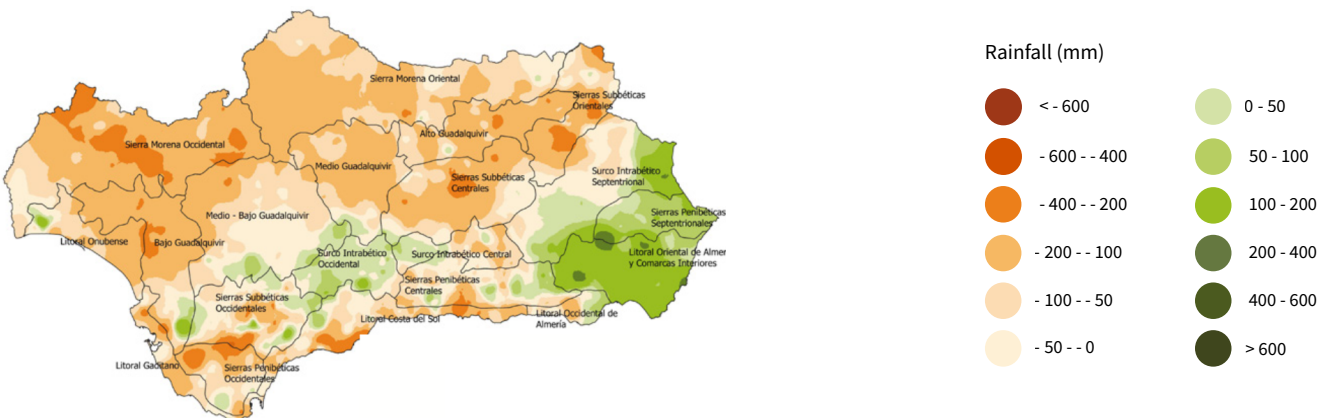
MOISTURE INDEX 2022

0.49

0.63 in the period 1991-2020

STANDARDIZED INDEX OF RAINFALL DROUGHT 2022

1 month of moderate drought and 4 months of severe drought
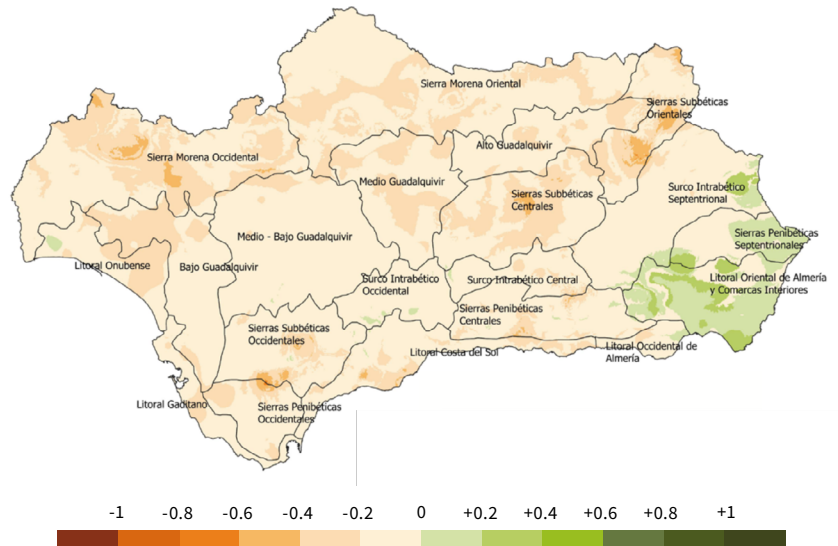

REGIONAL AREA WITH STRESSED VEGETATION IN THE HYDROLOGICAL YEAR 2021-2022[1]

22.0%

21.2% in the period 2002-2021

1. Percentage of stressed vegetation from NDVI Terra-Modis images (Global Stress Indicator).

MOISTURE INDEX DEVIATION IN 2022 COMPARED TO THE AVERAGE VALUE DURING THE PERIOD 1991-2020

-1 -0.8 -0.6 -0.4 -0.2 0 +0.2 +0.4 +0.6 +0.8 +1

Moisture index deviation range between -1 and 1, with the value -1 indicating the most arid scene, and 1 the most humid.
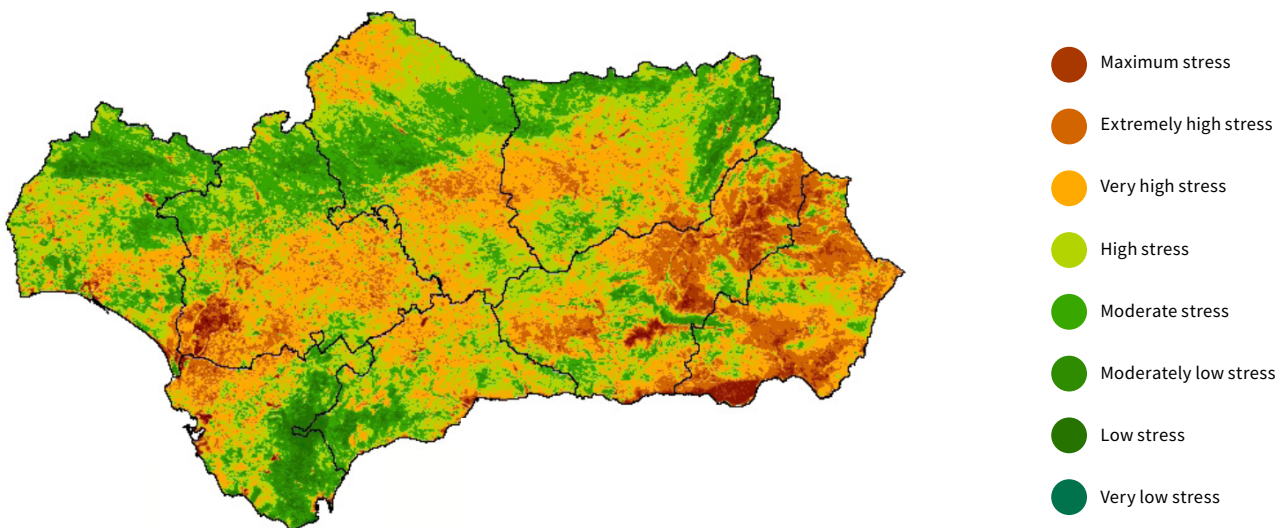
PERCENTAGES OF STRESSED AND UNSTRESSED VEGETATION AND GLOBAL WATER STRESS INDEX. PERIOD 2002-2022

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22
Stressed vegetation (%)	41.3	21.0	41.6	30.8	35.3	16.8	25.5	11.2	9.4	13.4	8.6	17.5	18.3	19.3	19.4	18.4	18.4	17.8	18.1	22.0
Unstressed vegetation (%)	58.7	78.5	58.4	69.3	64.7	83.3	74.5	88.8	90.6	86.6	91.4	82.5	81.7	80.7	80.6	81.6	81.6	82.3	81.9	78.0
Total (%)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Index expression	0.70	0.27	0.71	0.44	0.55	0.20	0.34	0.13	0.10	0.15	0.09	0.21	0.22	0.24	0.24	0.22	0.22	0.22	0.22	0.28

Reference period: 2002 - 2021. Average (stressed vegetation): 21.2%

Stressed vegetation is that which is subjected to water stress due to lack of water. The index expression represents the quotient between the percentages of stressed and unstressed vegetation.

VEGETATION WATER STRESS. HYDROLOGICAL PERIOD 2021-2022

- Maximum stress
- Extremely high stress
- Very high stress
- High stress
- Moderate stress
- Moderately low stress
- Low stress
- Very low stress

Climate change

TEMPERATURE ANOMALIES[1] IN REFERENCE STATIONS, 2022

+1.6°C in Cordoba (+0.9 in 2021)

+1.9°C in Granada (+1.1 in 2021)

+1.4°C in Jerez de la Frontera (+0.3 in 2021)

1 The difference of temperature from the reference value of the 1960-1990 series.

OZONE LAYER THICKNESS, 2022

308.9 Dobson units (**311.5** in 2021)

ULTRAVIOLET INDEX 2022 [1]

18.4% extreme index days (**17.9%** in 2021)

GREENHOUSE GAS EMISSION, 2021 [2] [3]

Total emissions **39,503.95 Kt CO_2 eq**
5.0% more than in 2020

GHG emissions per capita **4.66 tCO_2eq/inhabitant**
4.52 tCO_2eq/inhabitant in 2020

Validated emissions submitted to the greenhouse gas emissions trading regime, 2022

16.25 millions of CO_2 tonnes
16.7% more than in 2021

In 2022, average temperatures were higher than the previous year, in an outlook of already high values. In Andalusia, the average temperature was 17.5°C, compared to the 16.7°C in 2021. This figure is 1.3°C higher than the average of the reference period (1991-2020), which was 16.2°C. Temperature anomalies also increased, rising the global warming index as a consequence. In Andalusia, this index grew from 10.6 in 2021 to 11.8 in 2022.

At the same time, greenhouse gases emissions seem to contain given that, even if in 2021 they increased 5% compared to the previous year, they are still lower than pre-pandemic values. As for economic activity, Andalusia keeps disassociating economic growth an emissions, thus increasing eco-efficiency.

## GLOBAL WARMING INDEX IN ANDALUSIA IN REFERENCE STATIONS

Legend: Cordoba — Jerez de la Frontera — Granada
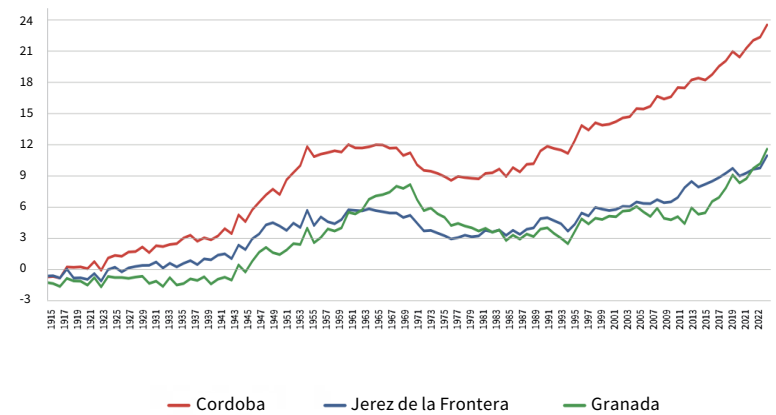
This index synthesizes the values of thermal anomalies.

ULTRAVIOLET INDEX (UVI). PERCENTAGE OF DAYS BY RANGE [1]

Legend: Low — Moderate — High — Extreme
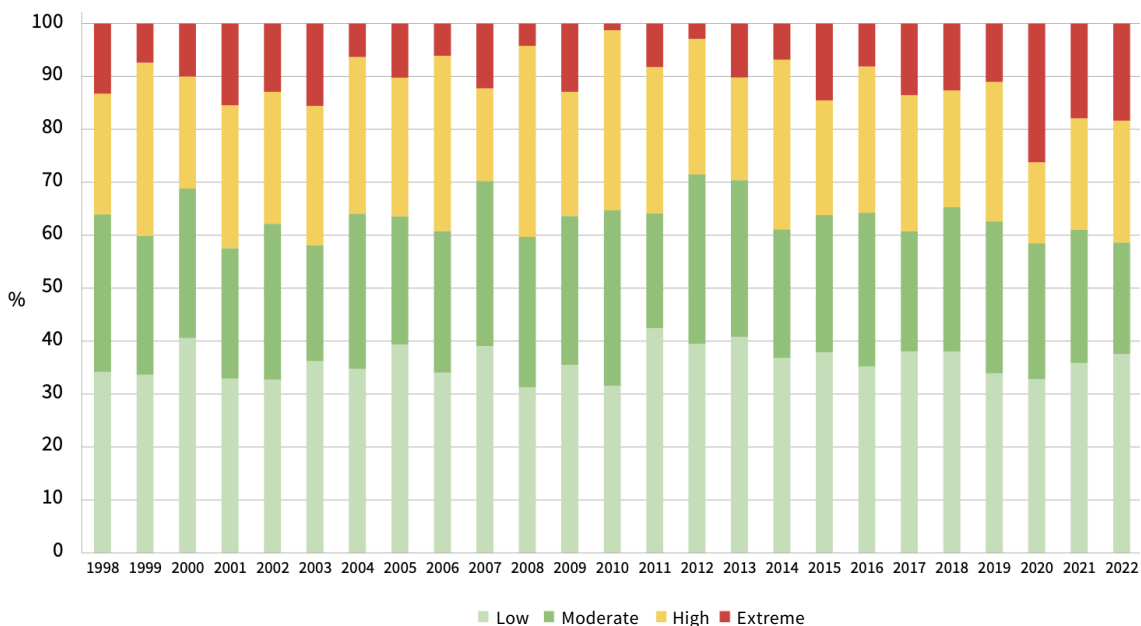
Low: UVI <4. Moderate UVI [4.7]. High: UVI [7.9]. Extreme: UVI >9.

GREENHOUSE GAS EMISSIONS AND ECO-EFFICIENCY [2][3]

Legend: GHG emissions in Andalusia (kt CO_2 eq) — GHG emissions per unit of GDP (kg/euro)
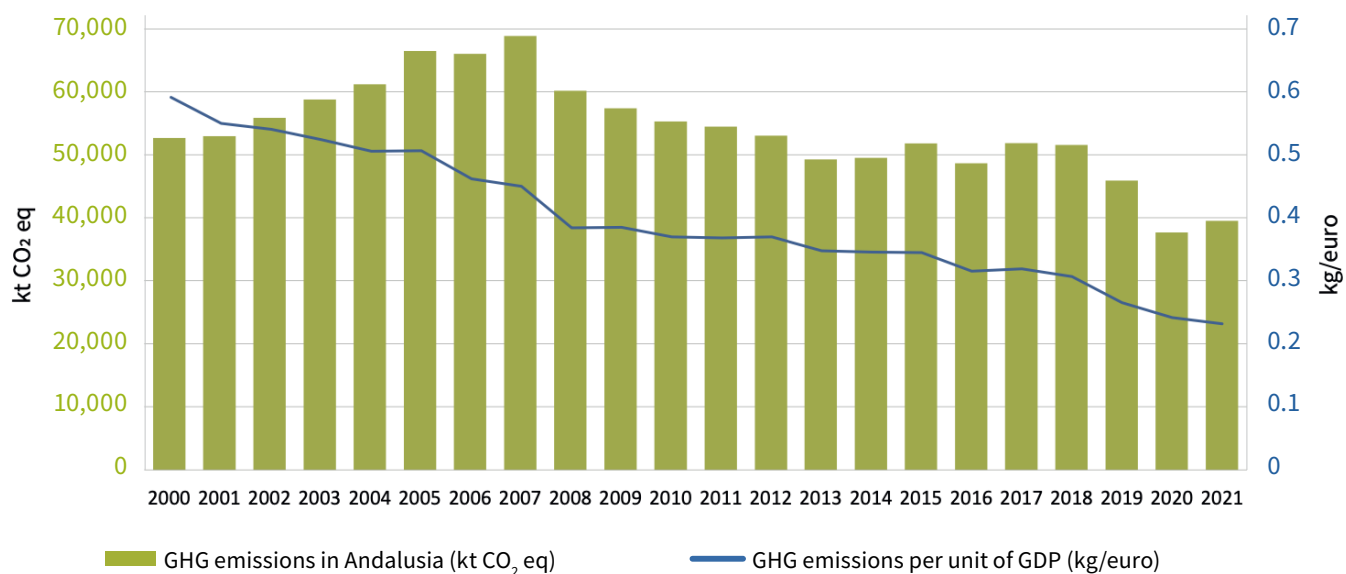
GREENHOUSE GASES EMISSIONS PER CAPITA [2][4]
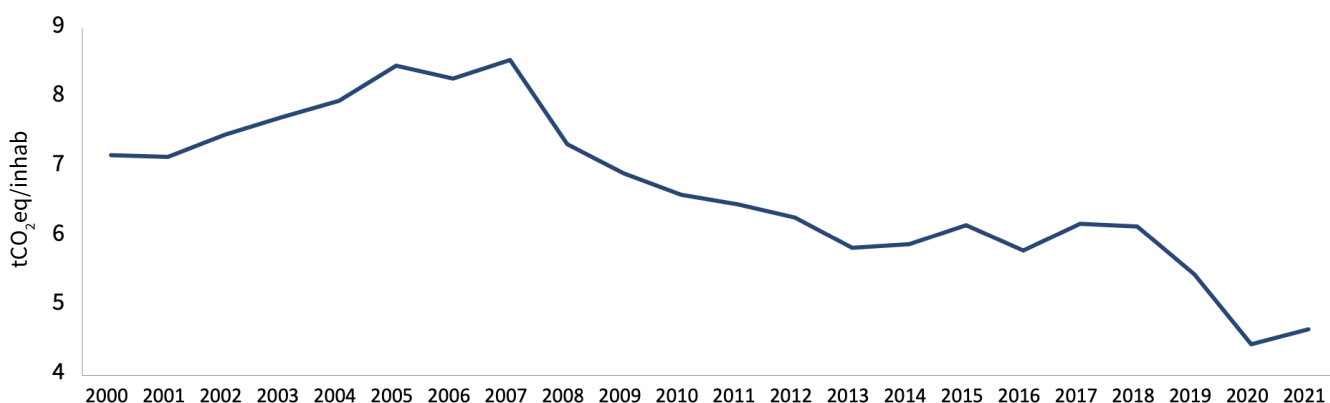
CONTRIBUTION BY SECTORS TO CO_2 EMISSIONS OF RCDE 2022

Electricity 56.5% · Cement 12.5% · Refineries 18.5% · Ammonia 2.6% · Raw organic products 3.2% · Lime 1.9% · Steelworks 1.6% · Calcination or synthesis 1.0% · Others 2.2%
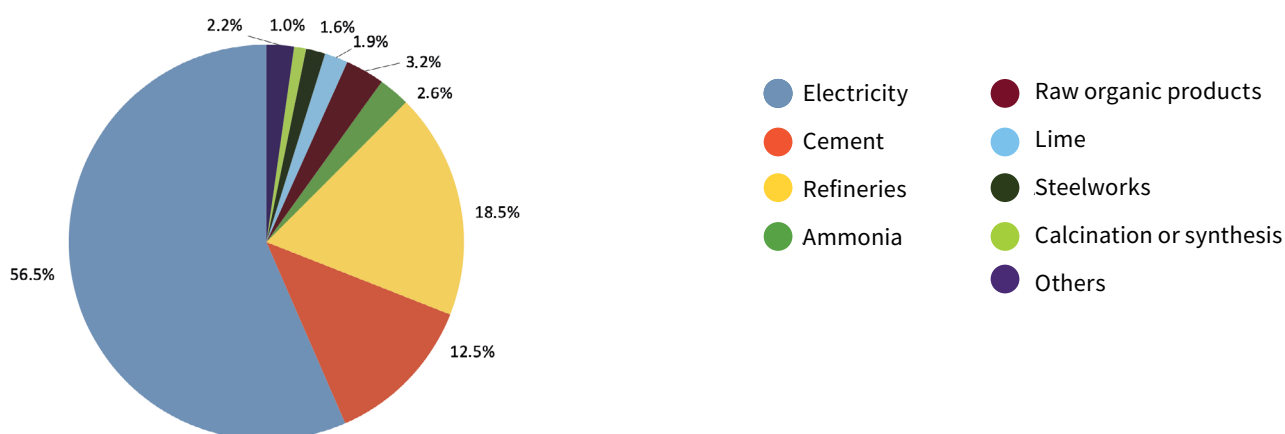
RCDE: Greenhouse gas emission rights trading scheme.

Soil and Land use

The scarce rainfall in 2022, combined with a moderate rainfall intensity regime, have resulted in a figure of regional average erosion for the year (470 Mj x mm / ha x hour x year) nearly 40% under the series average, which is 756.7 Mj x mm / ha x hour x year.

Being the rainfall erosivity so low in 2022 makes this year the fifth with less soil loss in the series (1992-2022). The regional area affected by high and very high soil loss is 4%, well under the 7.8% average.

PERCENTAGE OF SURFACE SUBMITTED TO HIGH OR VERY HIGH SOIL LOSSES 2022 (provisional data)

4.0%

Average of the 1992-2021 series: **7.8%**
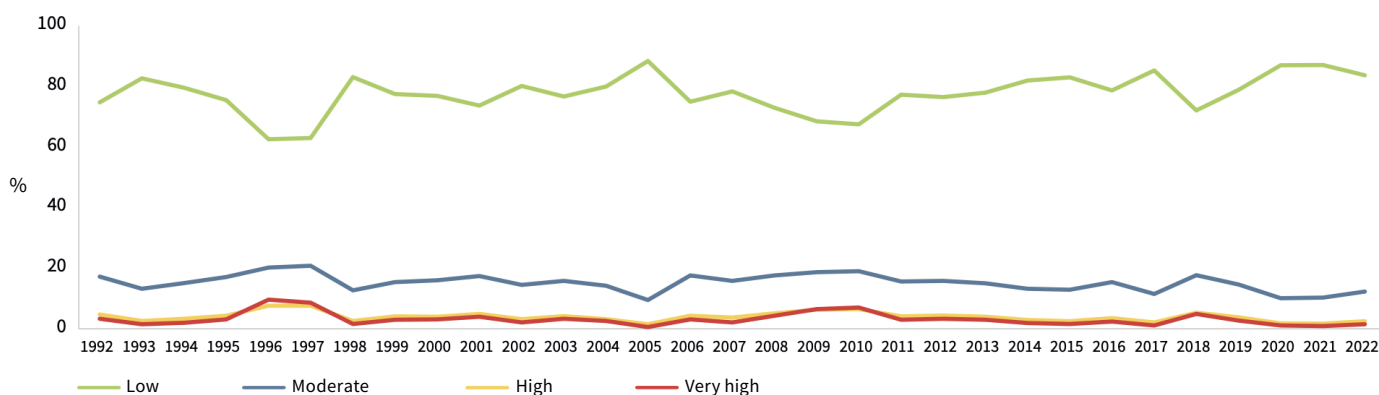
FOREST AND NATURAL AREAS

4,443.4 thousand of hectares

**AGRICULTURAL AREAS**

3,522.3 thousand of hectares

Information extracted from the cartographic base of the project "SIOSE Andalucia" (Information System of Land Use in Spain), 2020 update (provisional data).

## PERCENTAGE OF SURFACE WITH SOIL EROSION

Low — Moderate — High — Very high

SOIL LOSS, provisional data 2022 (%)

	Low	Moderate	High	Very high	Total
Almeria	80.4	15.7	2.6	1.3	100.0
Cadiz	70.0	19.9	5.6	4.5	100.0
Cordoba	89.8	8.9	1.0	0.3	100.0
Granada	85.3	11.2	2.2	1.3	100.0
Huelva	93.7	5.5	0.6	0.2	100.0
Jaen	81.0	14.5	2.8	1.7	100.0
Malaga	63.6	24.3	7.2	4.9	100.0
Seville	91.3	7.1	1.1	0.5	100.0
Andalusia	83.7	12.3	2.5	1.5	100.0

Low — Moderate — High — Very high
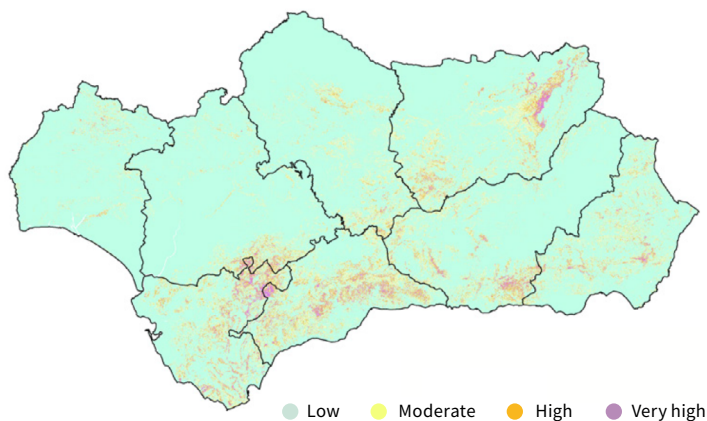
RAINFALL EROSIVITY, provisional data 2022

Megajoule per milimeter/hectare per hour and year

- ◯ [0-250] Extremely low
- ◯ (250-500] Very low
- ◯ (500-750] Low
- ◯ (750-1,000] Moderately low
- ◯ (1,000-1,500] Moderate
- ◯ (1,500-2,000] Moderately high
- ◯ (2,000-3,000] High
- ◯ (3,000-5,000] Very high
- ◯ › 5,000 Extremely high
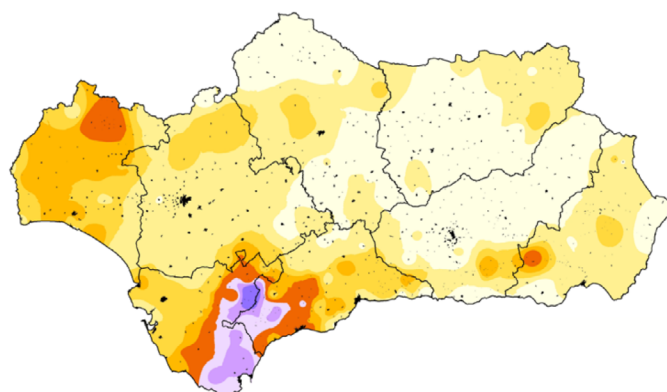
Regional erosivity average, 2022
470 Mj x mm/ha x hour x year

7

Water

DAMMED WATER IN BASINS AND RIVER DISTRICTS, 2022

3,364.7 hm³

3,682.5 hm³ in 2021

NITRATE ANALYSIS IN SURFACE WATER: POINTS WITH VERY GOOD OR GOOD QUALITY¹ [2][5]

86.7%

1. Under 25 mg/l.

NITRATE ANALYSIS IN GROUNDWATER: POINTS WITH VERY GOOD OR GOOD QUALITY² [2][5]

68.6%

2. Under 37.5 mg/l.

NUMBER OF SEWAGE TREATMENT PLANTS BUILT OR UNDER CONSTRUCTION, 2022 [5]
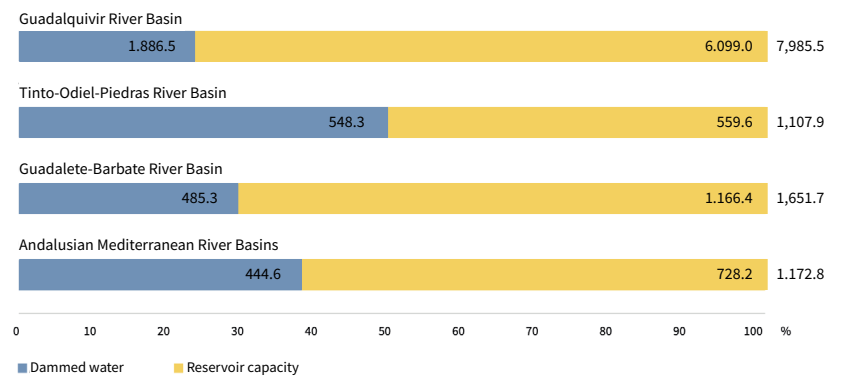
768 (690 built and 78 under construction)

POPULATION BENEFITING FROM SEWAGE TREATMENT, 2022 [5]

7,596,103 inhabitants

(92.7% of the non-scattered population of Andalusia)

The highlight of the water situation in 2022 is the decrease of available resources due to drought, which affects every water basin and river district. The quality of surface water is generally acceptable, with good data on nitrates, acceptable on chlorophyll-A and not so good on ammonium, phosphate and pesticides. On the contrary, the quality of underwater was below good, since all the parameters analysed, except pesticides, have experienced a slight worsening. Finally, the positive trend of water sewage treatment continues with the increasing number of treatment plants and benefiting population.

DAMMED WATER IN BASINS AND RIVER DISTRICTS, 2022

Guadalquivir River Basin
1.886.5 | 6.099.0 | 7,985.5

Tinto-Odiel-Piedras River Basin
548.3 | 559.6 | 1,107.9

Guadalete-Barbate River Basin
485.3 | 1.166.4 | 1,651.7

Andalusian Mediterranean River Basins
444.6 | 728.2 | 1.172.8

Dammed water   Reservoir capacity

Data refer to December 2022, in cubic hectometers.

MONTHLY RESERVE IN ANDALUSIAN BASINS AND RIVER DISTRICTS, 2022 VERSUS 2010-2021 SERIES

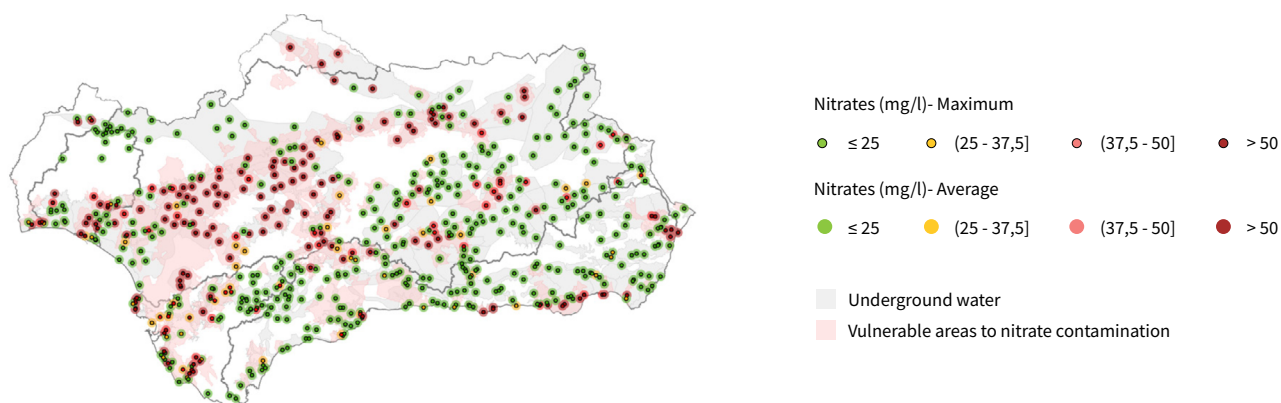Maximum — 75th Percentile — Median — 25th Percentile — Minimum — 2022
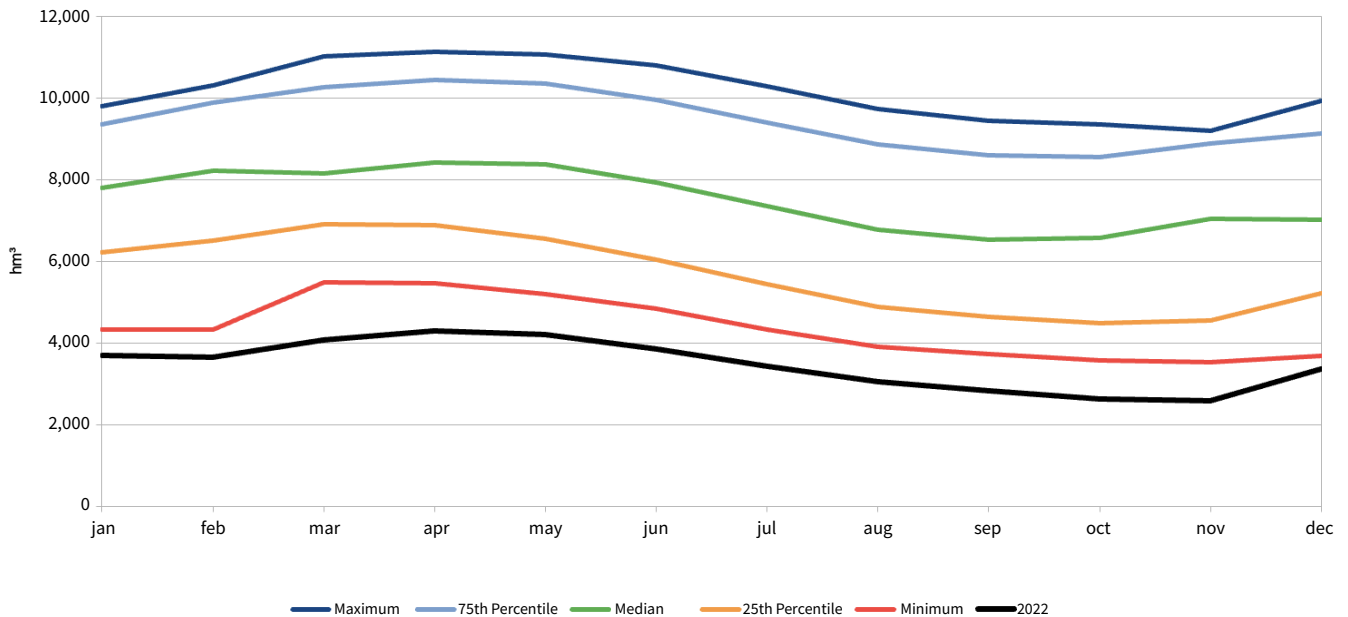
The Maximum, 75th Percentile, Median, 25th Percentile and Minimum refer to the 2010-2021 period. The maximum reservoir capacity is 11,917.9 hm³.

NITRATES IN SURFACE WATER. AVERAGE AND MAXIMUM VALUES BY SAMPLING POINTS 2022 [2][5]
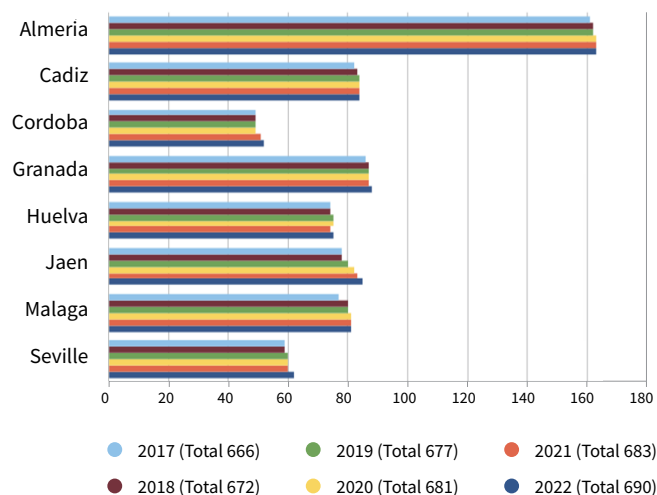

Nitrates (mg/l)- Maximum

● ≤ 25   ● (25 - 50]   ● > 50

Nitrates (mg/l)- Average

● ≤ 25   ● (25 - 50]   ● > 50
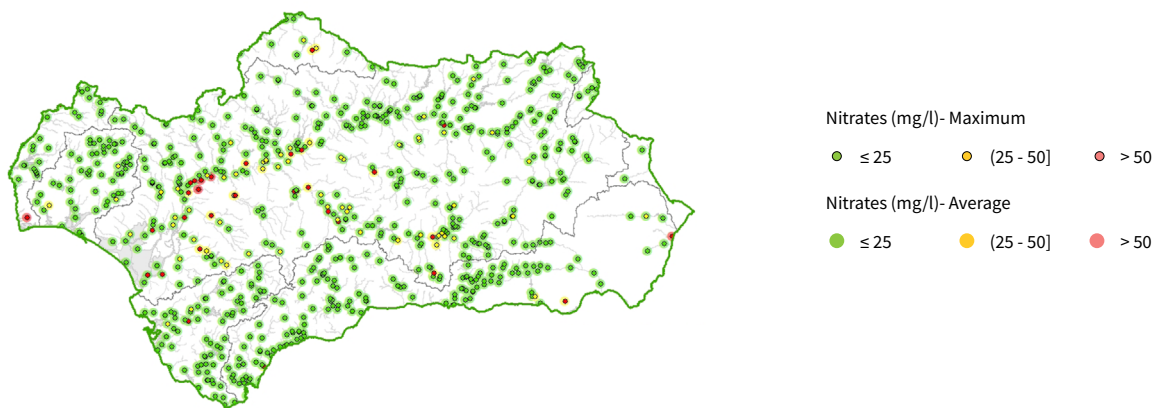
NITRATES IN GROUNDWATER. AVERAGE AND MAXIMUM VALUES BY SAMPLING POINTS 2022 [2][5]

Nitrates (mg/l)- Maximum

● ≤ 25   ● (25 - 37,5]   ● (37,5 - 50]   ● > 50

Nitrates (mg/l)- Average

● ≤ 25   ● (25 - 37,5]   ● (37,5 - 50]   ● > 50

 Underground water

  Vulnerable areas to nitrate contamination

Royal Decree 47/2022 sets a limit value of 37.5 mg/L of nitrates in groundwater.

EVOLUTION OF BUILT SEWAGE WATER TREATMENT PLANTS [5]

● 2017 (Total 666)   ● 2019 (Total 677)   ● 2021 (Total 683)
● 2018 (Total 672)   ● 2020 (Total 681)   ● 2022 (Total 690)

POPULATION BENEFITING FROM SEWAGE TREATMENT 2022 [5]

● Population benefiting by sewage treatment plants built or under construction
● Population without sewage treatment plants
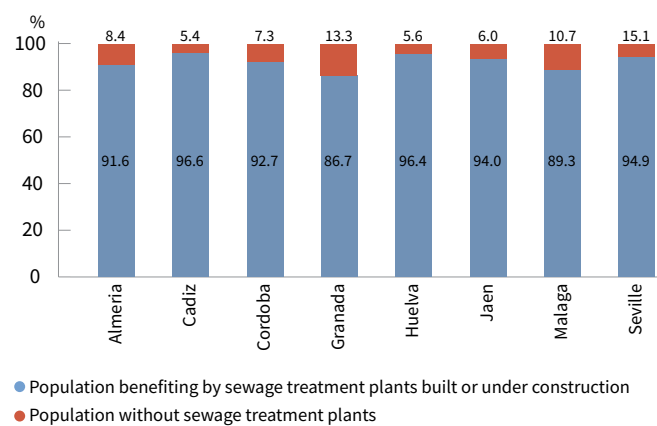
Includes non-scattered population in the 2022 Municipal Register of Inhabitants benefiting by both built and under construction water sewage plants.

ONGOING OR FINISHED SANITATION OR SEWAGE TREATMENT WORKS 2022 [5]

■ Investment
■ Number of works
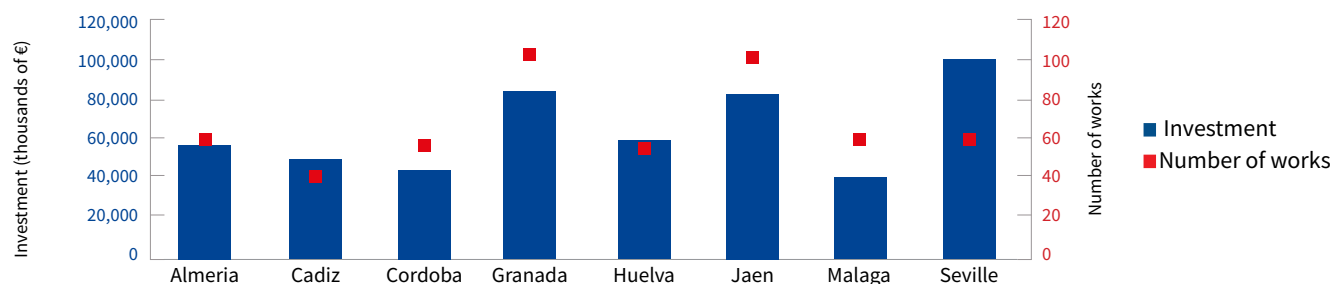
Cumulative executed investment as of December 31, 2022 on sanitation or sewage treatment works declared to be of general interest by the Agreement of the Regional Cabinet of 2010. Includes the following types of administrative files: "Works", "Projects", and "Projects and works".

Coast and blue economy

LICENCES FOR FOOD AND DRINK RETAILER PREMISES LOCATED IN COASTAL PUBLIC PROPERTY (DPMT)

847 in 2022

842 in 2021

FILES OF PERMITTED USE FOR ACTIVITIES LOCATED IN COASTAL PUBLIC PROPERTY (DPMT) - Excluding beach plans

1,111 in 2022
1,043 in 2021

With beach plans

67 in 2022

67 in 2021

ADMINISTRATIVE FILES OF PERMITTED USE FOR ACTIVITIES LOCATED IN THE EASEMENT BUFFER ZONE (ZSP)

718 in 2022

647 in 2021

QUALITY OF SEA BATHING WATER 2022 [6]

98.9% of excellent quality

BLUE FLAGS AWARDED 2022 [7]

142

POLLUTANT LOAD DISCHARGED INTO THE COAST 2021

314,797.4 of urban effluents

4.4% less than in 2020

70,253.1 of industrial effluents

57.4% more than in 2020

PU: pollution units.

AVERAGE ANNUAL SEA SURFACE TEMPERATURE 2022

19.22°C

18.55°C 2000-2022 Series

In 2022, the main physical parameters of sea water have resulted in an increase of the sea surface temperature, and similar levels of chlorophyll-A and less turbidity than in previous years.

The monitoring of the bathing areas has led to good results in 2022.

The pollutant load discharged into the coast in 2021 increased 2.9% compared to 2020. The administrative files for the management and coastal planning have grown in the last year.

The highlight regarding the blue economy has been the launch of the Andalusian Strategy of Blue Economy by the Regional Government, aimed to reactivate economic sectors related to the seas and the coast.
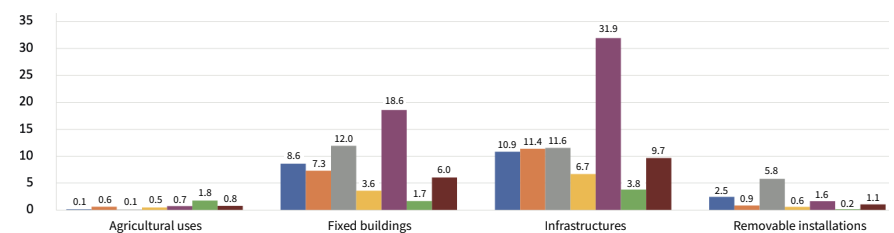
DENSITY OF USE IN COASTAL PUBLIC PROPERTY (DPMT) 2022
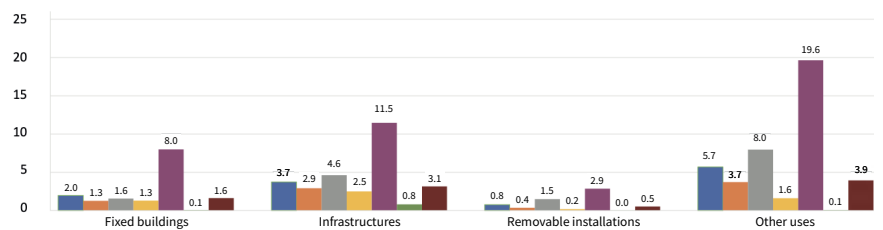
Number of uses/km of the province coast

● Almeria ● Cadiz ● Granada ● Huelva ● Malaga ● Seville ● Andalusia (average)

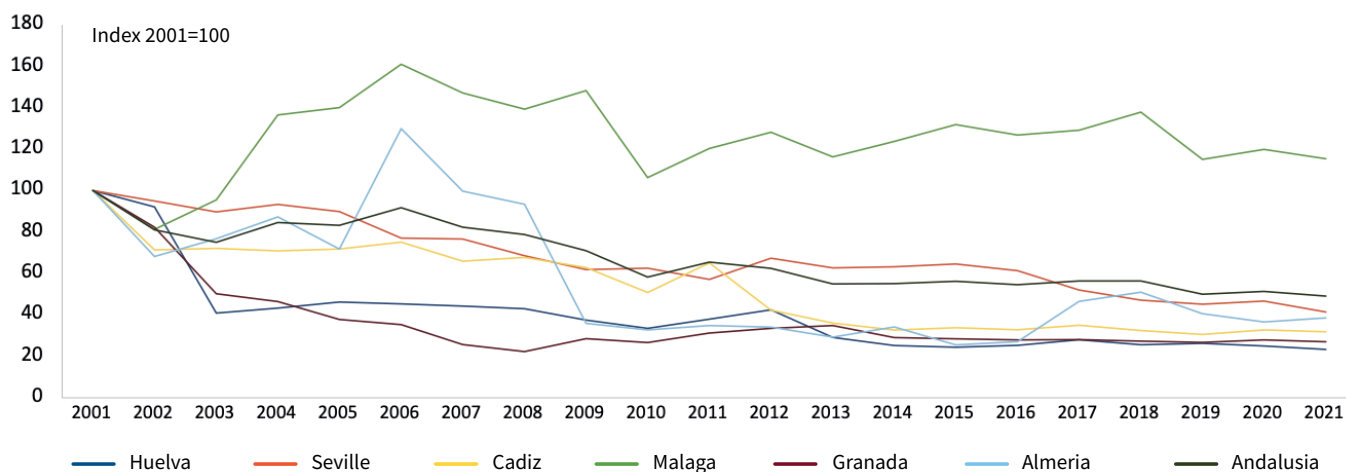## DENSITY OF USE IN THE EASEMENT BUFFER ZONE (ZSP) 2022
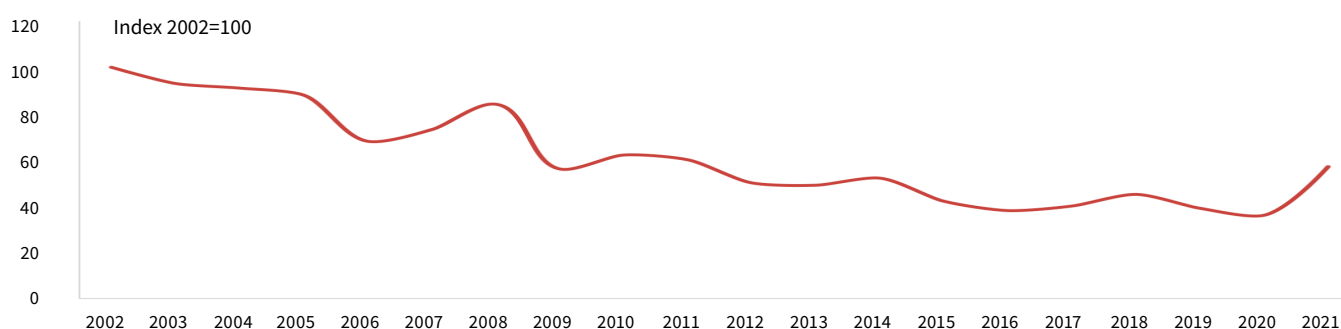
Number of uses/km of the province coast

● Almeria ● Cadiz ● Granada ● Huelva ● Malaga ● Seville ● Andalusia (average)

POLLUTANT LOAD OF URBAN EFFLUENTS INTO THE COAST

Index 2001=100

Legend: Huelva — Seville — Cadiz — Malaga — Granada — Almeria — Andalusia

POLLUTANT LOAD OF INDUSTRIAL EFFLUENTS INTO THE COAST

Index 2002=100

MARITIME BATHING AREAS 2022 [6]

| | Number of sampling points | |
Province	Registered	With *Excellente* quality
Almeria	90	90 (100.0%)
Cadiz	77	76 (98.7%)
Granada	37	34 (91.9%)
Huelva	50	50 (100.0%)
Malaga	97	97 (100.0%)
Andalusia	351	347 (98.9%)

BLUE FLAGS AWARDED 2022 [7]

Province	Beaches	Ports
Almeria	35	2
Cadiz	29	5
Granada	11	1
Huelva	10	7
Malaga	36	6
Andalusia	121	21

AVERAGE MONTHLY SEA SURFACE TEMPERATURE COMPARED TO THE 2000-2022 SERIES

Legend: Mean — Historic mean (2000-2022)

11

Biodiversity
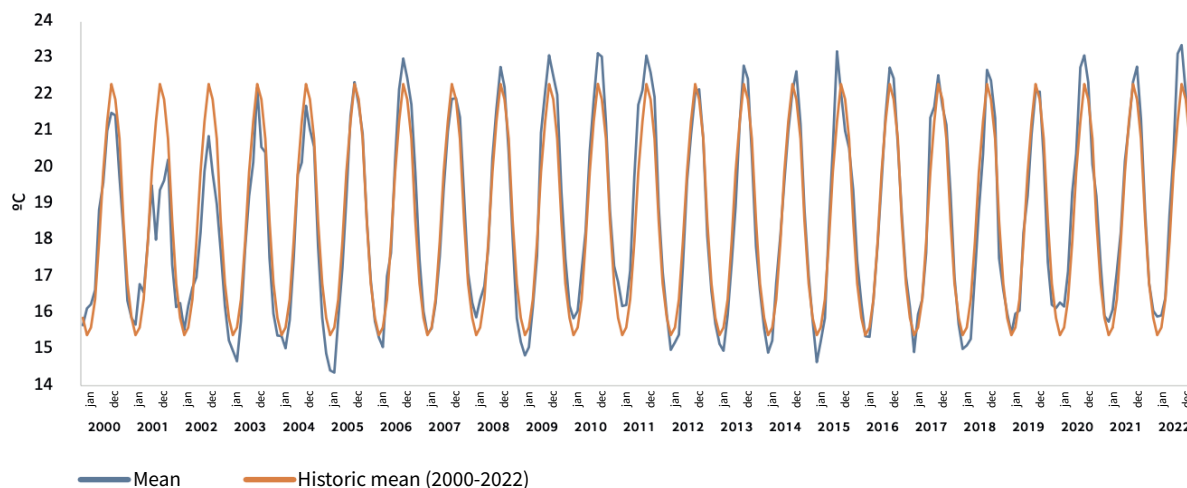
The number of breeding pairs of aquatic birds and wintering aquatic birds has been influenced by the state of wetlands. The latter have decreased by 49.1% compared to 2021. The populations included in recovery and conservation plans kept stable; it is worth mentioning the 20% increase in the lynx population. As for the marine environment, monitoring works yield a positive result in the evolution of sea grass population and a stabilization of Patella ferruginea. In 2022, 69 cetaceans and 76 marine turtles were stranded. In 2021, 152 and 65 were stranded, respectively.

The network of botanical and mycological gardens keeps up preserving the flora. Environmental education and phytotourist dissemination have been recovering gradually, after a two-year standstill caused by the pandemic.

AQUATIC BIRDS CENSUS IN ANDALUSIA 2022

31,439 breeding pairs of **54** different species, distributed in **145** Andalusian wetlands

549,105 specimens of wintering aquatic birds of **105** different species, distributed in **198** Andalusian wetlands
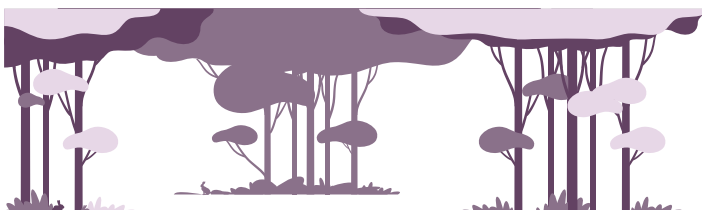
IBERIAN LYNX 2022

627 individuals

SPECIMENS ADMITTED IN CREAS 2022

**8,096** alive and **504** dead

CREA: Endangered Species Recovery Center.

POPULATION STATUS OF SOME REPRESENTATIVE SPECIES INCLUDED IN RECOVERY AND CONSERVATION PLANS 2022

| Plan for the recovery of the Iberian imperial eagle	Couples	
Imperial eagle *(Aquila adalberti)*	136	
Plan for the recovery and conservation of steppe-land birds	**Number**	
Montagu's harrier *(Circus pygargus)* - pairs	458	
Bustard *(Otis tarda)* - specimens	356	
Programme for the conservation and management of crab populations (freshwater crab)	**Populations**	
Crabs *(Brachyura)*	104	
Programme for the reintroduction of the Ibis eremita	**Couples**	
Ibis eremita *(Geronticus eremita)*	27	
Plan for the recovery of the Iberian lynx	**Estimated population**	
Iberian lynx *(Lynx pardinus)*	627	
Plan for the recovery and conservation of scavenger birds	**Breeding pairs**	
Egyptian Vulture *(Neophron percnopterus)*	25	
Royal kite *(Milvus milvus)*	24	
Bearded Vulture *(Gypaetus barbatus)*	7	
Plan for the recovery and conservation of wetland birds	**Specimens**	**Couples**
Marbled duck *(Marmaronetta angustirostris)*	385	43
Eurasian bittern *(Botaurus stellaris)*	0	0
Crested coot *(Fulica cristata)*	146	11
Black tern *(Chlidonias niger)*	0	0
Squacco heron *(Ardeola ralloides)*	3	70
Oxyura leucocephala	1,089	34
Ferruginous duck *(Aythya nyroca)*	194	14
Osprey *(Pandion haliaetus)*	109	17

EVOLUTION OF IBERIAN LYNX POPULATION ESTIMATE
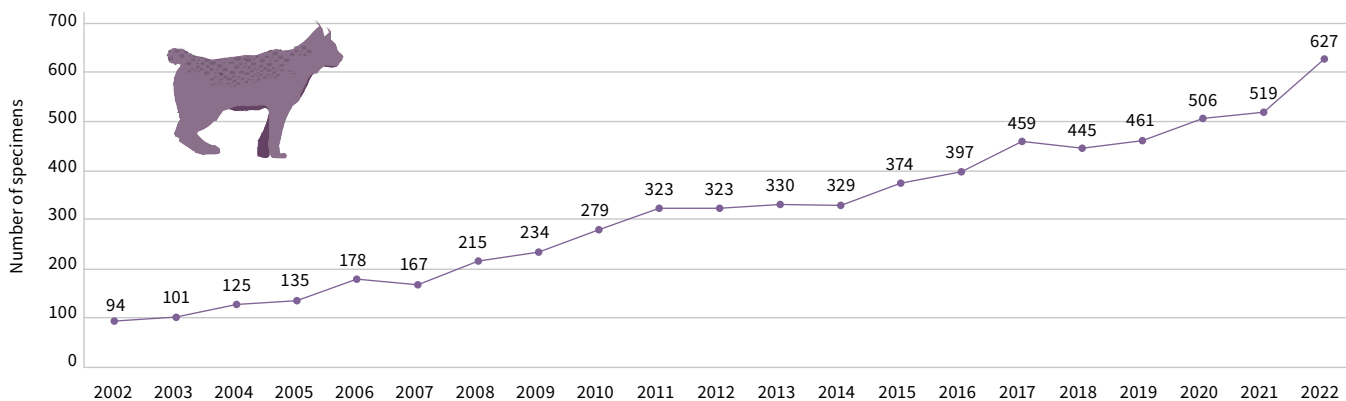
Population estimate: Minimum number of different animals observed and identified (photographed by camera trapping) in a period of one year.

EVOLUTION OF THE IBERIAN IMPERIAL EAGLE POPULATION
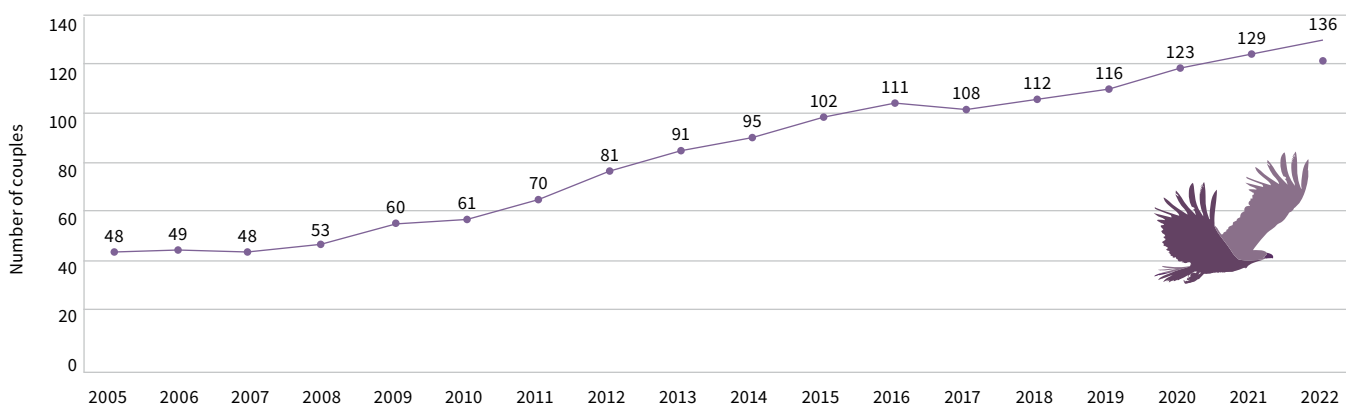
NECROPHAGOUS BIRDS POPULATION

- Egyptian vulture
- Black vulture
- Royal kite
- Bearded vulture

LIVING SPECIMENS ADMITTED IN CREAs
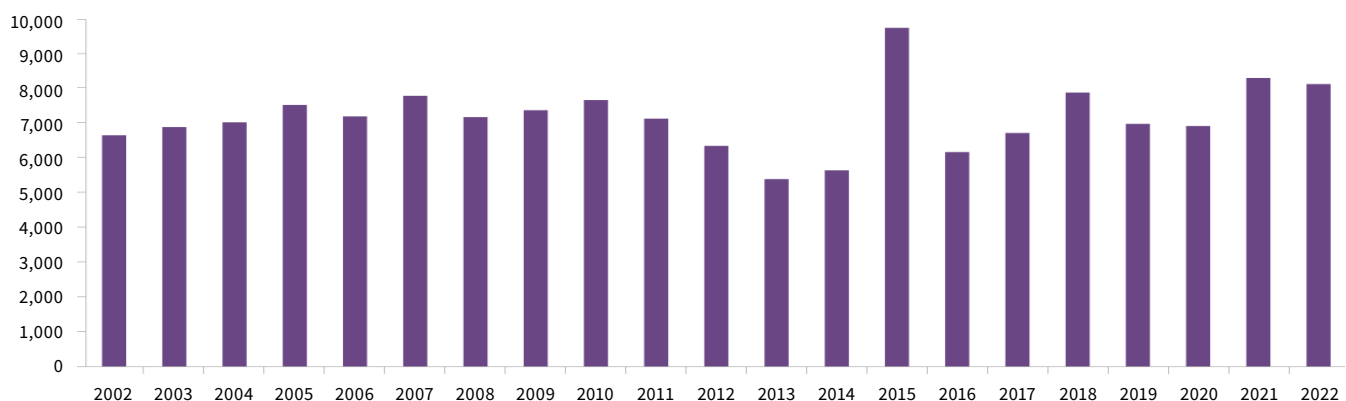
STRANDED CETACEANS AND TURTLES IN ANDALUSIA

Cetaceans   **Turtles**
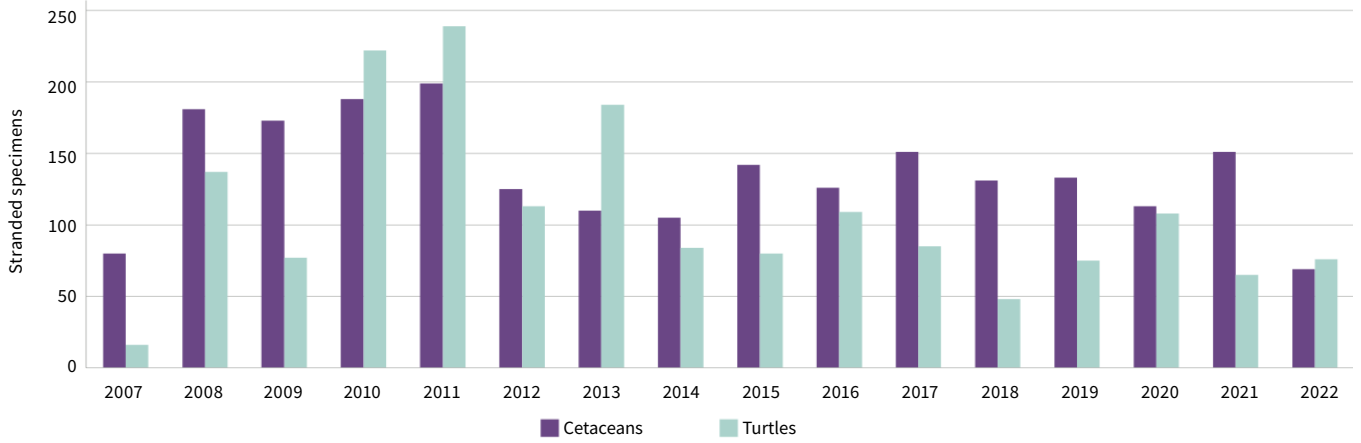
ANDALUSIAN NETWORK OF BOTANICAL AND MYCOLOGICAL GARDENS 2022

2,268 exhibited taxa

386 accessions collected in the natural environment

288 endangered species in Andalusia, of which **201** are represented in the botanical gardens network

717 endangered flora units located

NUMBER OF FLORA TAXA IN BOTANICAL GARDENS

2022   **2021**   **2020**   **2019**   **2018**   **2017**

PHYTOTOURIST DISSEMINATION PROGRAM. NUMBER OF VISITORS

The dynamism of natural protected areas

The main changes occurred in the RENPA (network of natural protected areas) in 2022 have been, on the one hand, a decrease in the area of the Alcornocales Natural Park, from 173,619.519 to 167,766.974 hectares; on the other hand, the declaration of a new Natural Monument: the Pulpí Geode and Mina Rica del Pilar de Jar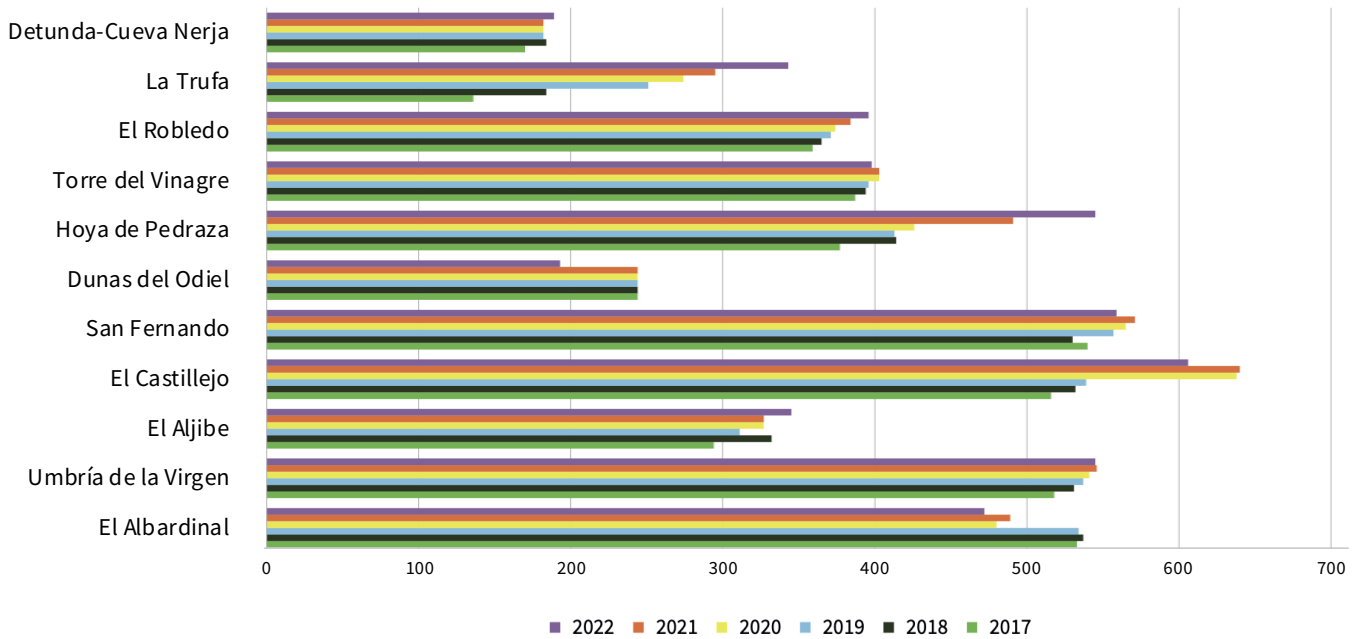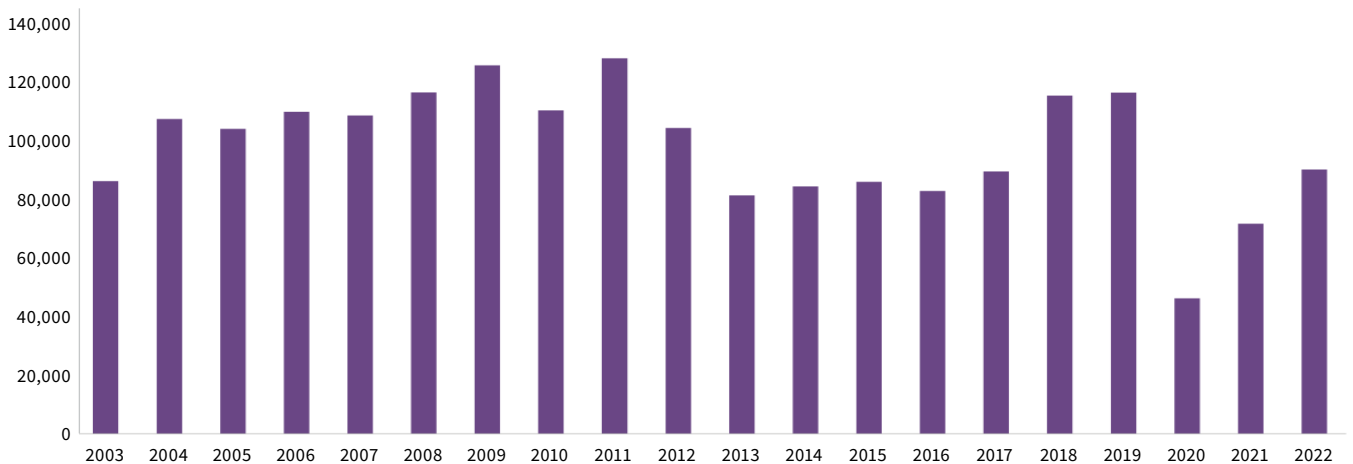avia (Almeria) In the Nature 2000 Network a new Site of Community Importance, "Alcornocales expansion area". Both public use and employment associated to public facilities have recovered, compared to the previous year. In 2022, investment in the improvement and refurbishment of the cattle routes network has increased.

NETWORK OF NATURAL PROTECTED AREAS (RENPA) 2022

2,918,857.4 ha
2,836,675.6 ha of land surface
82,181.8 ha of marine surface

PUBLIC FACILITIES 2022

1,081 public facilities
745,474 visits

INVESTMENT IN THE IMPROVEMENT AND REFURBISHMENT OF THE LIVESTOCK TRAILS NETWORK 2022

15.88 millions of euros
2.83 in 2021

NETWORK OF NATURAL PROTECTED AREAS IN ANDALUSIA (RENPA) 2023
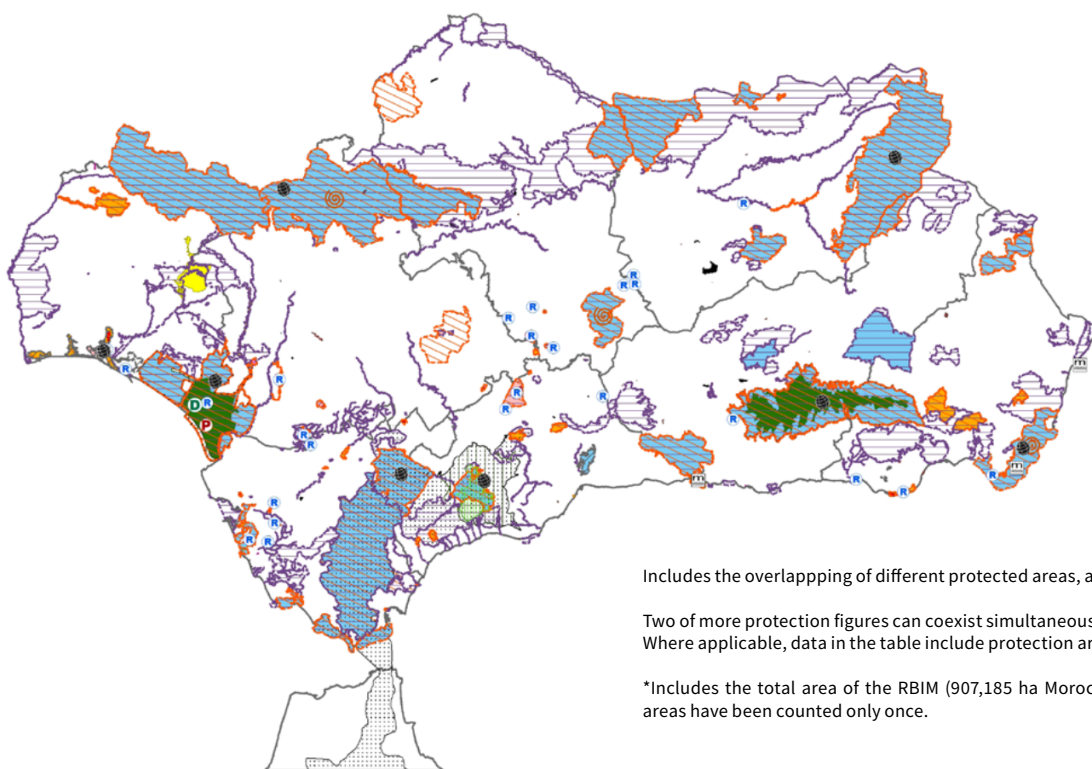
Includes the overlappping of different protected areas, as well as marine surface.

Two of more protection figures can coexist simultaneously in the same area. Where applicable, data in the table include protection areas.

*Includes the total area of the RBIM (907,185 ha Morocco + Andalusia). Overlapping areas have been counted only once.

Natura 2000 Network	Number	Area (hectares)
Sites of Community Importance (SIC)	191	2,608,368.4
Special Areas of Conservation (SCA)	176	2,553,222.83
Special Proteccion Areas for Birds (SPAB)	63	1,659,457.89

Protection figures	Number	Area (hectares)
National Park	3	244,132.0
Natural Park	24	1,434,222.9
Protected Landscape	2	19,663.6
Natural Site	32	91,446.3
Periurban Park	21	6,020.1
Natural Monument	60	1.566,3
Natural Reserve	28	21,806.6
Concerted Nature Reserve	5	804.2

Areas protected by international instruments	Number	Area (hectares)
Biosphere Reserve	9	2,052,102.0*
World Heritage	1	54,251.7
Geopark	3	259,044.5
Ramsar wetland	25	143,138.8
Specially Protected Areas of Importance for the Mediterranean (ZEPIM)	4	84,132.0
Intercontinental Mediterranean Biosphere Reserve (RBIM)	1	907,185.0

NUMBER OF VISITS TO RECEPTION FACILITIES
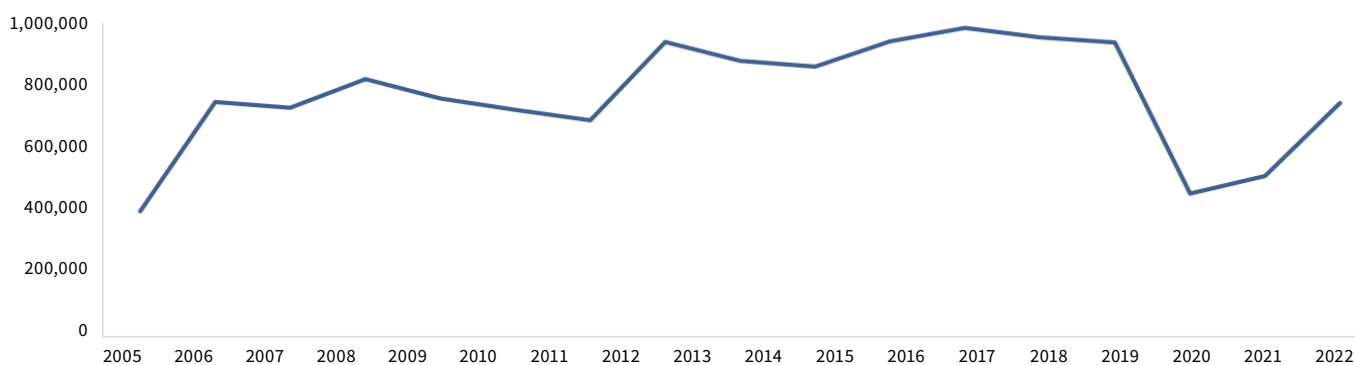
REVITALIZATION PROGRAM IN NATURAL PROTECTED AREAS

Participants — Activities
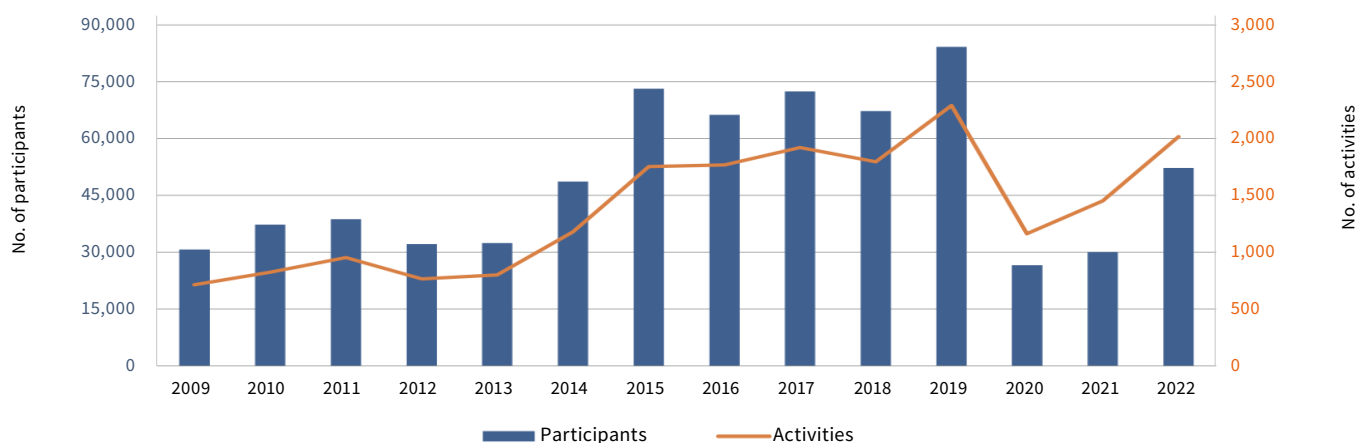
PUBLIC USE FACILITIES OFFERED BY THE REGIONAL MINISTRY 2022

Province	Number
Almeria	103
Cadiz	161
Cordoba	77
Granada	223
Huelva	136
Jaen	225
Malaga	100
Seville	56
Andalusia	1,081

LIVESTOCK TRAILS BY PROVINCE 2022

Province	Number of trails	Length (km)
Almeria	558	3,309.19
Cadiz	739	4,319.73
Cordoba	733	5,240.65
Granada	644	3,697.28
Huelva	319	2,377.54
Jaen	777	5,238.53
Malaga	466	2,451.18
Seville	919	6,035.90
Andalusia	5,155	32,670.00

Last update: 2022

FOREST AND NATURAL AREAS [1]

44,434 sq km

50.7% of Andalusia

[1] Information taken from the cartographic database of the SIOSE-Andalusia project (Land Use Information System of Spain). 2020 update, provisional data.

PUBLIC FORESTRY AREAS 2022

1,436 areas

1,260,974.5 ha

DAMAGED TREES IN SAMPLED PLOTS[2] **2022 [2]**

26.0% defoliation in hardwoods
22.3% in 2021

16.5% defoliation in conifers
13.1% in 2021

[2] Damaged trees are those that exceed 25% defoliation, including dead and missing trunks.

HUNTING SPECIES CAUGHT

54,140 deer individuals
75,024 wild boar individuals
494,196 red partridge individuals
1,170,740 wild rabbit individuals

FOREST FIRES 2022

949 events

185 fires and **764** outbreaks

15,804.07 ha damaged

46.1% scrubland areas and **53.9%** woodland areas

FORESTRY ACTIVITIES 2022

15 projects processed
21.33 million euros invested
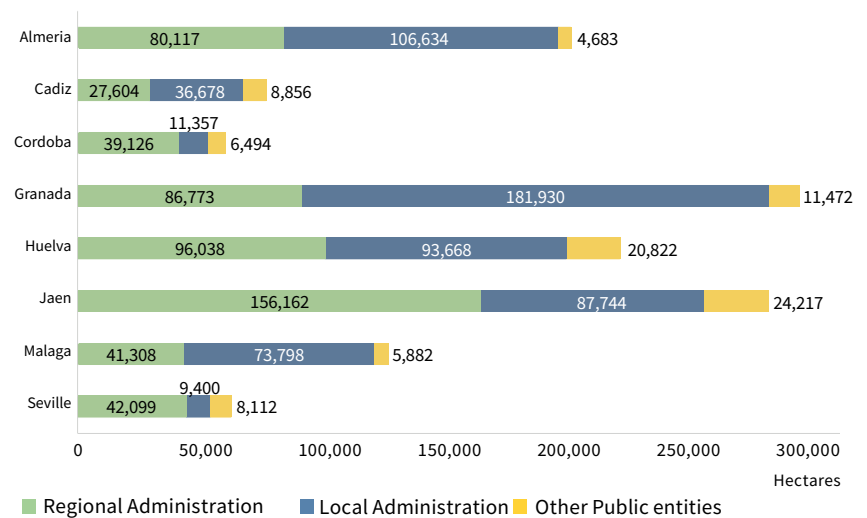
TREE NURSERIES NETWORK 2022

532,208 plants produced

The state of forest areas worsened in 2022 compared to 2021, due to an increase in the percentaje of damaged trees (those with a defoliation over 25%, including dead and missing trunks), affecting both conifers and hardwoods.
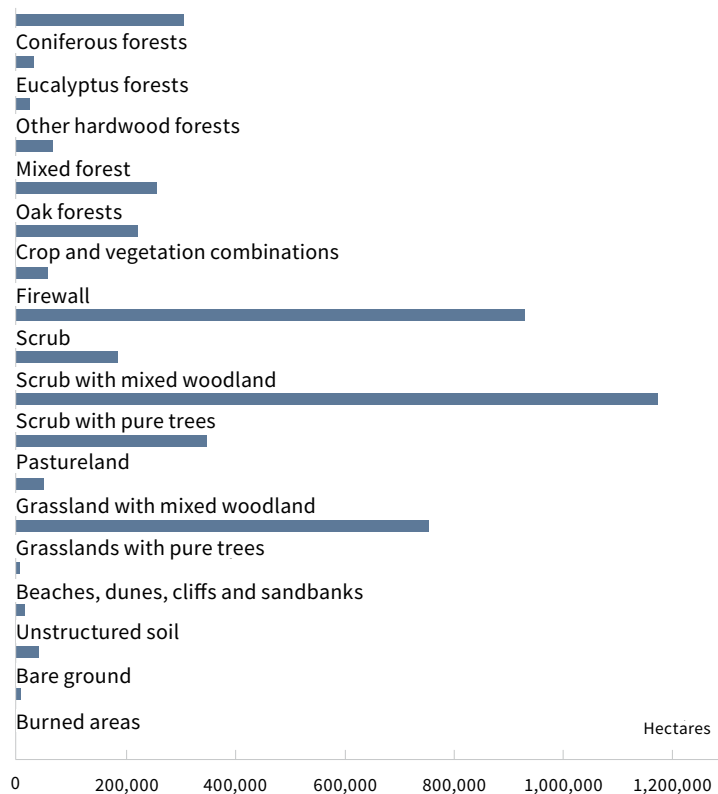
As for forest fires, three major events happened in 2022: Pujerra, Los Guajares and Mijas, with a combined damaged area of 11,999.33 hectares.

15 forestry activies projects have been processed, with a total budget of 21.33 million euros, 64.2% of this amount has been destined to the restoration of burned or deteriorated areas.

PUBLIC FORESTRY AREAS 2022

	Regional Administration	Local Administration	Other Public entities
Almeria	80,117	106,634	4,683
Cadiz	27,604	36,678	8,856
Cordoba	39,126	11,357	6,494
Granada	86,773	181,930	11,472
Huelva	96,038	93,668	20,822
Jaen	156,162	87,744	24,217
Malaga	41,308	73,798	5,882
Seville	42,099	9,400	8,112

FOREST AND NATURAL AREAS, SIOSE 2020

- Coniferous forests
- Eucalyptus forests
- Other hardwood forests
- Mixed forest
- Oak forests
- Crop and vegetation combinations
- Firewall
- Scrub
- Scrub with mixed woodland
- Scrub with pure trees
- Pastureland
- Grassland with mixed woodland
- Grasslands with pure trees
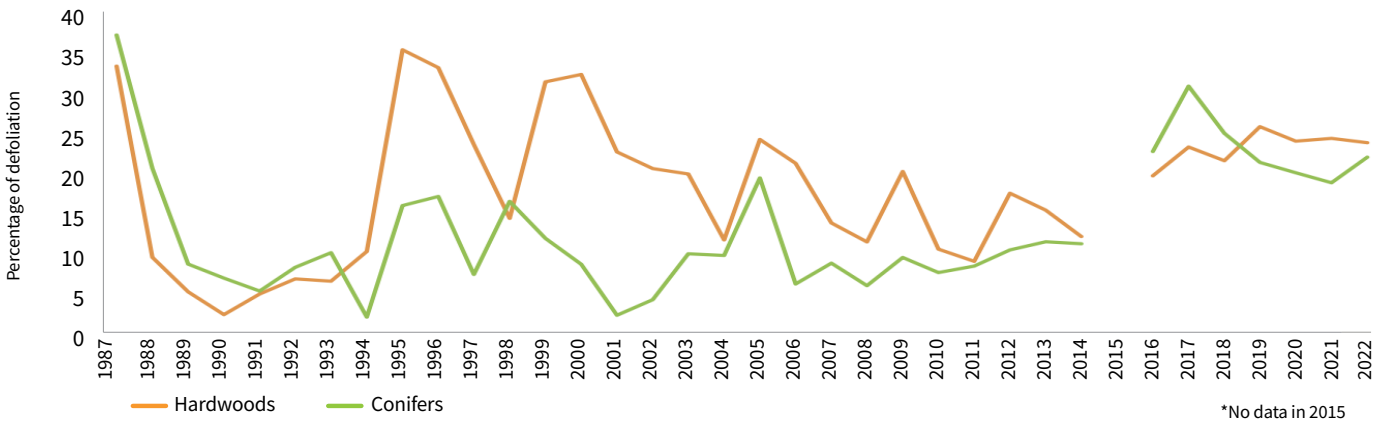- Beaches, dunes, cliffs and sandbanks
- Unstructured soil
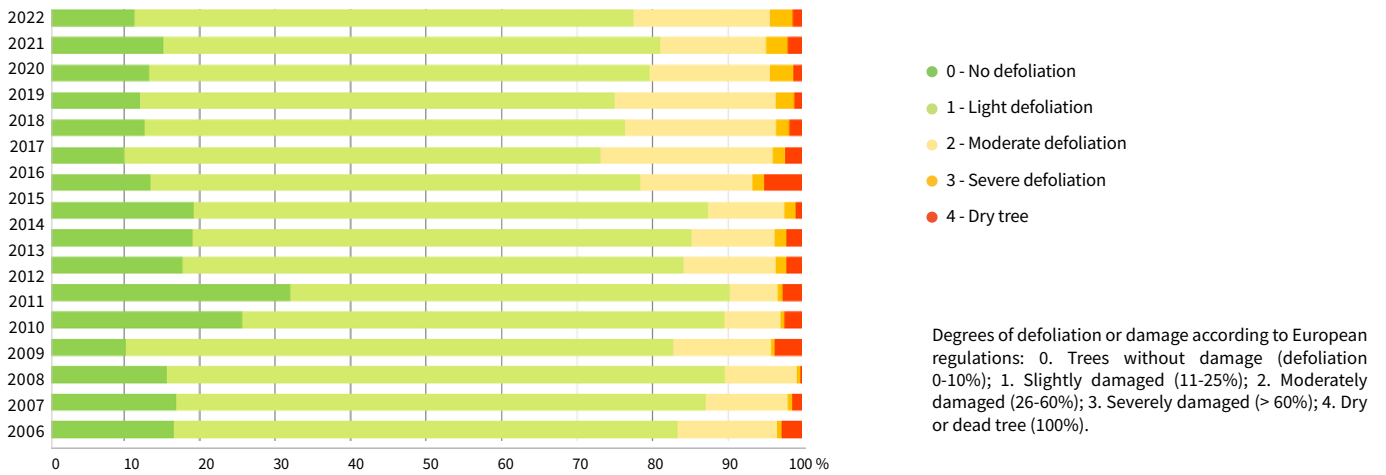- Bare ground
- Burned areas

Information taken from the cartographic database of the SIOSE-Andalusia project (Land Use Information System of Spain). 2020 update, provisional data.

FOREST PHYTOSANITARY STATUS. AVERAGE DEFOLIATION BY GROUP SPECIES [2]

Hardwoods   Conifers

*No data in 2015

FOREST PHYTOSANITARY STATUS. PERCENTAGE OF DAMAGED TREES BY CLASS [2]

● 0 - No defoliation
● 1 - Light defoliation
● 2 - Moderate defoliation
● 3 - Severe defoliation
● 4 - Dry tree

Degrees of defoliation or damage according to European regulations: 0. Trees without damage (defoliation 0-10%); 1. Slightly damaged (11-25%); 2. Moderately damaged (26-60%); 3. Severely damaged (> 60%); 4. Dry or dead tree (100%).

NUMBER OF FOREST FIRES PER CAUSE

● Arson and neglicence
● Other
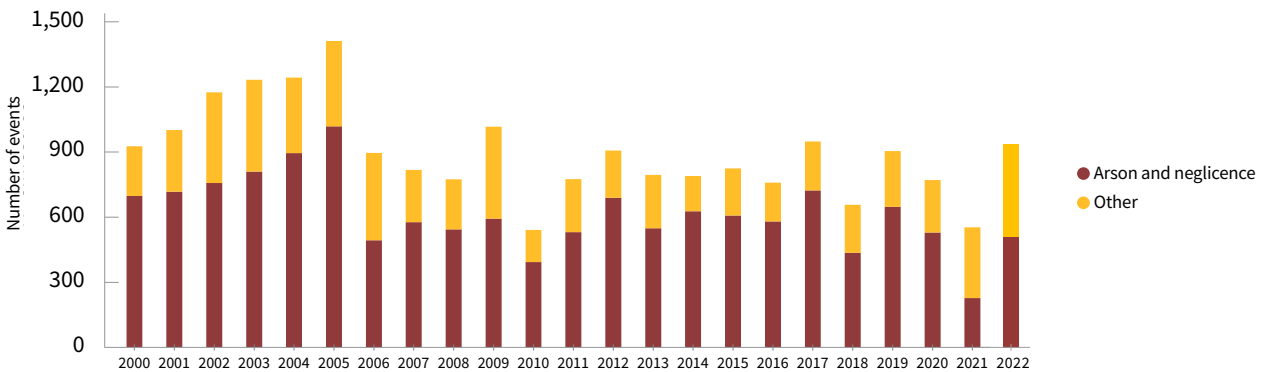
FOREST FIRES. AVERAGE AREA AFFECTED AND NUMBER OF EVENTS

ha/event   Outbreaks   Fires
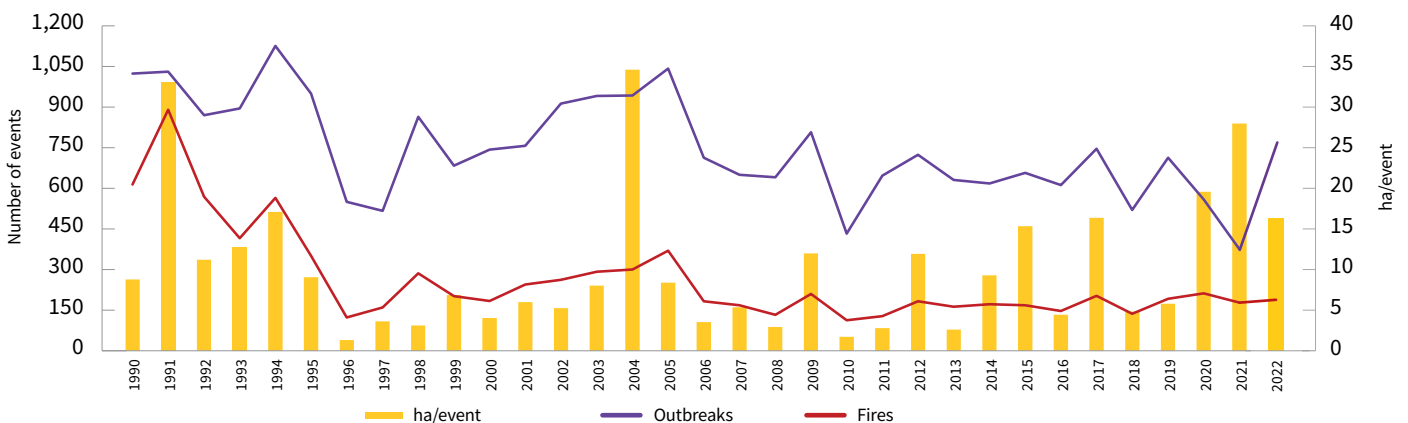
Air quality

Air quality continued to be stable in 2022 regarding Nitrogen dioxide and particles smaller than 10 microns (PM$_{10}$), since no areas exceeded anual limit values. As for ozone, of all areas but one (Population centers from 50,000 to 250,000 inhabitants) have values between the target value and the long-term target value.

There has been a methodological change in the calculation of air quality index in 2022, in order to be assimilate to the national quality index. As a consequence, the historical series of data has been broken, thus precluding the comparison of 2022 to previous years.
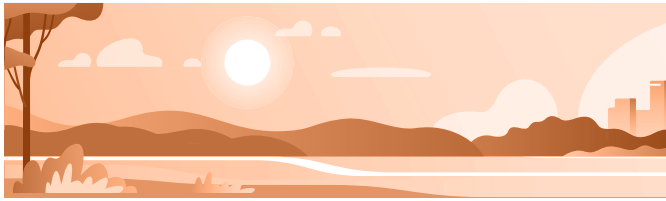
AIR QUALITY INDEX 2022

75.6% days with good or very good quality

AIR QUALITY AND HEALTH 2022
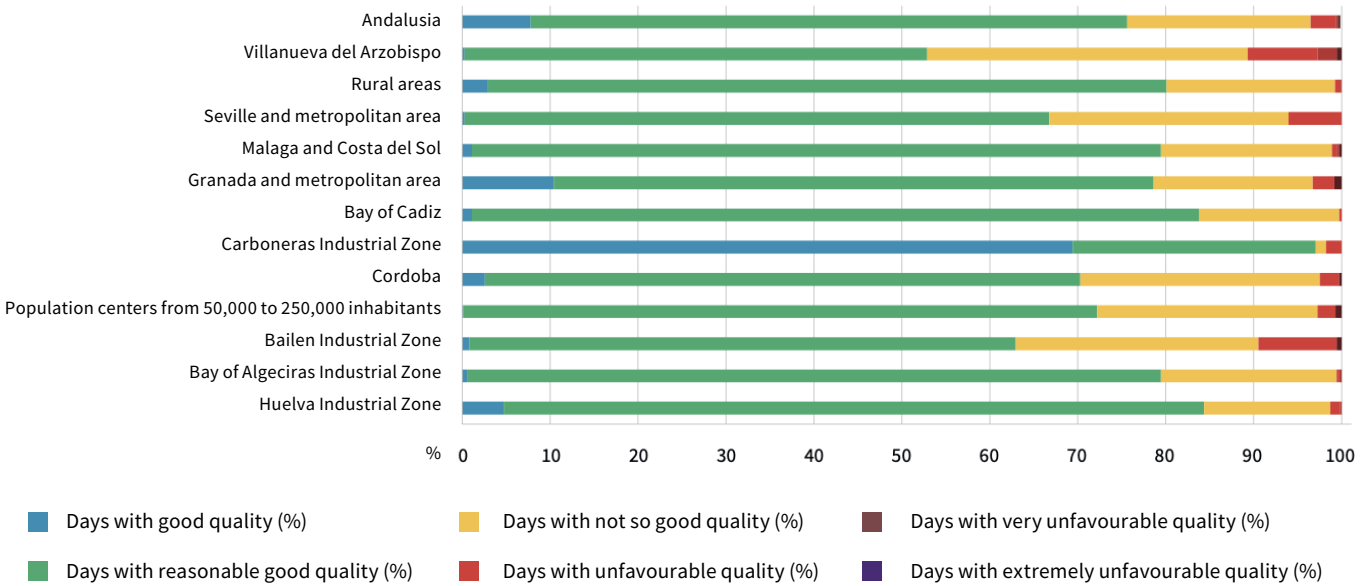
PM$_{10}$ [1] **23** µg/m^3 and day

AVERAGE ANNUAL OZONE CONCENTRATION INDEX (SOMO 35)[2] 2022

6,262 µg/m^3 and day

[1] Population-weighted annual average concentration of particulate matter at background stations in urban agglomerations. The legal limit (40 µg/m^3) is met ; WHO recommendation (20µg/m^3) is exceeded.

[2] The WHO defined the annual average ozone concentration index to evaluate the population's exposure to ozone, based on the maximum concentration threshold – 70 micrograms of ozone per m^3 (35 parts per billion) -

AIR QUALITY BY AREA 2022

- Days with good quality (%)
- Days with reasonable good quality (%)
- Days with not so good quality (%)
- Days with unfavourable quality (%)
- Days with very unfavourable quality (%)
- Days with extremely unfavourable quality (%)

EMISSIONS OF TROPOSPHERIC OZONE PRECURSOR GASES [2]

Index 1990=100

NOx   COVNM   CO   CH$_4$
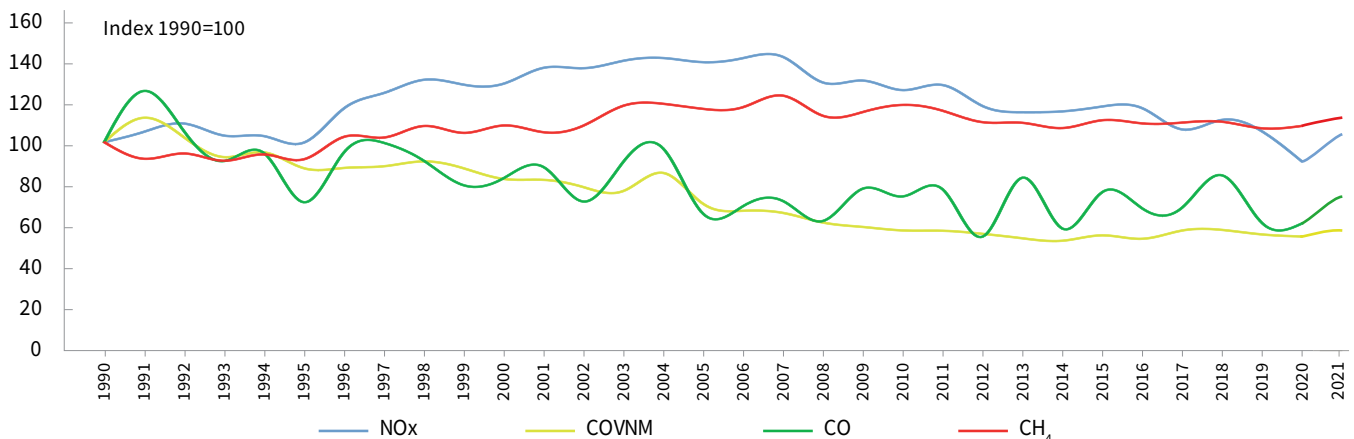
Circular economy: more than waste

In 2021, 4,831,545 tonnes of municipal waste were generated, a 4% increase compared to 2020. Municipal waste per inhabitant in 2021 was 570.3 kilograms, 3.9% more than the previous year.

The municipal waste management model aims to obtain the maximum use of the resources they contain and minimize the use of landfilling as a solution. The waste treatment capacity has improved, due to the decrease in the percentage of waste destined for landfills and the increase in waste treated in recovery and composting plants, as well as those treated through recycling. Selective collection also improves, especially with regard to glass.

The production of hazardous waste was 2.2% more than the previous year. The average number of tons generated per center increased, although the relationship between hazardous waste production and GDP decreased.

TOTAL GENERATION OF MUNICIPAL WASTE 2021

4,831.5 thousand of tonnes
1.56 kg per inhabitant per day

DECLARED GENERATION OF HAZARDOUS WASTE 2021

314.0 thousand of tonnes
2.18% more than in 2020

MUNICIPAL WASTE TREATMENT 2021

77.2% Recovery and composting plants

13.4% Landfills

9.4% Recycling

MUNICIPAL WASTE SEPARATE COLLECTION 2021

PAPER AND CARDBOARD
13.1 kg per inhabitant

LIGHTWEIGHT PACKAGING
13.9 kg per inhabitant

GLASS
13.0 kg per inhabitant

GENERATION OF MUNICIPAL WASTE 2021

Province	Kg/inhab/day
Almeria	1.3
Cadiz	1.5
Cordoba	1.2
Granada	1.4
Huelva	1.4
Jaen	1.1
Malaga	1.5
Seville	1.5
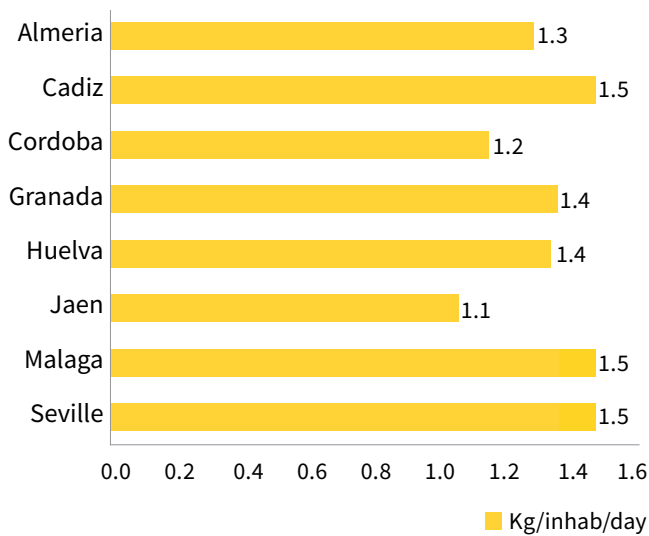
Collection waste is not included separate, only the mixed.

MUNICIPAL WASTE SEPARATE COLLECTION

Kg per inhabitant

Legend: Paper and cardboard — Glass — Lightweight packaging
(2012–2021)

DECLARED GENERATION OF HAZARDOUS WASTE

Tonnes per center
(2004–2021)
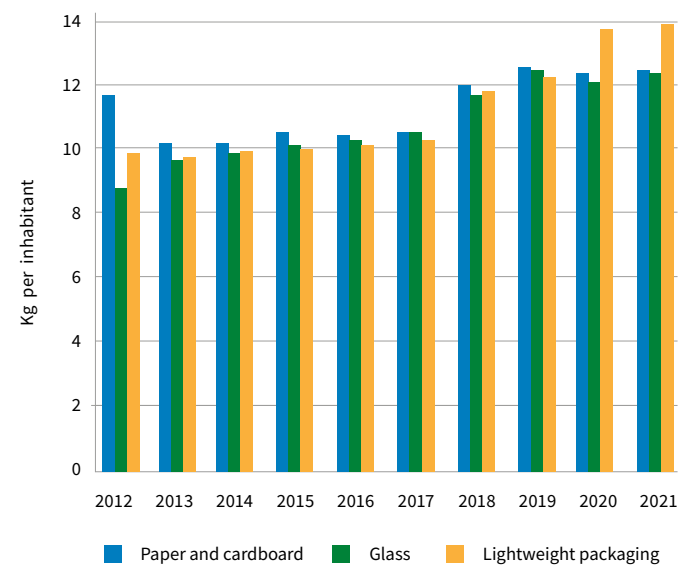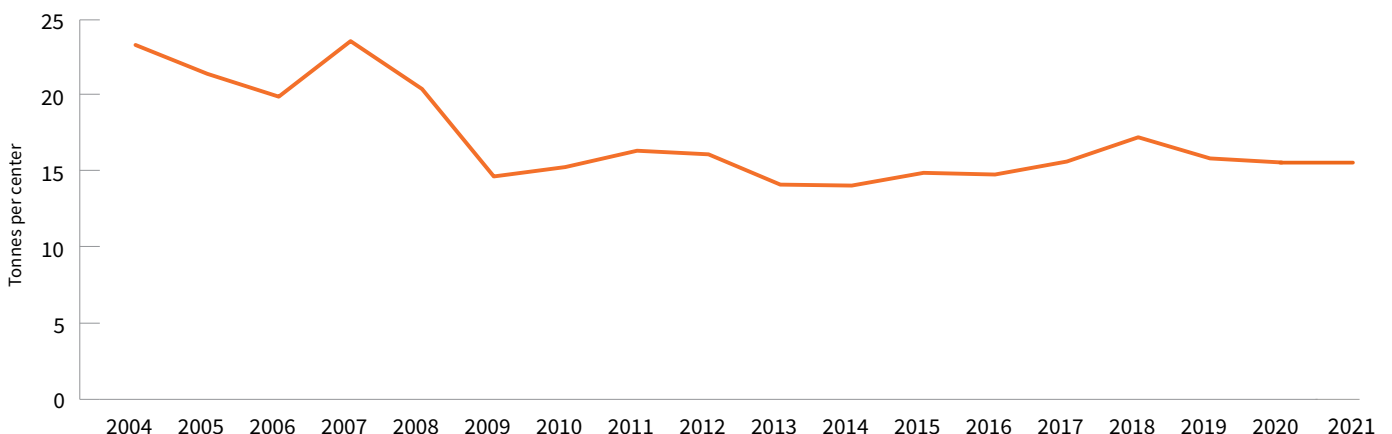
The environmental impact of energy

Primary energy consumption is growing, both from non-renewable sources – due to the increase in petroleum products–, and also from renewable sources. Final energy consumption also presents a growing evolution in all sources, except for electrical energy.

The share of renewable energies in electricity generation increases, while CO_2 emissions associated to the generation of electricity decrease dramatically. The emissions mix figures (210.2 tCO_2/Gwh) has been at the lowest in the historical series.

PRIMARY AND FINAL ENERGY CONSUMPTION FROM RENEWABLE SOURCES [8]

— Primary energy consumption   — Final energy consumption
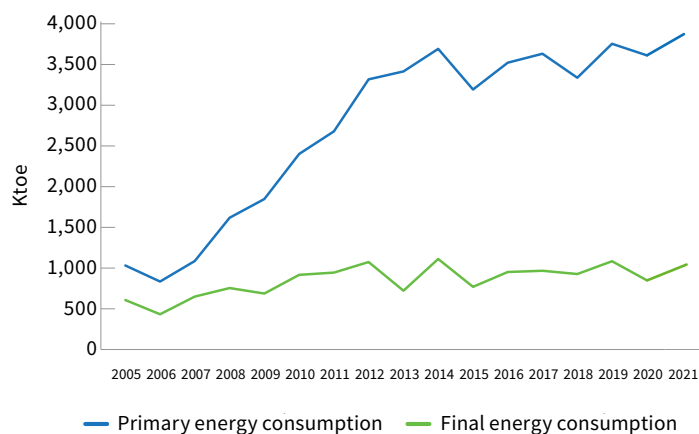
ktoe: Thousands of tonnes of crudeoil equivalent.

PRIMARY ENERGY CONSUMPTION BY SOURCE [8]

■ Coal   ■ Natural gas   ■ Petroleum   ■ Renewable energy   ■ Electric power
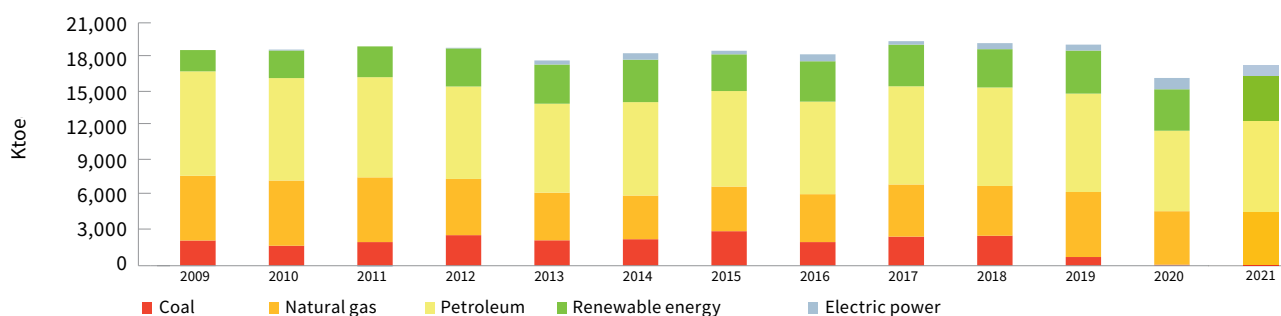
ktoe: Thousands of tonnes of crudeoil equivalent.

FINAL ENERGY CONSUMPTION BY SOURCE [8]

■ Coal   ■ Natural gas   ■ Petroleum products   ■ Renewable energy   ■ Electric power
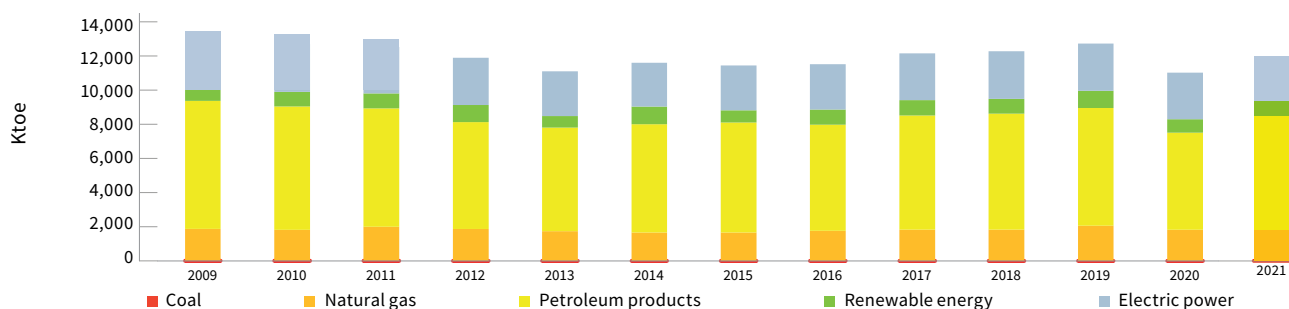
ktoe: Thousands of tonnes of crudeoil equivalent.

EMISSIONS 2021 [2][3]

CO$_2$ EMISSIONS PER INHABITANT

2.5 t/inhabit in cities
6.3 t/inhabit in intermediate density areas
6.1 t/inhabit in rural areas

CO$_2$ EMISSIONS

27.0% in cities
57.0% in intermediate density areas
15.9% in rural areas

MUNICIPAL WASTE COLLECTION 2021

4,726,498.6 tonnes
50.0% in cities
39.2% in intermediate density areas
10.9% in rural areas

557.9 kilograms per inhabitant
575.1 kg/inhabit in cities
548.0 kg/inhabit in intermediate density areas
519.9 kg/inhabit in rural areas

SWIMMING POOLS 2022 [3]

290,631 No. of swimming pools
29.9% in cities
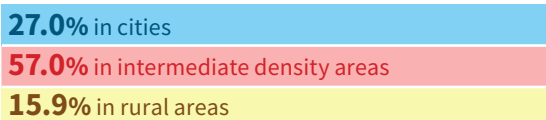**51.0%** in intermediate density areas
19.1% in rural areas

75.0% single-family residential pools
84.9% in cities
73.8% in intermediate density areas
62.7% in rural areas

During 2022, the Regional Ministry of Sustainability, Environment and Blue Economy promoted a series of actions to help Andalusian municipalities in the urban sustainability process. Amongst these actions are REVERSA –the Andalusian Green and Sustainable Cities Network–, the publication of a guide on how to prepare municipal plans against climate change, and the identification of the so-called blue municipalities as the territorial scope of the Andalusian Strategy of Blue Economy. In addition, this chapter addresses the result of the analysis carried out based on the information provided by the Andalusian Institute of Statistics and Cartography –IECA– on the urban classification of the Andalusian municipalities, combined with some variables of the urban environment such as CO$_2$ emissions and municipal waste.

TYPES OF MUNICIPALITIES ACCORDING TO THEIR DEGREE OF URBANISATION [3]

	No. of municipalities (2021)	% population (2021)
Cities	45	48.3
Intermediate density areas	206	40.0
Rural areas	533	11.6
Andalusia	**785**	**100.0**

ANDALUSIAN MUNICIPALITIES ACCORDING TO THEIR DEGREE OF URBANISATION 2021 [3]

Cities · Intermediate density areas · Rural areas
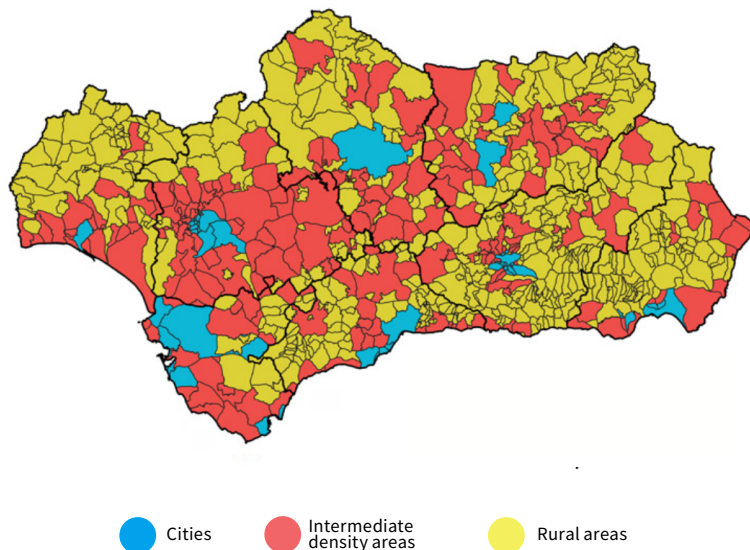
EVOLUTION OF CO$_2$ EMISSIONS

Kilotonnes of CO$_2$

- Cities 2011
- Cities 2021
- Intermediate density areas 2011
- Intermediate density areas 2021
- Rural areas 2011
- Rural areas 2021
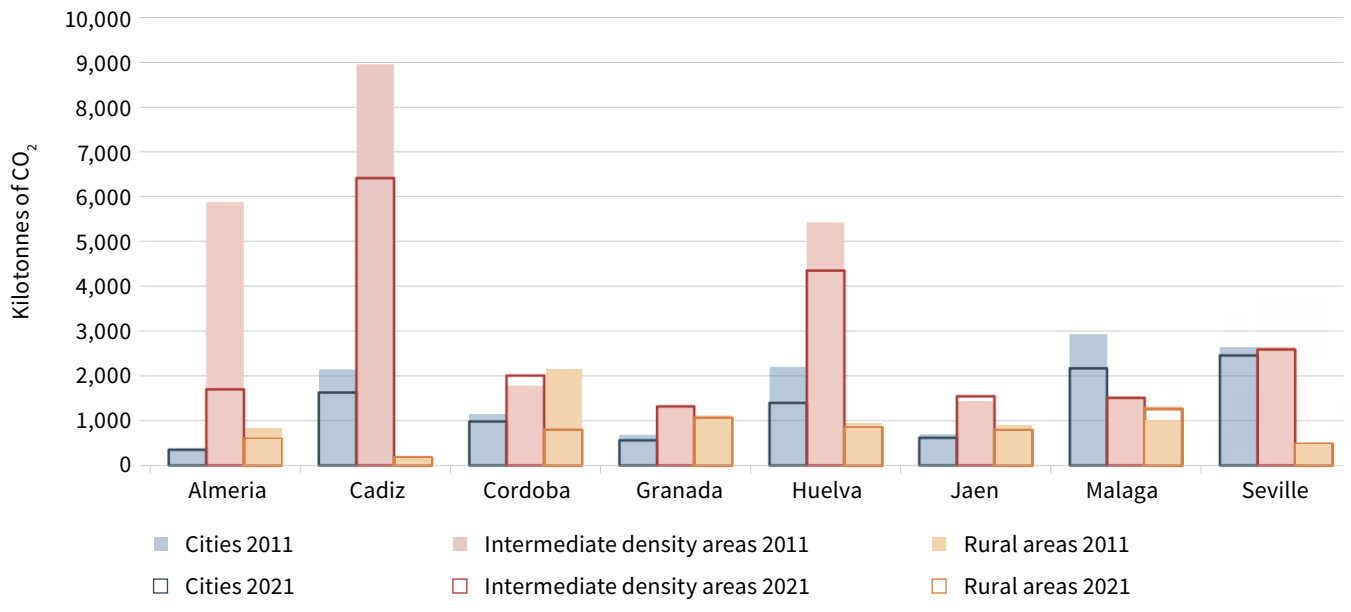
EVOLUTION OF MUNICIPAL WASTE COLLECTION

Tonnes

- Cities 2011
- Cities 2021
- Intermediate density areas 2011
- Intermediate density areas 20121
- Rural areas 2011
- Rural areas 2021
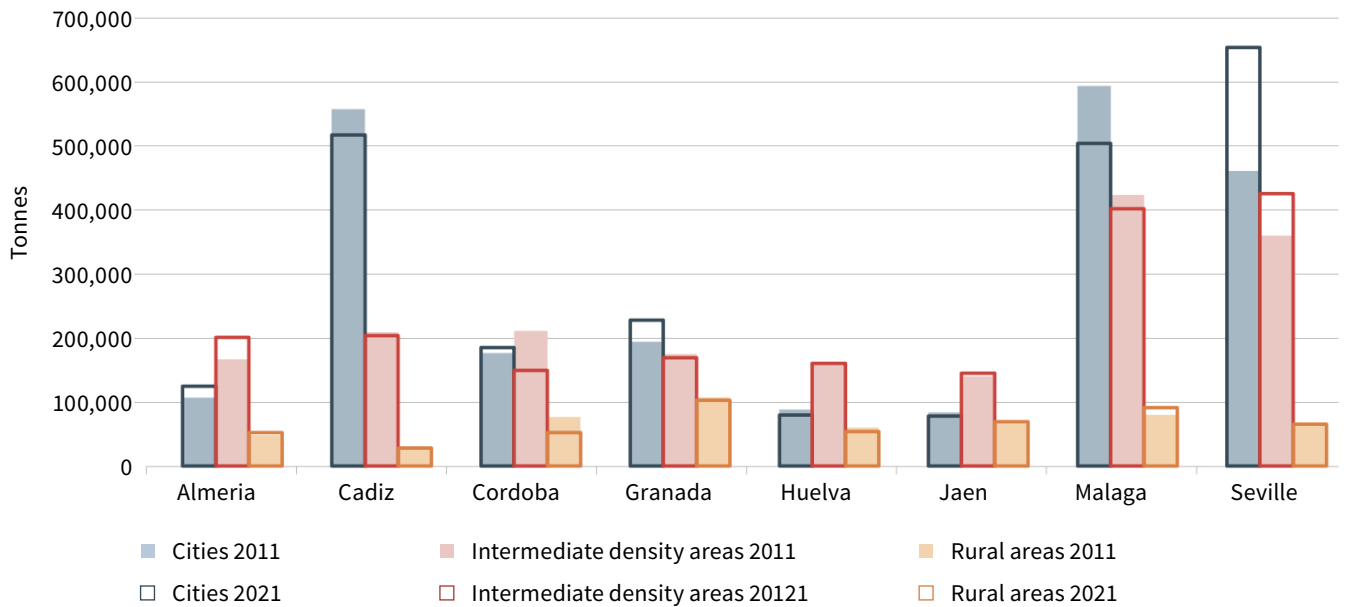
NUMBER OF SWIMMING POOLS 2022

- Cities 2011
- Intermediate density areas 2011
- Rural areas 2011
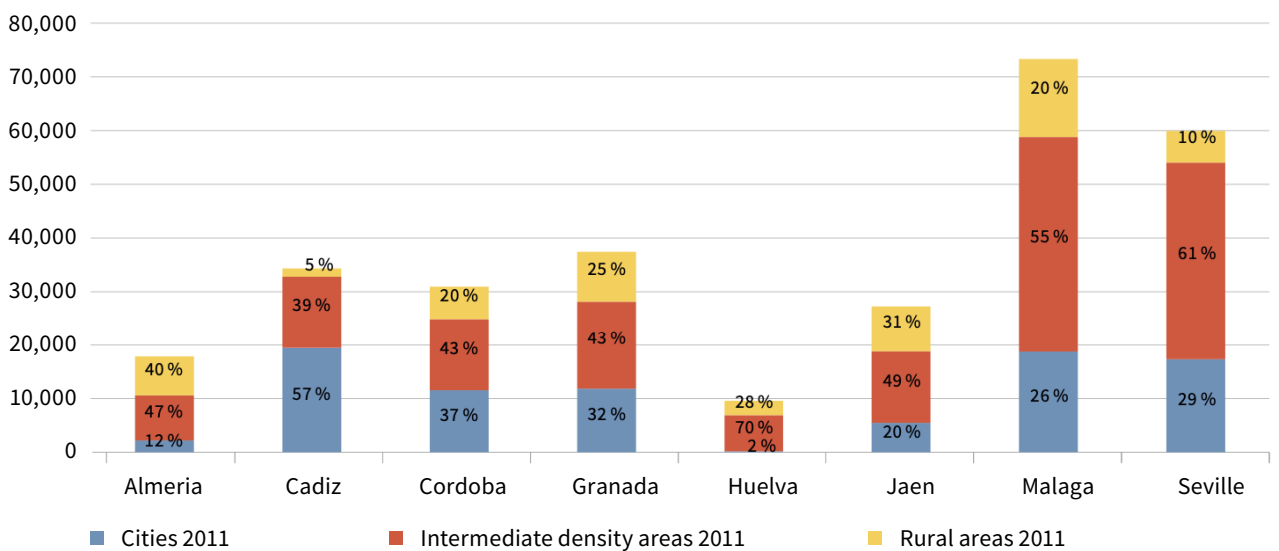
Economic activity and environment

After a two-year period of stagnation caused by covid-19, in 2022 the standards measuring the evolution of the productive sectors and their integration with the environment have recovered. As for economic activities linked to the environment, consolidated sectors such as integrated and organic farming have stabilized, sustainable activities like aquaculture have been boosted and tourism, especially in rural accommodations or natural areas, has increased.

'ANDALUSIAN NATURAL PARK' BRAND 2022

126 companies
1,385 services

INTEGRATED FARMING AREA 2022 [5]

525,077 ha

ORGANIC FARMING AREA 2022 [5]

1,346,123 ha

MARINE AQUACULTURE 2021 [5]

9,560 tonnes
63,360,500 euros

INDUSTRY AND ENVIRONMENTAL QUALITY 2022

AAI[1] resolved files: **56**
AAU[2] resolved files: **381**

1 Integrated environmental authorizations
2 Unified environmental authorizations

TOURISM 2022 [3]

30,748,142 tourists who visited Andalusia
399,902 travelers in rural tourism accommodation

'ANDALUSIAN NATURAL PARK' BRAND 2022

No. of companies 2022

68
42
16
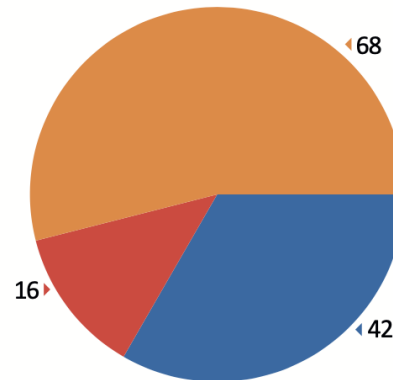
No. of products or services 2022

528
40
817
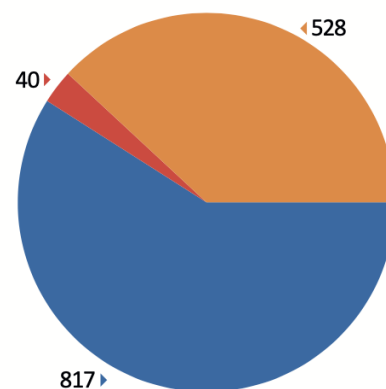
■ Handcrafted product ■ Natural product ■ Nature tourism

SUSTAINABLE BUSINESS COUNSELLING FOR COMPANIES LOCATED IN NATURAL PROTECTED AREAS IN ANDALUSIA - AESENA 2022

251 about the business model

243 about 'Andalusian Natural Park' Brand

237 about environmental assessments

87 about environmental information

49 about environmental regulations

39 about e-trade

17 about business management

Total **923** counselling activities

AREA OF INTEGRATED FARMING [5]

Hectares

Year	Value
2003	81,322
2004	126,126
2005	160,777
2006	256,101
2007	291,756
2008	301,406
2009	381,383
2010	410,111
2011	463,847
2012	505,494
2013	520,324
2014	554,389
2015	558,597
2016	543,400
2017	556,518
2018	513,335
2019	502,646
2020	519,400
2021	524,230
2022	525,077

AREA OF ORGANIC FARMING [5]

Hectares

Year	Value
2001	107,380
2002	225,599
2003	283,220
2004	326,673
2005	403,361
2006	537,269
2007	582,745
2008	784,067
2009	866,799
2010	879,859
2011	973,239
2012	949,025
2013	806,727
2014	853,494
2015	1,011,094
2016	976,422
2017	974,393
2018	1,024,430
2019	1,065,260
2020	1,098,812
2021	1,369,758
2022	1,346,123

COMMERCIALIZED PRODUCTION OF MARINE AQUACULTURE [5]

Thousands of euros / Tonnes

— Value   — Weight
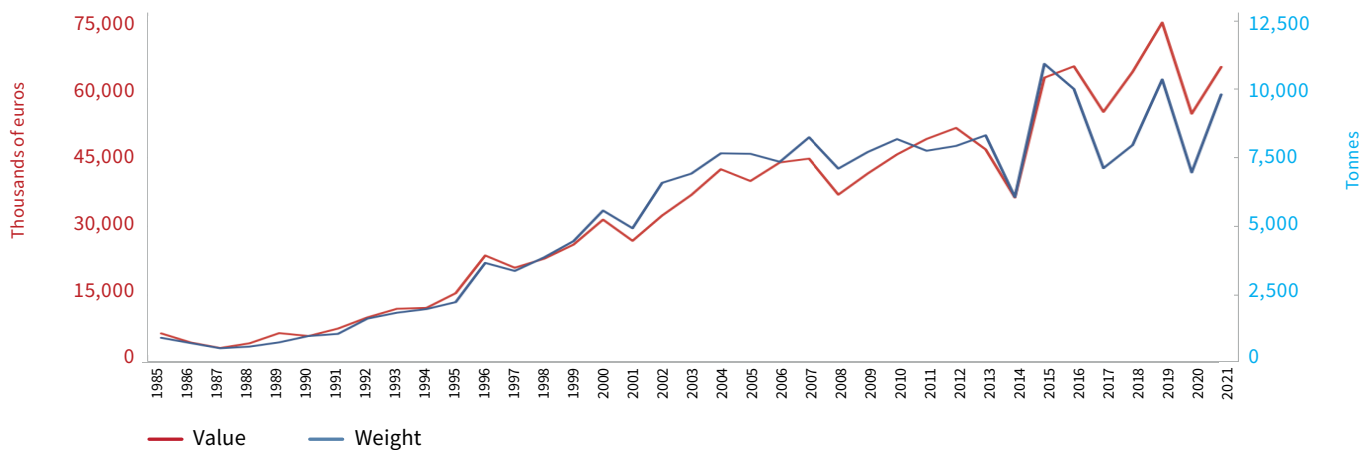
NUMBER OF TRAVELLERS IN RURAL TOURISM ACCOMMODATION [3]

Year	Value
2015	229,184
2016	270,041
2017	339,401
2018	369,423
2019	393,052
2020	196,087
2021	293,413
2022	399,902
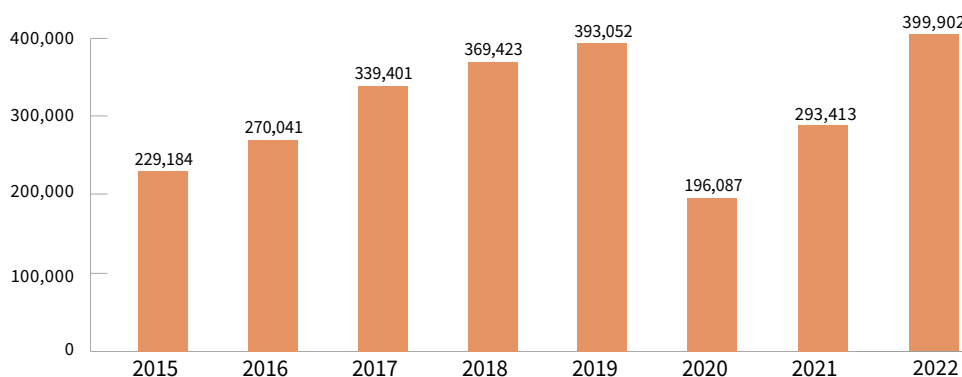
TOTAL UNIQUE USERS 2022

656,262 on the environmental web

ENVIRONMENTAL INFORMATION REQUESTS 2022

294 requests received and attended

SERVICES OFFERED IN THE REDIAM CHANNEL 2022

4,947 facts sheets published

2,506 services for consulting and downloading information

2,443 new or updated contents on the download area

INTEGRATED CARE SERVICE CITIZEN (SIAC) 2022

58,224 enquiries attended

The dissemination of environmental information is carried out by the Regional Ministry's Environmental Information Web. The environmental information made available by Rediam improved, although the download of OGS services decreased by 8.9% compared to 2021. Rediam aims to offer a solid data infrastructure and promote agile an simplified data access. The number of environmental information requests have decreased. Concurrently, more open access contents have been added to the Andalusian environmental online portal. Enquiries attended by the Citizen Information and Attention Service (SIAC) have increased.
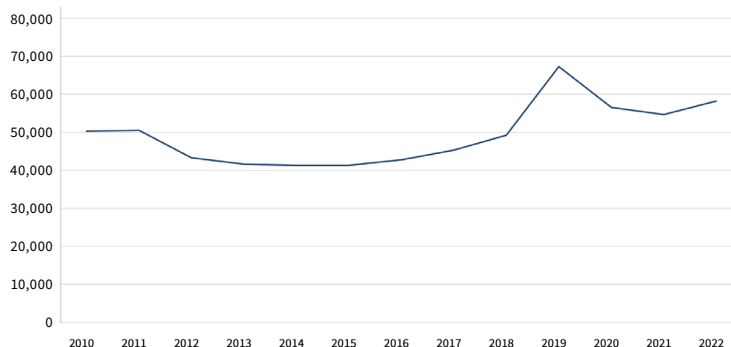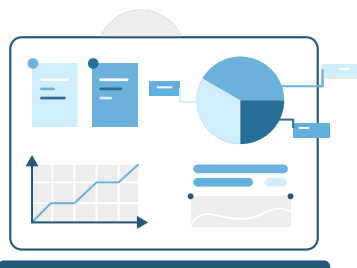
SIAC. ENQUIRIES ATTENDED
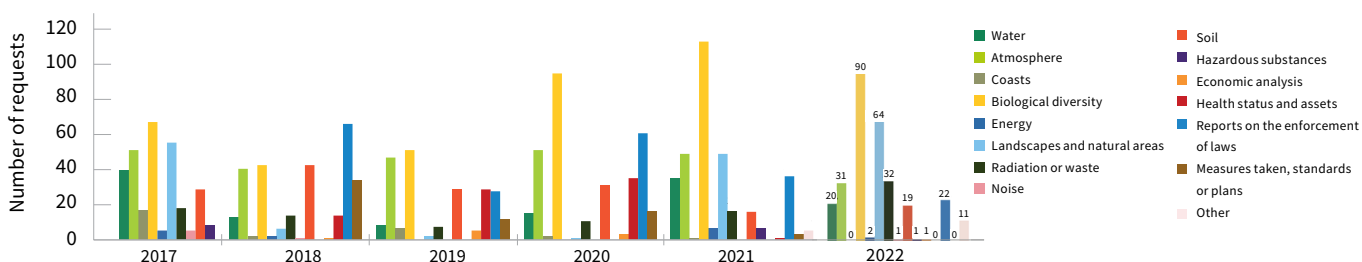

USE OF THE ENVIRONMENTAL WEBSITE 2017-2023

Year	Total unique users	Sessions	Sessions per user	Pages per session	Average session duration
2017	1,801,882	3,230,692	1.79	2.94	00:02:54
2018	1,687,885	2,900,636	1.72	3.04	00:03:00
2019	1,749,813	2,900,862	1.66	2.85	00:02:56
2020	2,085,130	3,332,130	1.60	2.75	00:02:49
2021	1,307,256	2,094,978	1.60	2.73	00:02:46
2022	656,262	1,106,483	1.69	2.45	00:02:39
1/01 - 30/04 2023	264,021	415,752	1.57	2.26	00:02:26
1/05 - 30/06 2023	140,337	221,398	1.59	1.93	00:04:12

From May 2023 on, Google Analytics in its Universal Analytics version moved to version GA4 (Google Analytics 4). For this reason, the information measured in 2023 is shown differently.

ENVIRONMENTAL INFORMATION REQUESTS, BY SUBJECT

ECOBAROMETER 2022. KEY POINTS

https://www.juntadeandalucia.es/medioambiente/portal/acceso-rediam/ecobarometro-de-andalucia/ecobarometro-de-andalucia-2022

Relationship of citizens with information about the environment

- Perception of the Andalusian population regarding their degree of information: 57.4% indicate that they have a medium level of information ("somewhat" informed), while 34.4% consider themselves to be quite or very informed.
- Perception of the level of information on specific aspects of climate change: fairly or very informed around 42-44%, "somewhat" informed around 50-54%. Regarding aspects such as the causes of climate change or the measures to solve it, the proportion of people who indicate that they are not informed at all increases.
- The sources from which environmental information is obtained are concentrated in television news (77.8%), followed by the Internet, through web pages, forums, blogs, etc. (44.7%).

Training, participation and environmental awareness

ACTIVITIES IN THE CAZORLA TRAINING AND FORESTRY EXPERIMENTATION CENTER 2022

1,061 beneficiaries

ENVIRONMENTALLY-RELATED VOCATIONAL TRAINING 2022 [9]

57 training actions in **24** different areas
759 beneficiaries

ENVIRONMENTAL PARTICIPATION AND AWARENESS PROGRAM 2022

15,875 beneficiaries

The Department with powers in environmental matters aims to boost sustainable attitudes and behaviors amongst the citizenship though various programs and other initiatives related to training, awareness and education for sustainability. These actions are aimed at solving environmental problems, both local and global ones. Additionally, on an annual basis, the Department calls for candidates and awards the Andalusian Environment Awards, which have celebrated their 26th edition in 2022.

TRAINING ACTIONS AT THE CAZORLA TRAINING CENTER 2022

Type of course	Type of training	Courses	Teachers	Female students	Male students	Hours of lectures
Training actions	Formal training	38	120	239	414	943
Forest management and environmetal preservation	Non-regulated training	1	11	6	52	2,000
Other courses promoted by different organizations and entities	Unspecified	16	63	105	245	360
Total		55	194	350	711	3,303

ENVIRONMENTAL PARTICIPATION AND AWARENESS PROGRAM 2022

15,875 beneficiaries

Participation and environmental dissemination actions: **6,454** (**50%** male y **50%** female)

Environmental awareness thematic workshops: **3,013** (**50%** male y **50%** female)

Awareness actions in the Nature 2000 Network: **6,408** (**55%** male y **45%** female)

ECOLOGICAL AWARENESS AND EDUCATION FOR SUSTAINABILITY PROGRAM 2022

11,930 beneficiaries

253 centers

ECOBAROMETER 2022 . KEY POINTS

https://www.juntadeandalucia.es/medioambiente/portal/acceso-rediam/ecobarometro-de-andalucia/ecobarometro-de-andalucia-2022

Citizen behavior towards the environment

- Most common pro-environmental practices of the Andalusian population: recycling (76.5%), energy saving (29.4%), water saving (26.8%), sustainable mobility (24.2%) and responsible consumption (19.1%).

Perception of climate change

- The majority of the Andalusian population links climate change to pollution (39%), increased temperatures (36%) and changes in climate (32%).
- The majority of the population believes that climate change is happening, although only 27.4% affirms it with complete certainty.
- There is an important awareness of the effect that humanity is causing with its actions, and, in fact, only 2% of the population thinks that it is exclusively associated with nature.
- The majority of the population believes that it is important to intervene against climate change (83.9%), and also that their consumption habits and lifestyle have an impact on the environment and the development of climate change (81.3%). The attribution of responsibility for solving environmental problems falls on both administrations and companies, and to a lesser extent on the individual behavior of people.

Planning and strategic environmental assessment

In 2022 and early of 2023, two Strategies of outmost importance for the Ministry of Sustainability, Environment and Blue Economy have begun their administrative processing: the Environmental Framework Strategy of Andalusia 2030, evolution of the current Environmental Plan; and the Andalusian Sustainable Blue Economy Strategy.

In the field of strategic environmental evaluation, the environmental evaluation procedures of nineteen planning instruments have been completed, including the Andalusian Energy Strategy 2030, the Andalusian Transport and Mobility Infrastructure Plan or the FEDER-Andalusia 2021-2027 Program.

In addition, the third cycle of the hydrological planning process (2022-2027) has been completed by the approval through two Royal Decrees 687/2023 and 689/2023, of July 18, of the flood risk management plans for the internal basins of Andalusia and the hydrological plans of the hydrographic demarcations of the Mediterranean Basins Andalusia, the Guadalete and Barbate basin, and the Tinto, Odiel and Piedras basin.

APPROVED AND UNDER DEVELOPMENT STRATEGIC ENVIRONMENTAL PLANS

AREA	APPROVED	UNDER DEVELOPMENT
Horizontal plans	Andalusian Strategy for Sustainable Development 2030.	Andalusia Environmental Framework Strategy.
Biodiversity and natural environment	Master Plan for the Improvement of Ecological Connectivity in Andalusia, a green infrastructure strategy.	Adaptation of the Andalusian Forestry Plan. Horizon 2030. Andalusian Biodiversity Strategy Horizon 2030. Andalusian Hunting Plan. Green Infrastructure Plan for the Connectivity of Andalusia. Caring for the Livestock Routes of the Future.
Water	Review and update of the flood risk management plans for the internal basins of Andalusia: hydrographic demarcations of Tinto, Odiel and Piedras; of Guadalete and Barbate; and the Andalusian Mediterranean Basins. (Royal Decree 687/2023, of July 18). Approval of the hydrological plans of the hydrographic demarcations of the Andalusian Mediterranean Basins, Guadalete and Barbate and Tinto, Odiel and Piedras. (Royal Decree 689/2023, of July 18).	Andalusian Wetlands Plan Horizon 2030.
Air	Andalusian Air Quality Strategy.	
Circular economy	Andalusian Circular Bioeconomy Strategy. Andalusia Integrated Waste Plan. Towards a Circular Economy in Horizon 2030.	
Climate and energy	Andalusian Climate Action Plan. Andalusia Energy Strategy 2030.	
Marine and coastal environment		Andalusian Sustainable Blue Economy Strategy.
Green jobs	Strategy for the Generation of Environmental Employment in Andalusia 2030.	

THEME AREAS OF THE ENVIRONMENTAL OF THE ANDALUSIA ENVIRONMENTAL FRAMEWORK STRATEGY 2030

SUSTAINABLE USE OF WATER
- Use and availability
- Quality
- Integral water cycle

PROTECTION AND RECOVERY OF BIODIVERSITY AND ECOSYSTEMS
- Biodiversity
- Natural areas
- Forest areas
- Public use

POLLUTION PREVENTION AND CONTROL
- Air pollution
- Soil pollution
- Health protection and well-being

MITIGATION AND ADAPTATION TO CLIMATE CHANGE AND TRANSFORMATION OF THE ENERGY MODEL
- Climate
- Energy
- Mobility

TRANSITION TOWARDS A CIRCULAR ECONOMY
- Waste
- Bioeconomy

ENVIRONMENTAL GOVERNANCE
- Education
- Information
- Participation
- Communication
- Coordination

Environmental indicators

The environmental indicators give a highly aggregated view to enable monitoring of the most significant aspects of the environment in Andalusia. The list below consists of a selection taken from environmental indicators system of the Environmental Information Network of Andalusia, which was also published in the 2023 Andalusia Environment Report.

TOPIC	INDICATOR	EVOLUTION	STATUS	TREND
Climate	Normalized different vegetation index	🟡	🟡	🔴
	Moisture Index	🔴	🔴	🔴
	Vegetation global water stress	🟡	🔴	🟡
	Mean, maximum and cumulative vegetation index	🟡	🔴	🔴
Climate change	Thermal anomalies and global warming rate	🔴	🔴	🔴
	Ozone layer thickness	🟡	🔴	🟡
	Ultraviolet Index (UVI)	🟡	🟢	🟡
	Emissions of greenhouse gases	🟢	🟡	🟡
	Emissions trading scheme (RCDE)	🟢	🟡	🟡
Soil and land use	Erosivity of rain and soil losses	🟡	🟢	🟡
Water	Available water resources	🟡	🔴	🟡
	Sanitation and purification of waste water	🟢	🟢	🟢
	Surface water quality	🟡	🟡	🟡
	Groundwater quality	🟡	🟡	🟡
Coastline and Blue Economy	Concessions of occupation of the Maritime Terrestrial Public Domain	🟡	🟡	🟡
	Authorizations for use or occupation in the Maritime Terrestrial Public Domain	🟡	🟢	🟡
	Authorizations for use or occupation in the Protection Easement Zone	🟢	🟢	🟢
	Polluting load of urban effluents discharged onto the coast	🟡	🟢	🟡
	Industrial discharges to the coast	🟡	🔴	🟡
	Sanitary qualification of coastal bathing waters	🟡	🟢	🟡
	Sea surface temperature	🔴	🔴	🔴
	Chlorophyll-a concentration	🟡	🟡	🟡
	Diffuse attenuation coefficient	🟡	🟢	🟡

ℹ️ The environmental assessment of each indicator is made considering three aspects: the evolution, the status and the trend.

1. The evolution reflects to the progress of an indicator over time.
2. The estatus refres to an indicator's current state.
3. The trend expresses the estimated future progress of an indicator based on policies, strategies, guidelines and plans which will affect it as well as the general context.

Each one of these aspects is represented by the foloowing smbols:

- 🟢 Positive / Good result / Favourable
- 🔴 Intermediate /Acceptable result / Stabilized
- 🟡 Negative / Bad result / Unfavorable

TOPIC	INDICATOR	EVOLUTION	STATUS	TREND
Biodiversity	Inclusion of wild flora in botanical gardens	🟢	🟢	🟢
	Germplasm collection at the Plant Propagation Laboratory	🟢	🟢	🟢
	Fauna recorded	🟡	🟡	🟡
	Conservation of necrophagous birds	🟢	🟢	🟢
	Income of animals in the CREAs	🟢	🟡	🟡
Natural Protected Areas	Protected area in Andalusia	🟡	🟡	🟡
	Equipment for public use and citizen participation in RENPA	🟢	🟢	🟢
Forest spaces	Forest fires	🟡	🔴	🟡
	Phytosanitary status of forest masses	🟡	🟡	🟡
	Investments in forest actions	🟡	🔴	🟡
Air quality	Air quality index by zones	🟡	🟡	🟢
	Average annual concentration index of particles less than 10 microns	🟡	🟡	🟡
	Average annual ozone concentration index	🟡	🟡	🟡
	Emissions of acidifying and eutrophying gases	🟡	🟡	🟡
	Emissions of tropospheric ozone precursor gases	🟡	🟡	🟡
Circular economy	Municipal waste production	🟡	🔴	🟡
	Municipal waste treatment	🟡	🟢	🟡
	Selective collection and recycling	🟡	🟡	🟡
	Hazardous waste production	🟡	🔴	🟡
Energy	Primary energy consumption	🟡	🔴	🟡
	Final energy consumption	🟡	🔴	🟡
	Renewable energy penetration percentage	🟢	🟢	🟢
Economic activity and environment	Integrated management of environmental quality	🟡	🟢	🟡
	Evolution of the area of organic farming	🟢	🟡	🟢
	Evolution of the surface in integrated production	🟢	🟡	🟢
Environmental information	Access to environmental information	🟡	🟡	🟡

STRUCTURE AND ORGANIZATION

President's Decree 10/2022, of July 25 on the restructuring of Ministries.

Decree 162/2022, of August 9, which establishes the organic structure of the Ministry of Sustainable, Environmental and Blue Economy.

Decree 18/2024, of January 29, which modifies Decree 162/2022, of August 9, which establishes the organic structure of the Ministry of Sustainability, Environment and Blue Economy.

WATER AND COASTAL AREAS

Law 9/2010, of July 30, on Waters of Andalusia.

Decree Law 30/2020, of November 24, on measures to expedite the processing of the declaration of a drought situation in the area of the Intra-Community river basin districts of Andalusia.

Decree Law 2/2022, of March 29, which extends the urgent measures to alleviate the effects produced by the situation of exceptional drought in the Intra-Community hydrographic demarcations of Andalusia, and adopts urgent, administrative and fiscal measures, of support to the agricultural and fishing sector.

Decree 14/2005 of January 18, on the transfer of means and services by the Spanish National Government to the Andalusian Regional Government regarding hydraulic resource management.

Decree 357/2009 of October 20, which determines the Territorial limits of the Inter-Community river basins in Andalusia.

Decree 66/2011 of March 29, on the transfer of means and services by the Spanish National Government to the Andalusian Regional Government regarding Coastal Area planning and management.

Decree 109/2015 of March 17, approving the Regulations on Discharges into the Hydraulic Public Domain and the Maritime-Terrestrial Public Domain of Andalusia.

Decree 477/2015 of November 17, regulating the Collegiate Bodies for Administrative and Social Participation of the Andalusian Water Administration.

Decree 178/2021, of June 15, which regulates the indicators of hydrological drought and the exceptional measures for the management of water resources in the Intra-Community Hydrographic Demarcations of Andalusia.

Agreement of October 26, 2010, of the Governing Council, declaring the hydraulic works aimed at fulfilling the objective of water quality in Andalusian to be of interest to the Autonomous Community of Andalusia.

NATURAL HERITAGE

Law 2/1989, of July 18, approving the Inventory of Protected Natural Areas of Andalusia and establishes additional protecting measures.

Law 2/1995 of June 1, modifying the Law 2/1989 of July 18, approving the Inventory of Protected Natural Areas of Andalusia and establishing additional protecting measures.

Law 3/1999 of January 11, which created the Sierra Nevada National Park.

Law 8/1999 of October 27, on the Natural Area of Doñana.

Law 8/2003 of October 28, on Wild Flora and Fauna.

Law 3/2017 of May, regulating footpaths of the Autonomous Community of Andalusia.

Law 9/2021, of July 1, declaring the Sierra de las Nieves National Park.

Decree 225/1999 of November 9, on the regulation and development of the natural monument of Andalusia protection figure.

Decree 95/2003 of April 8, on the regulation of the Network of Protected Natural Areas and their Registry.

Decree 98/2004 of March 9, creating the Inventory of Wetlands of Andalusia and the Andalusian Committee on Wetlands.

Decree 137/2006 of July 4, on the transfer of functions and services by the Spanish National Government to the National parks of Doñana and Sierra Nevada.

Decree 23/2012, of February 14, which regulates the conservation and sustainable use of wild flora and fauna and their habitats.

FOREST MANAGEMENT

Law 2/1992 of July 15, on Andalusian Forestry.

Law 5/1999 of July 29, on the forest firefighting and prevention.

Law 7/2010 of July 14, on the "Dehesa".

Decree 247/2001 of November 13, approving forest firefighting and prevention regulation.

Decree 160/2016, of October 4, which modifies the Andalusian Forest Fires Emergency Plan by Decree 371/2010, of September 14, which approves the Andalusian Forest Fires Emergency Plan and modifies the Forest Fires Prevention and Firefighting Regulations approved by Decree 247/2001, of November 13.

Decree 126/2017, of July 25, which approves the Regulations on Hunting in Andalusia.

Decree 172/2017 of October 24, which approves the master Plan for the pastures of Andalusia, creates the Monitoring Committee of same and modifies Decree 57/2011, of March 15, which regulated the Andalusian Committee for the Pasture and Decree 530/2004, of November 16, which regulates the composition, functions and regulations of the Biodiversity Council of Andalusia.

Decree 232/2023, of September 19, which approves the Andalusian Hunting Plan 2023-2033.

ENVIRONMENTAL QUALITY AND PREVENTION

Law 2/2007, of March 27, on the promotion of renewable energy and saving and efficiency energy in Andalusia.

Law 7/2007 of July 9, on the integrated management of environmental quality.

Law 3/2015, of December 29, on measures for Integrated management of Environmental Quality, Water, taxes and Animal Health.

Law 8/2018 of October 8, on measures to combat climate change and for the transition to a new energy model in Andalusia.

Law 1/2020 of July 13, on improving the thermal and environmental conditions of education centres in Andalusia by means of bioclimatic techniques and the use of renewable energies.

Decree Law 2/2018, of June 26, on the simplification of energy regulations and the promotion of renewable energies in Andalusia.

Decree 31/2006, of February 14, approving the Air Quality Improvement Plan in the municipality of Bailen.

Decree 239/2011, of July 12, which regulates the quality of the atmospheric environment and creates the Registry of Air Quality Assessment Systems in Andalusia.

Decree 6/2012 of January 17, which approving the Regulation on protection against noise pollution in Andalusia, and modifying Decree 357/2010 of August 3, approving the Night Sky Quality Protection Regulations against light pollution.

Decree 73/2012 of March 20, approving the Regulation of waste of Andalusia.

Decree 231/2013 of December 3, which approving improvement plans for air quality for certain areas in Andalusia.

Decree 131/2021, of April 6, which approves the Integral Waste Plan of Andalusia. Towards a Circular Economy in 2030 Horizon.

Decree 234/2021, of October 13, approving the Andalusian Climate Action Plan.

Agreement of September 22, 2020, of the Governing Council, approving the Andalusian Air Quality Strategy.

ENVIRONMENTAL INFORMATION

Law 1/2014, of June 24, on Public Transparency of Andalusia.

Law 9/2023 of September 25, approving the Statistical and Cartographic Plan of Andalusia 2023-2029.
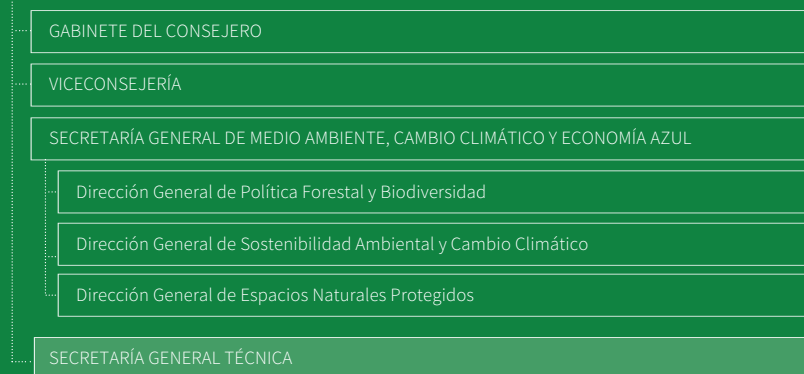
Decree 347/2011 of November 22, approving the structure and functioning of the Andalusian Environmental Information Network and the access to environmental information.

Directory and information sources

CONSEJERÍA DE SOSTENIBILIDAD, MEDIO AMBIENTE Y ECONOMÍA AZUL

Avda. Manuel Siurot, 50, 41071 Sevilla.

GABINETE DEL CONSEJERO

VICECONSEJERÍA

SECRETARÍA GENERAL DE MEDIO AMBIENTE, CAMBIO CLIMÁTICO Y ECONOMÍA AZUL

Dirección General de Política Forestal y Biodiversidad

Dirección General de Sostenibilidad Ambiental y Cambio Climático

Dirección General de Espacios Naturales Protegidos

SECRETARÍA GENERAL TÉCNICA

Associated entities

Fundación Doñana 21

Agencia de Medio Ambiente y Agua de Andalucía *

Agencia Pública de Puertos de Andalucía **

*También adscrita a la Consejería de Agricultura, Pesca, Agua y Desarrollo Rural.
**También adscrita a la Consejería de Fomento y Articulación del Territorio.

Information services

- **Web site of Consejería:**
  https://www.juntadeandalucia.es/organismos/sostenibilidadmedioambienteyeconomiaazul.html
- **Web site Environmental of Andalusia:**
  www.juntadeandalucia.es/medioambiente/site/portalweb
- **Citizen helpline: 954 54 44 38**
- **Citizen mailbox:** www.juntadeandalucia.es/medioambiente/buzondelciudadano
- **Rediam Channel:** www.juntadeandalucia.es/medioambiente/rediam

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■ **Almeria**
C/ Canónigo Molina, 8
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■ **Cadiz**
Plaza de Asdrúbal, 6
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11071 Cadiz

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C/ Tomás de Aquino, s/n
Edif. Servicios múltiples,
4ª – 8ª plantas
14004 Cordoba

■ **Granada**
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Edif. Almanjayar
18013 Granada

■ **Huelva**
C/ Sanlúcar de Barrameda, 3
21071 Huelva

■ **Jaen**
C/ Dr. Eduardo García-Triviño
López, 15
23071 Jaen

■ **Malaga**
Avda. de la Aurora, 47
Edif. de Usos Múltiples,
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C/ Hilera, 17
29071 Malaga

■ **Seville**
Avda. de Grecia, s/n
Edif. Administrativo, Los Bermejales
41071 Seville

Information sources:

[1] **Instituto Nacional de Técnica Aeroespacial.**
[2] **Ministerio para la Transición Ecológica y el Reto Demográfico.**
[3] **Instituto de Estadística y Cartografía de Andalucía.**
[4] **Instituto Nacional de Estadística.**
[5] **Consejería de Agricultura, Pesca, Agua y Desarrollo Rural.**

[6] **Ministerio de Sanidad.**
[7] **Asociación de Educación Ambiental y del Consumidor (ADEAC).**
[8] **Agencia Andaluza de la Energía.**
[9] **Consejería de Empleo, Empresa y Trabajo Autónomo.**

The information where the source of the data is not mentioned, corresponds to the Red de Informacion Ambiental de Andalucia (REDIAM) of the Consejería de Sostenibilidad, Medio Ambiente y Economía Azul.

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