

Report on the environment in Andalusia 2020

Basic data



UNIÓN EUROPEA
Fondo Europeo de Desarrollo Regional



Junta de Andalucía
Consejería de Agricultura, Ganadería,
Pesca y Desarrollo Sostenible

Report on the environment in Andalusia 2020. Basic Data

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.

Page	Thematic areas
3	Climate
5	Climate change
7	Soil and land use
9	Water
11	Coast
13	Biodiversity
16	Protected natural areas
18	Forest areas
20	Air quality
21	Circular economy
22	Environmental information
23	Training, participation and environmental awareness
24	Energy
25	Productive sectors
27	Planning and strategic environmental assessment
28	Environmental indicators
30	Normative

The sources of information for this publication come mostly from the agency autonomous community with competence in the environment, Consejería de Agricultura, Ganadería, Pesca y Desarrollo Sostenible. There are other different sources of information, indicated in this document with a number in brackets, [], whose relation appears in the back cover.

Edit

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<http://www.juntadeandalucia.es/medioambiente/imaadb20>

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AVERAGE TEMPERATURES 2020

16.7°C

16.0°C average temperature in the period 1971-2000

AVERAGE RAINFALL 2020

420.9 mm

533.7 mm average rainfall in the period 1971-2000

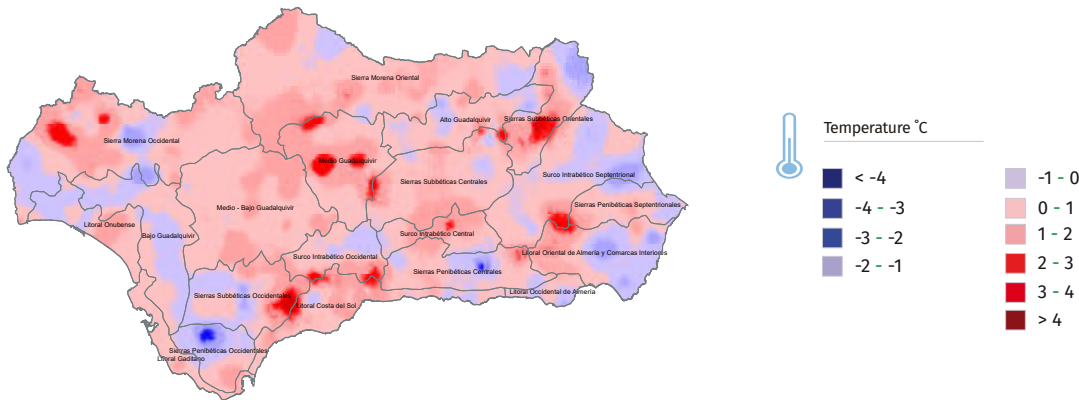
2020 was a very hot and dry year in Andalusia, with every month showing signs of drought. This lack of rainfall furthers the existing risk of desertification, although not to the same extent as in 2019, and has a negative impact on the physiological state of the vegetation.

AVERAGE TEMPERATURES 2020

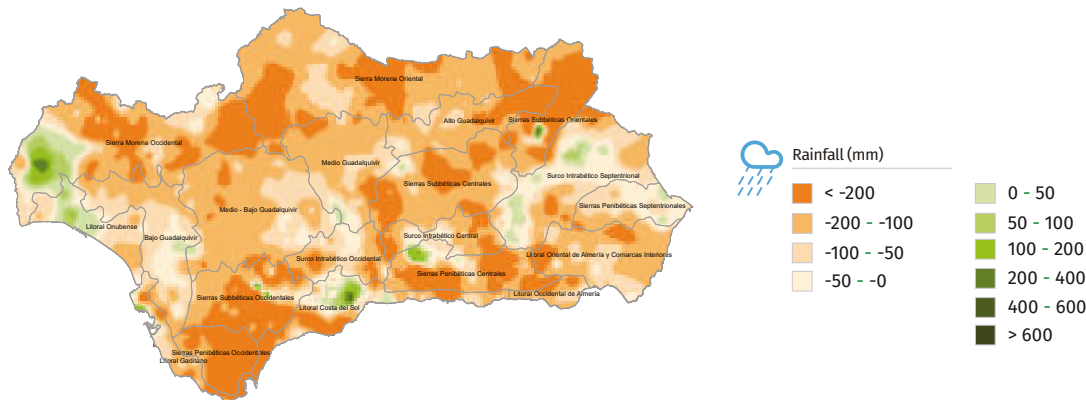
Province	Average temperature
Almeria	16.0
Cadiz	17.7
Cordoba	17.2
Granada	14.1
Huelva	17.7
Jaen	16.1
Malaga	16.9
Seville	18.0
Andalusia	16.7

Degrees Celsius (°C).

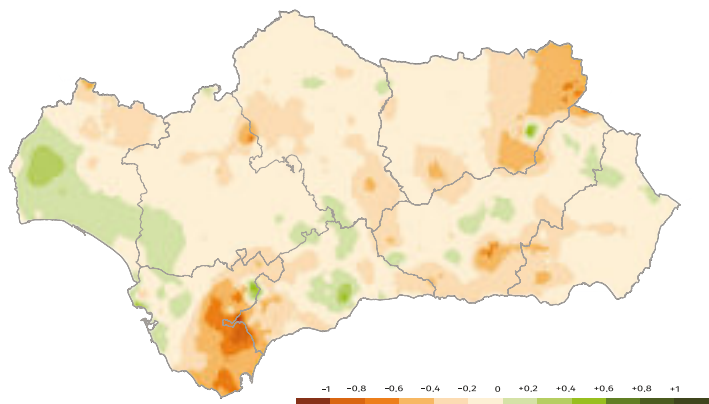
AVERAGE TEMPERATURES DEVIATIONS IN 2020 COMPARED TO THE AVERAGE OF THE PERIOD 1971-2000



TOTAL RAINFALL DEVIATIONS IN 2020 COMPARED TO THE AVERAGE OF THE PERIOD 1971-2000



MOISTURE INDEX DEVIATION IN 2020 COMPARED TO THE AVERAGE OF THE PERIOD 1971-2000



The values of the moisture index deviation range between -1 and 1, with the value -1 indicating the most arid scenario, and 1 the most humid.

MOISTURE INDEX 2020

0.62

0.78 average moisture index in the period 1971-2000

STANDARDIZED INDEX OF RAINFALL DROUGHT 2020

11 months of moderate drought and 1 month (February) with extreme drought.

REGIONAL AREA WITH STRESSED VEGETATION IN THE HYDROLOGICAL YEAR 2019-2020¹

18%

22% average value of the historical series (2002-2020)

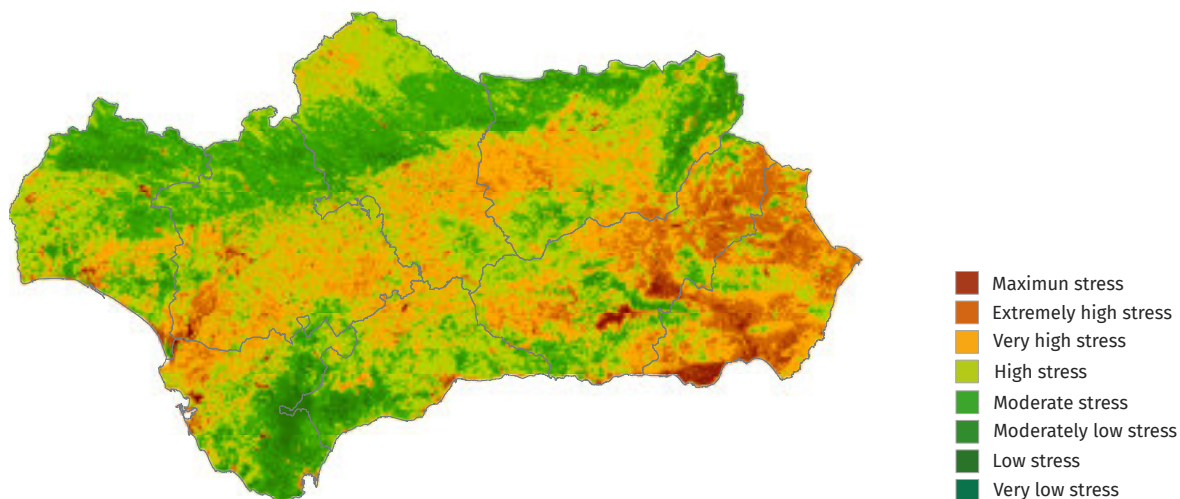
1. Percentage of stressed vegetation from NDVI Terra-Modis images (Global Stress Indicator)

PERCENTAGES OF STRESSED AND UNSTRESSED VEGETATION AND GLOBAL WATER STRESS INDEX. 2002-2020

	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
Stressed vegetation	41	21	42	31	35	17	26	11	9	13	9	18	18	19	19	18	18	18
Unstressed vegetation	59	79	58	69	65	83	75	89	91	87	91	82	82	81	81	82	82	82
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Average (Stressed vegetation)	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
Index expression	0.7	0.3	0.7	0.4	0.5	0.2	0.3	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Stressed vegetation is one that 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 2019-2020



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

Climate change

THERMAL ANOMALIES¹ IN STATIONS REFERENCE 2020

+0.7°C in Cordoba

+1.2°C in Granada

+0.3°C in Jerez de la Frontera

ULTRAVIOLET INDEX 2020 [3]

26.2% days with extreme heat

GREENHOUSE GASES 2019 [1]-[4]

Total emissions **54,416** KtCO₂eq

8.4% less than in 2018

GEI emissions per capita **6.7** tCO₂eq/inhab.

7.8 tCO₂eq/inhab en 2018

Validated emissions submitted to the RCDE
2020: 14.15 millions of tonnes CO₂

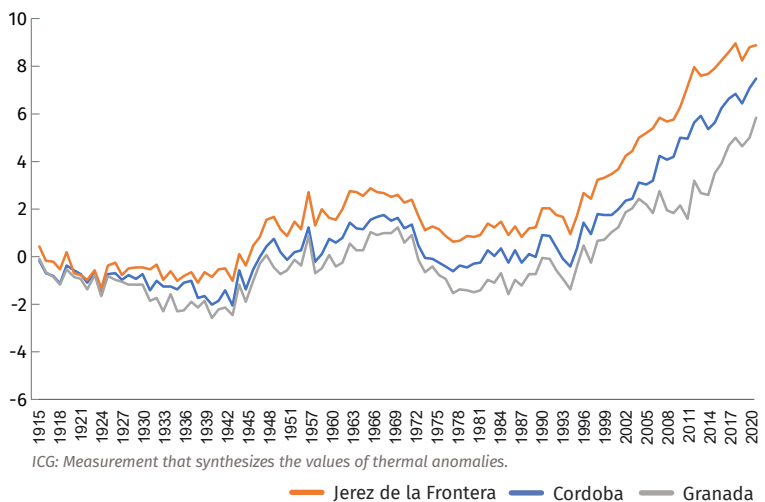
25.9% less than in 2019

1. Temperature differences with the mean of the
1960-1990 reference series in each season.

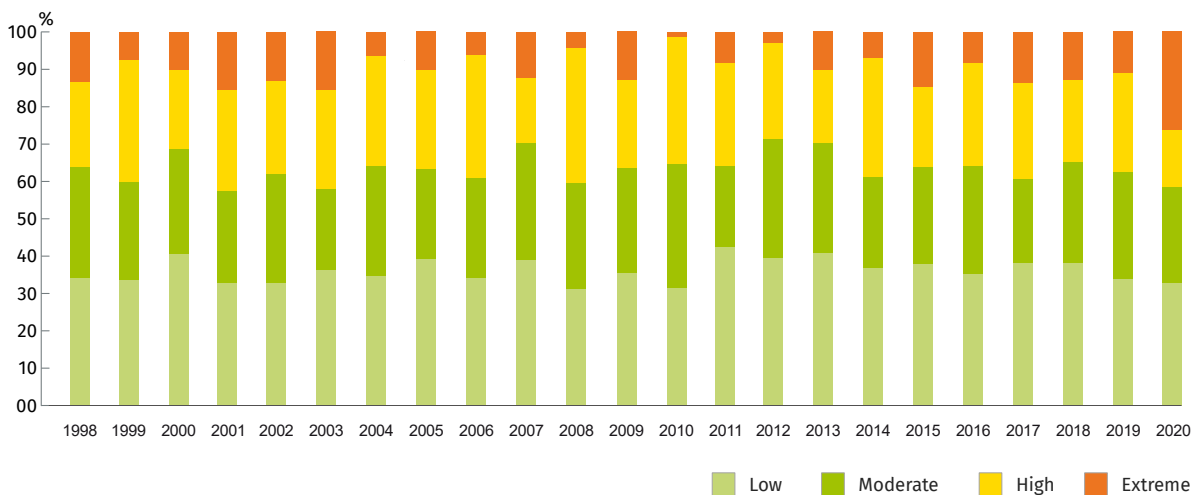
The main variables used for the climate change monitoring study in Andalusia reveal a sustained increase in their values and a generalised trend towards growth in the three reference seasons under analysis.

As for greenhouse gas emissions, the data for 2019 do represent a significant drop with respect to 2018 and the average for the reference period.

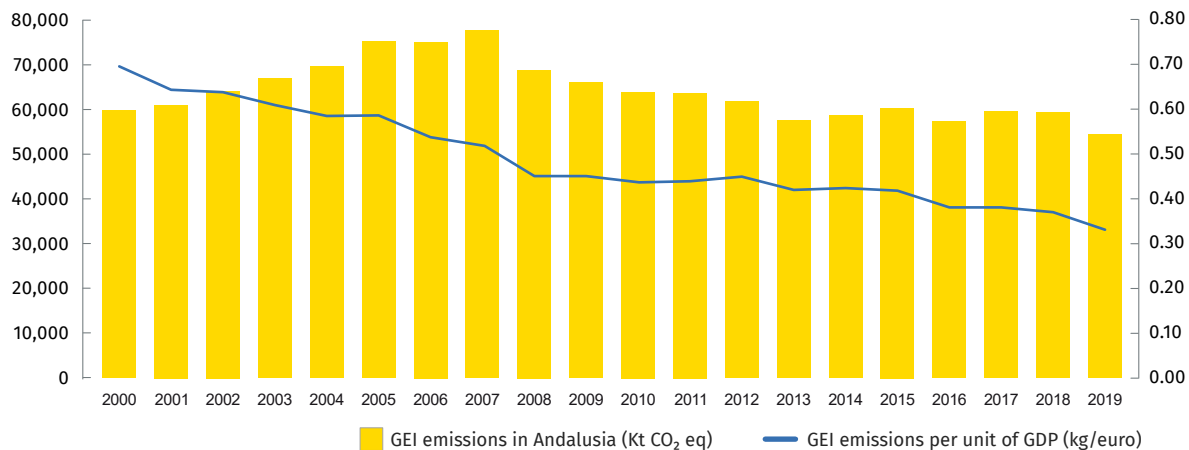
GLOBAL WARMING INDEX IN ANDALUSIAN REFERENCE SITES



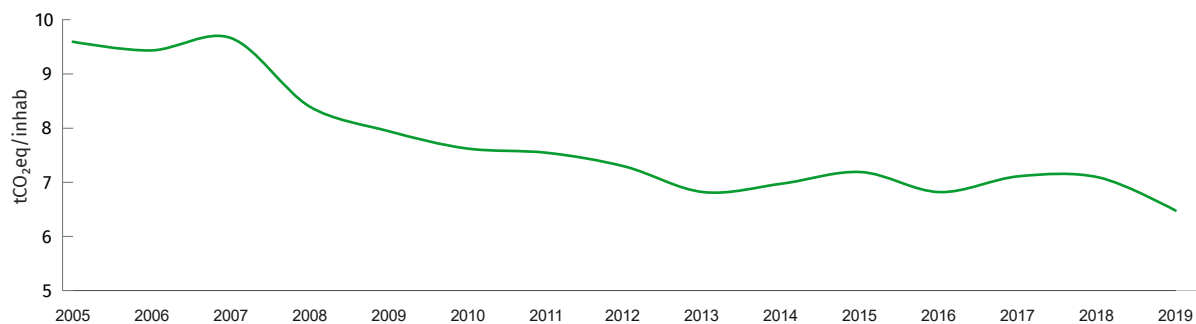
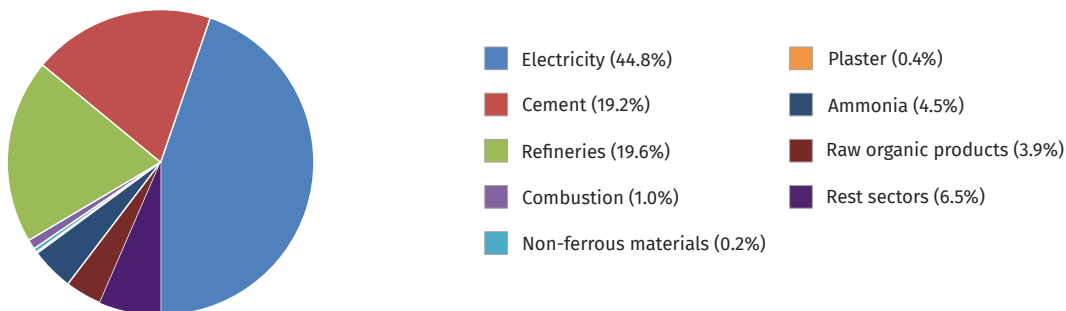
ULTRAVIOLET (UVI). PERCENTAGE OF DAYS BY RANGE [3]



GREENHOUSE GAS EMISSIONS AND ECO-EFFICIENCY [4]-[1]



GREENHOUSE GAS EMISSIONS PER CAPITA [4]-[1]

CONTRIBUTION BY SECTORS TO CO₂ EMISSIONS

Greenhouse gas emissions rights trading scheme.

Soil and land use

PORCENTAGE OF SURFACE SUBMITTED TO HIGH OR VERY LOW SOIL LOSSES HIGHS 2019

6.5%

8.2% average in the period 1992-2018

FOREST AND NATURAL AREAS

4,403.4 miles de ha

AGRICULTURAL AREAS

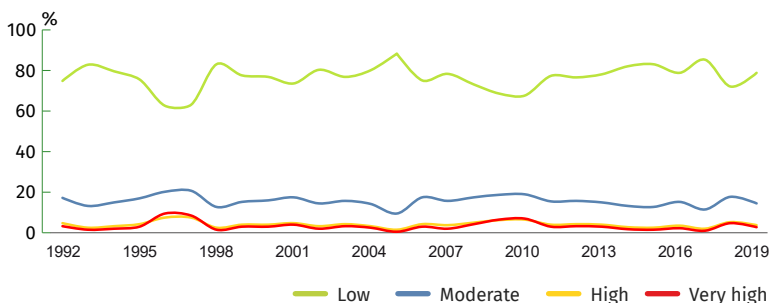
3,621.7 miles de ha

Information extracted from the cartographic base of the project "SIOSE Andalucía" (Information System of Land Use in Spain) update 2016.

The effect of erosion was reduced in 2019, increasing the percentage of areas with low losses and decreasing those with high or very high losses.

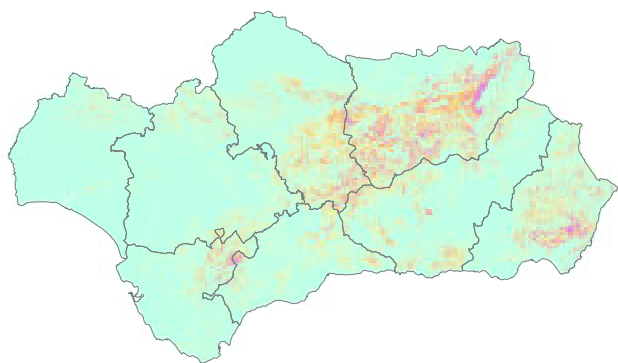
Land occupation shows great stability in recent years, although with a sustained trend in loss of forest areas and growth of the rest, according to the results of the latest update of the SIOSE project carried out in 2020.

PERCENTAGE OF SURFACE IN ANDALUSIA WITH SOIL EROSION



SOIL LOSS 2019

Province	Low	Moderate	High	Very high	Total
Almeria	70.6	19.5	5.4	4.7	100
Cadiz	86.0	10.7	1.9	1.4	100
Cordoba	75.9	16.8	4.7	2.6	100
Granada	80.8	14.5	3.1	1.6	100
Huelva	94.7	4.6	0.5	0.2	100
Jaen	58.8	23.4	9.2	8.6	100
Malaga	80.7	15.7	2.4	1.2	100
Seville	88.7	9.7	1.2	0.4	100
Andalusia	78.9	14.6	3.8	2.7	100



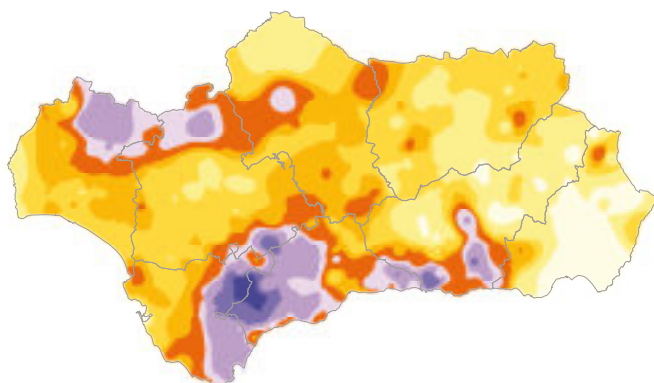
RAINFALL EROSIVITY IN ANDALUSIA 2019

Megajoule per millimeter/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

Erosivity regional average in Andalusia in 2019

972 Mj*mm/ha*hour*year



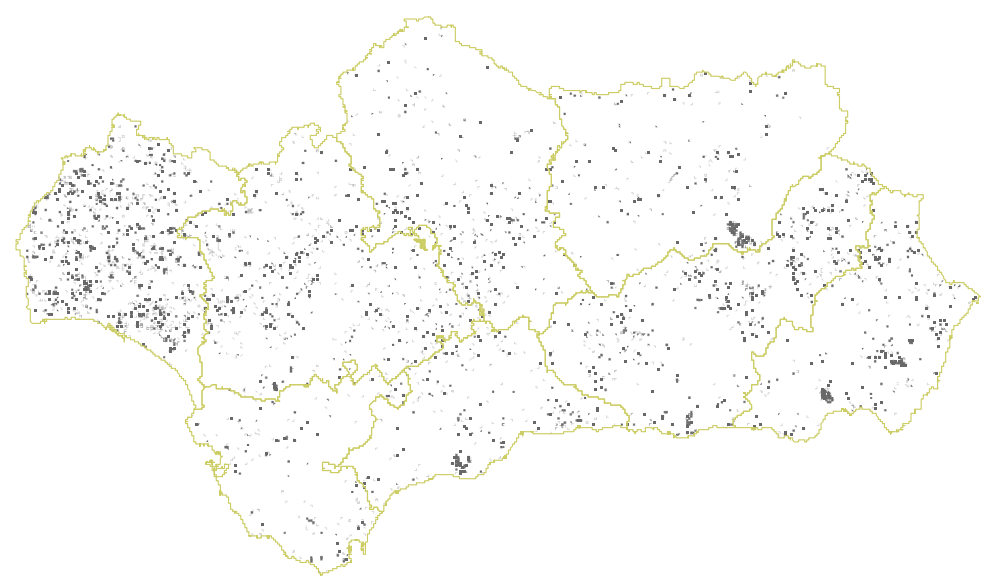
CHANGES IN LAND USES IN ANDALUSIA

	2005	2009	2011	2013	2016
Forest and natural areas	4,555.8	4,399.2	4,385.6	4,418.4	4,403.41
Agricultural areas	3,541.9	3,665.1	3,650.7	3,516.8	3,621.70
Constructed and alterd surfaces	359.2	390.3	409.2	510.5	412.21
Water bodies and wetlands	302.9	305.0	314.1	311.9	319.94

Thousands of hectares.



CHANGES IN LAND COVER BETWEEN 2013 AND 2016



Changes in land cover have been identified in a total de 202,929.08 ha (provisional data).

CHANGES IN THE AREAS OF THE MAIN CLASSES OF LAND COVER BETWEEN THE YEARS 2013 AND 2016 (%)

2013/2016	Agricultural areas	Constructed and altered surfaces	Forest and natural areas	Water bodies and wetlands
Agricultural areas	32.49	1.68	5.09	0.20
Constructed and altered sufaces	0.46	0.46	1.09	0.06
Forest and natural areas	13.21	2.31	42.68	0.14
Water bodies and wetlands	0.03	0.02	0.02	0.06



DAMMED WATER IN BASINS AND RIVER DISTRICTS 2020

4,285.4 hm³

5,515.8 hm³ in 2019

ANALYSIS POINTS WITH GOOD QUALITY SURFACE WATER [6]

89.7%

NUMBER OF SEWAGE TREATMENT FACILITIES BUILT UP TO 2020

725

POPULATION BENEFITING FROM WATER TREATMENT IN 2020

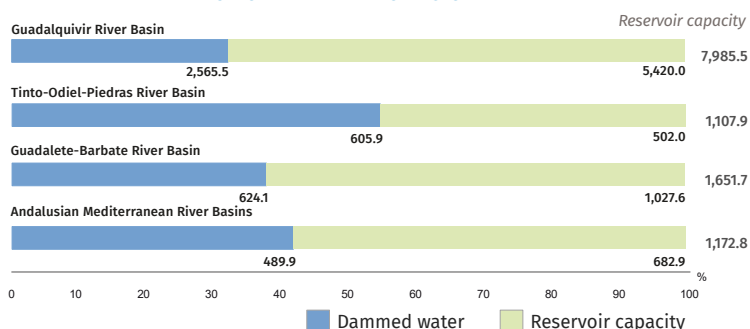
7,510,986 inhabitants

The most relevant aspect of the hydrological situation during 2020 was the continuation of the drought already recorded in 2019, and with it, the reduction of the available resources in all the river basin districts, except in that of the Tinto-Odiel-Piedras.

As regards water quality, in surface waters there is a reduction in the presence of nitrates, one of the most representative pollutants, which leads to a general improvement in the situation with respect to 2019, with groundwater showing a worse score.

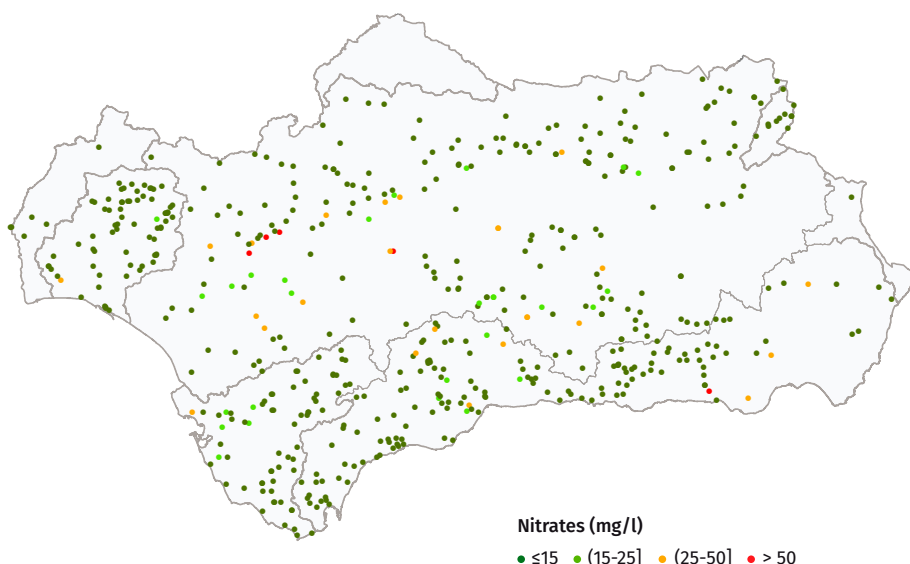
The positive evolution of wastewater treatment continues with the increase in the number of wastewater treatment plants and population served.

DAMMED WATER IN BASINS AND RIVER DISTRICTS

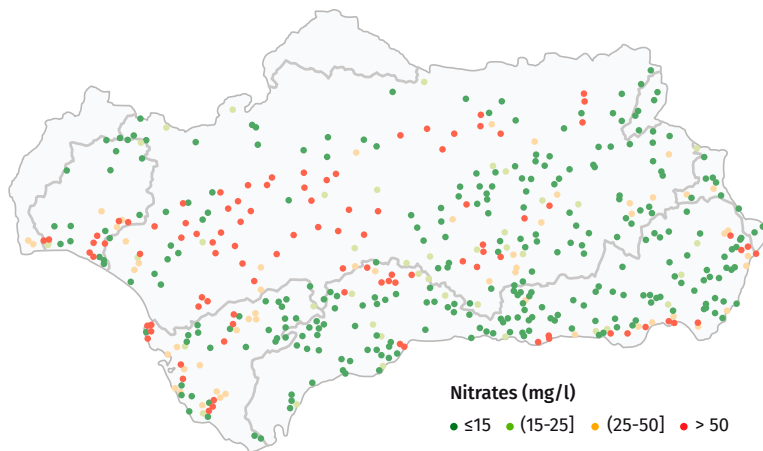


The data correspond to December 2020.

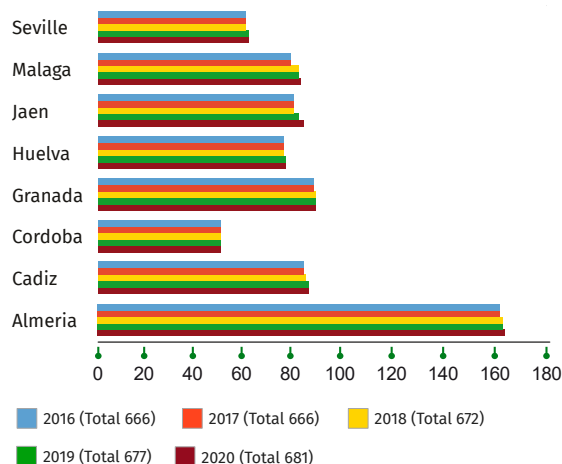
NITRATES IN SURFACE WATERS 2020



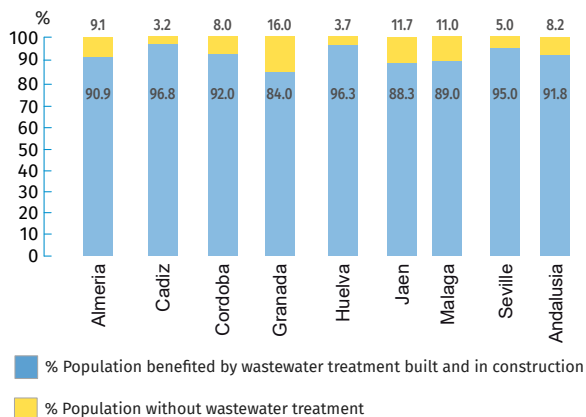
NITRATES IN GROUNDWATER 2020



EVOLUTION OF WASTEWATER TREATMENT PLANTS BUILT SEWAGE WATER

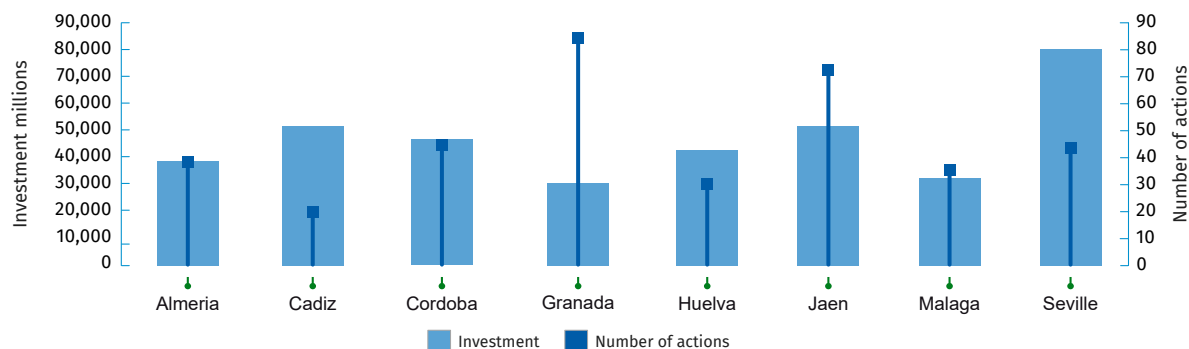


POPULATION BENEFITED BY WASTEWATER TREATMENT 2020



When calculating the population who benefited from wastewater treatment plants, both the wastewater treatment plants that were built and the ones under construction are included. When calculating the population who benefited from the above, the figures for the non-disseminated population provided by the Municipal register of Inhabitants for 2020 was used.

TREATMENT PLANTS WORKS FINISHED OR IN PROGRESS



Investment executed as of December 31, 2019.

Only the administrative files named as "Works" or "Projects and works" has been used for making this graphic.

RECORDS OF GRANTING OF
OCCUPATION OF DPMT

1,249 in 2020

1,206 in 2019

AUTHORIZATION FILES OF USE FOR
ACTIVITIES LOCATED IN DPMT

619 in 2020

1,140 in 2019

AUTHORIZATION FILES OF USE FOR
ACTIVITIES LOCATED IN ZSP

421 in 2020

544 in 2019

QUALITY OF SEA BATHING WATER IN
2020 [6]

98.6% are of excellent quality

BLUE FLAGS AWARDED IN ANDALUSIAN
BEACHES IN 2020 [5]

100

POLLUTANT LOAD DISCHARGED TO THE
COAST 2019320,569.1 PT_{effluent urban}

11,4% less than in 2018

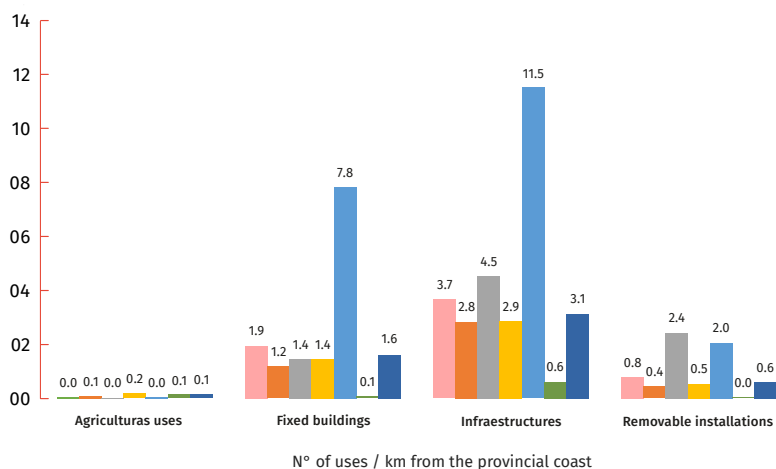
48,411.6 PT_{effluent industrial}

13.8% less than in 2018

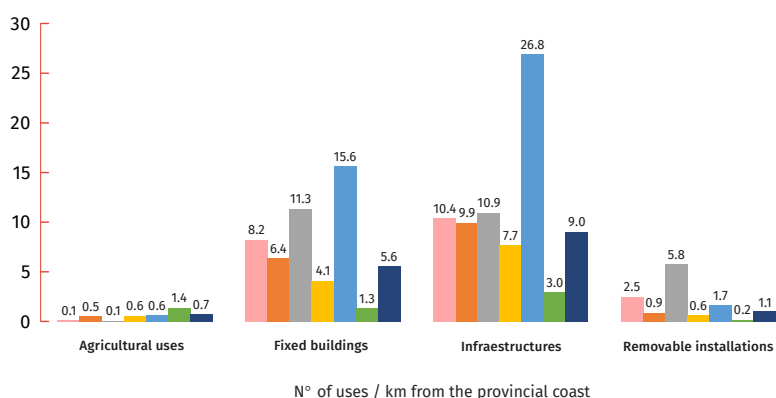
PT: pollution units.

The economic activity associated with the coast suffered a significant drop in 2020, judging by the evolution of the permits for activities in the maritime-terrestrial public domain (DPMT) and in the zone of protection easement (ZSP), predictably caused by the negative effect on tourism brought about by the measures to combat the covid-19 pandemic. However, authorisations related to seasonal beach services remained stable.

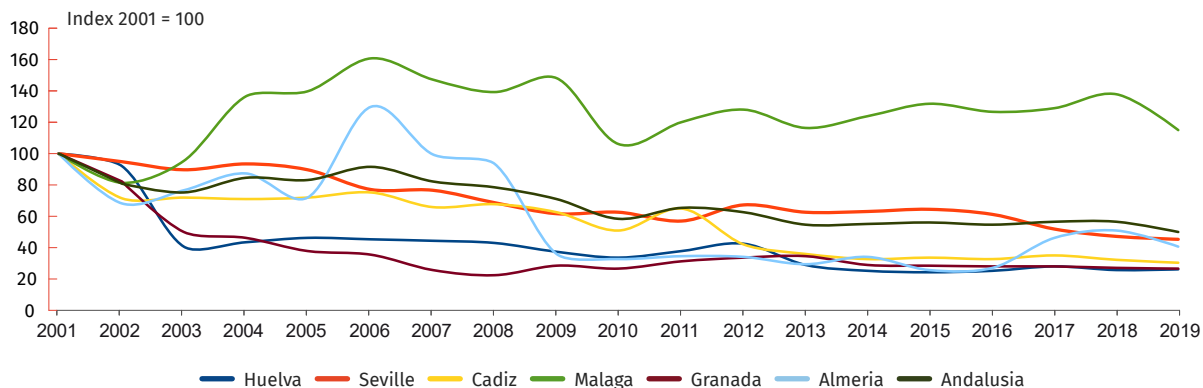
DENSITY OF USES IN DPMT 2020



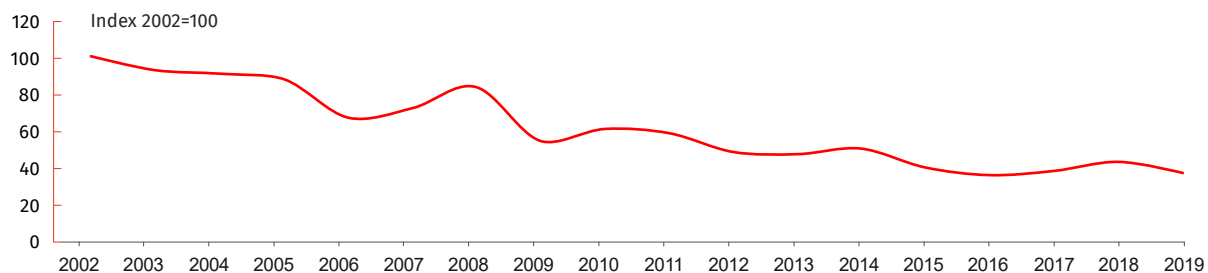
DENSITY OF USES IN ZSP 2020



POLLUTANT LOAD OF URBAN EFFLUENTS TO THE COAST



POLLUTANT LOAD IN INDUSTRIAL DISCHARGES



MARITIME BATHING AREAS 2020 [6]



Number of points per quality score						
	Sampling points registered	Excellent	Good	Adequate	Inadequate	Non-qualified
Almeria	92	91	0	0	0	1
Cadiz	77	76	0	1	0	0
Granada	36	34	1	1	0	0
Huelva	46	46	0	0	0	0
Malaga	96	95	1	0	0	0
Andalusia	347	342	2	2	0	1

BLUE FLAGS AWARDED IN ANDALUSIA IN 2020 [5]

	Beaches	Ports
Almeria	32	1
Cadiz	32	5
Granada	6	1
Huelva	7	6
Malaga	23	5
Total	100	18



CENSUS OF WATER BIRDS IN ANDALUSIA 2020

43,225 Reproductive couples

554,872 Wintering birds

IBERIAN LYNX 2020

506 individuals

ENTRIES IN CREAS

6,896 individuals

CREA: Endangered species recovery center.

The state of the wildlife populations included in the recovery and conservation plans varies according to the species, with growth being observed in some of them, such as birds of prey or lynx, and setbacks in others, such as waterfowl and steppe birds.

The centres for the recovery of endangered species maintain a stable activity. In the conservation of biodiversity in the marine environment, the evolution of *Posidonia oceanica* stands out, with better values in 2020 than in previous years.

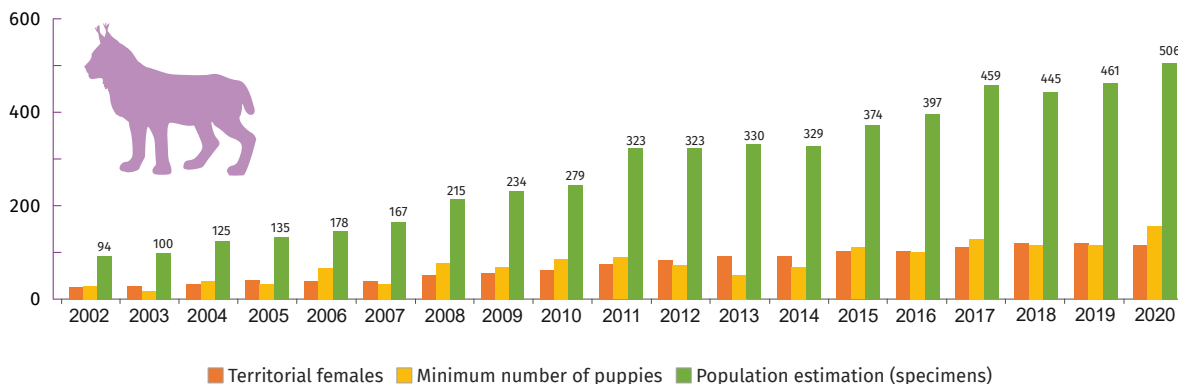
The activity related to the conservation of flora, carried out through the Andalusian Network of Botanical and Mycological Gardens, maintains a growing trend, surpassing the records of 2019, although there has been a drastic halt in dissemination activities.

POPULATION STATUS OF SPECIES INCLUDED IN RECOVERY AND CONSERVATION PLANS 2020

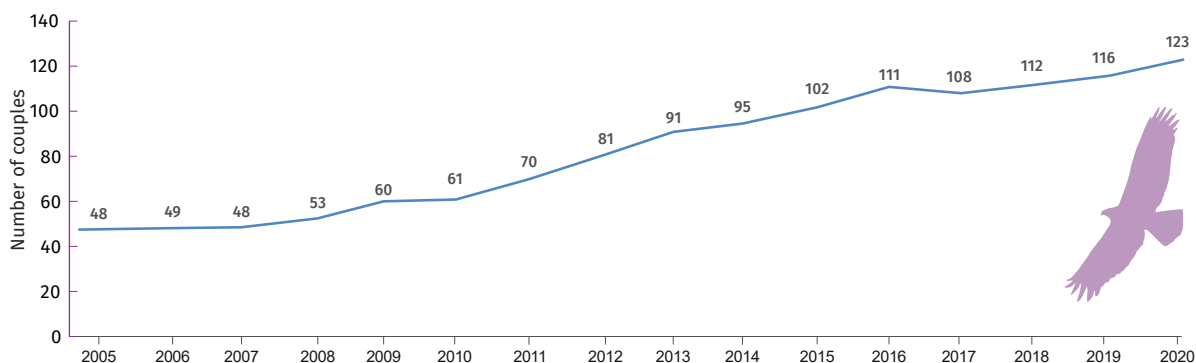
Wintering waterfowl	554,872
Breeding water birds (couples)	43,225
Imperial Eagle (couples)	123
Montagu's Harrier (nest)	554
Great Bustard (specimens)	362
Crabs (populations)	102
Ibis eremita (breeding couples)	19
Lynx (estimated population)	506
Alimoche (couples)	28
Black Vulture (couples)	457
Royal Kite (couples)	25
Bearded Vulture (reintroduce)	4



EVOLUTION OF IBERIAN LYNX BREEDING POPULATIONS



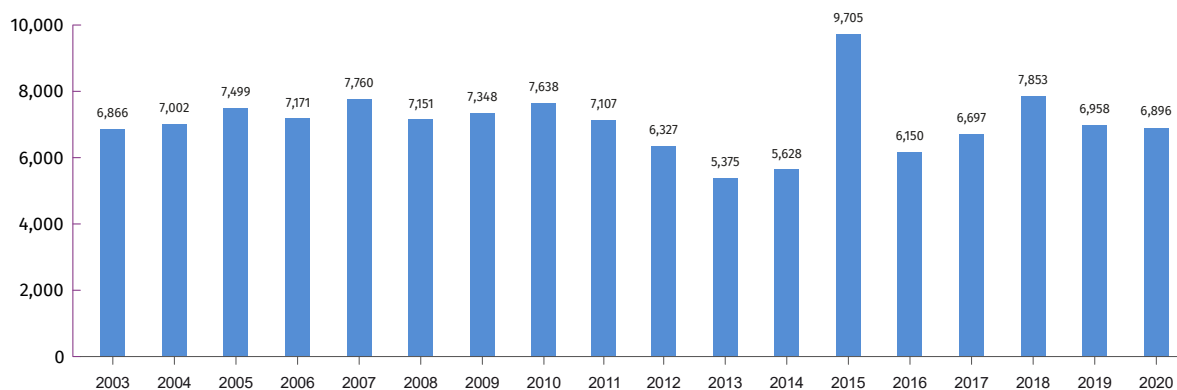
EVOLUTION OF THE IBERIAN IMPERIAL EAGLE



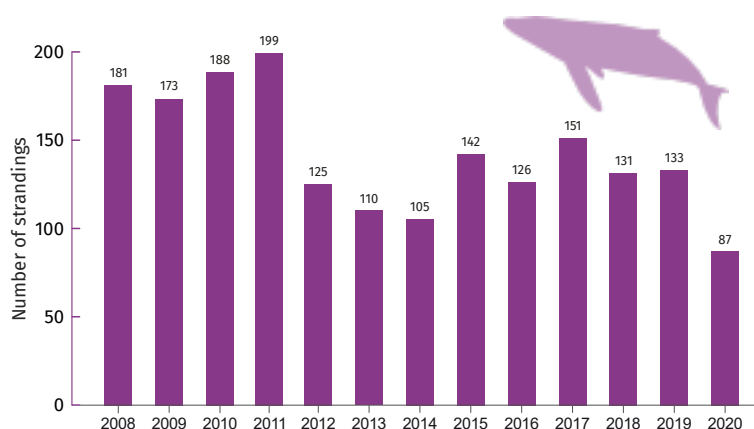
NECROPHAGOUS BIRDS POPULATION



ANIMALS ADMITTED IN THE CREA NETWORK



STRANDING OF CETACEANS IN ANDALUSIA



NETWORK OF BOTANICAL AND MYCOLOGICAL GARDENS 2020

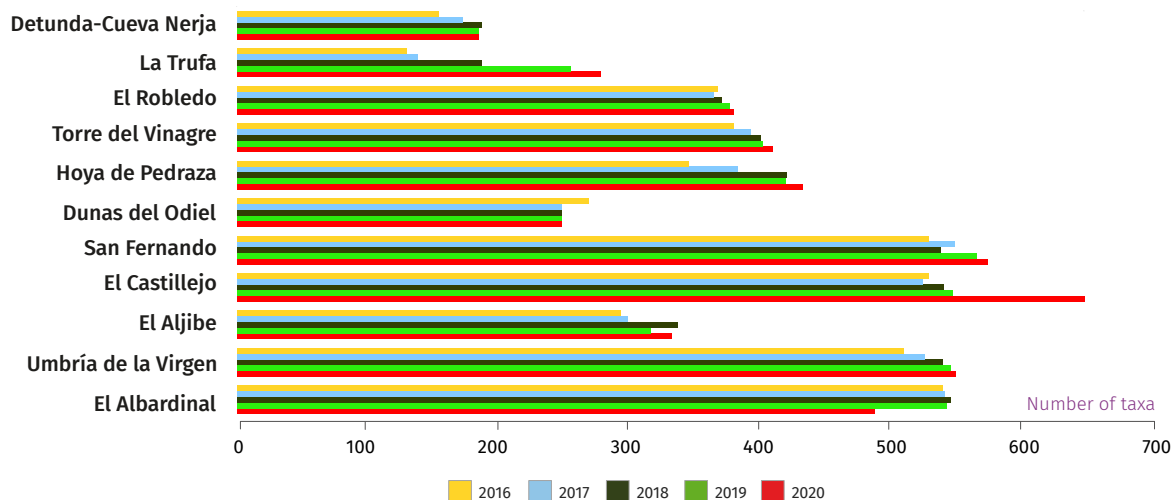
2,196 exhibited taxa

592 endangered flora units located

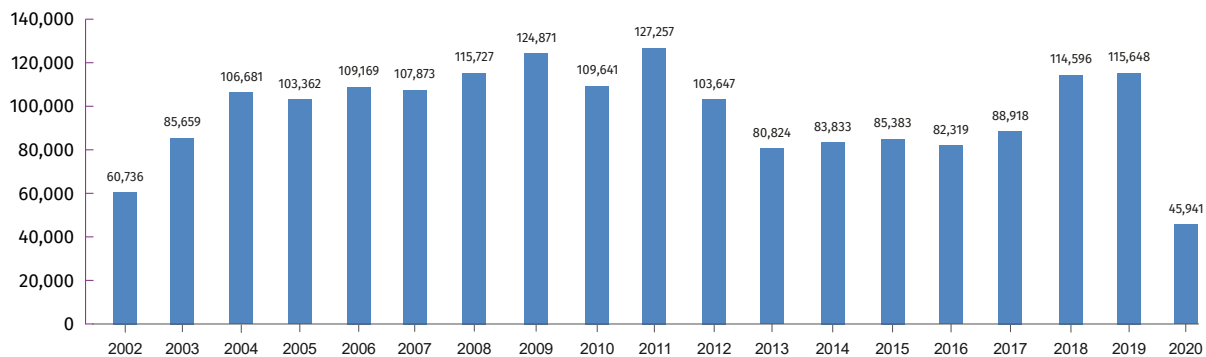
PHYTOTOURISM PROGRAM 2020

45,941 visitors

NUMBER OF FLORA TAXA IN WILDERNESS BOTANICAL GARDENS



PHYTOTOURIST DISSEMINATION PROGRAM. NUMBER OF VISITORS



Natural protected areas

NETWORK OF NATURAL PROTECTED AREAS (RENPA) 2020

2,918,582 ha
2,836,400.24 ha of land surface
82,181.80 ha of marine surface

13 New special areas of conservation (SCA) declared

PUBLIC FACILITIES 2020

1,603 public facilities

456,531 visitors

In 2020, the Network of Natural Protected Area of Andalusia (RENPA) continued to be strengthened, increasing or modifying its protected areas and surfaces, while public use of its facilities was reduced due to the health crisis. The declaration of Sierra de las Nieves as a National Park (Law 9/2021 of 1 July) is worth mentioning. We have continued to deepen our knowledge of the habitats of community interest.

Following the studies, significant changes have been detected in the distribution and surface extension of 29 of these habitats.

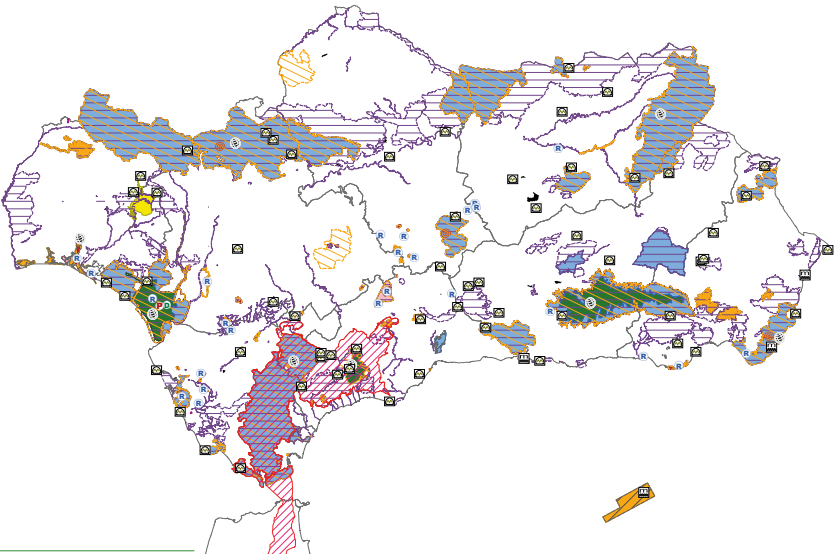
The inventory of wetlands in Andalusia includes 223 spaces and 142,178.9 ha after the incorporation of 13 new ones.

NETWORK OF NATURAL PROTECTED AREAS IN ANDALUSIA 2021

Territorial overlaps are included partials between different spaces, like this as a sea surface. Over a same territory can concur two or more protection figures.

*The surface in these protection figures includes the protection zones where applicable. It includes partial territorial overlaps between different spaces, as well as marine surface.

**Includes the total area of the RBIM (907,185 ha Morocco + Andalusia). In the overlap areas, it is counted only once.



Natura 2000 Network		
SCI	190	2,608,368.4
SCA	176	2,557,771.5
SPA	63	1,665,310.4

Protection figures	Number	Surface (ha)
National park	3	163,113.76
Natural Park	24	1,440,075.5
Protected Landscape	2	19,663.6
Natural site	32	91,446.3
Periurban Park	21	6,020.1
Natural Monument*	59	1,556.4
Natural Reserve*	28	21,806.6
Concerted Nature Reserve	5	804.22

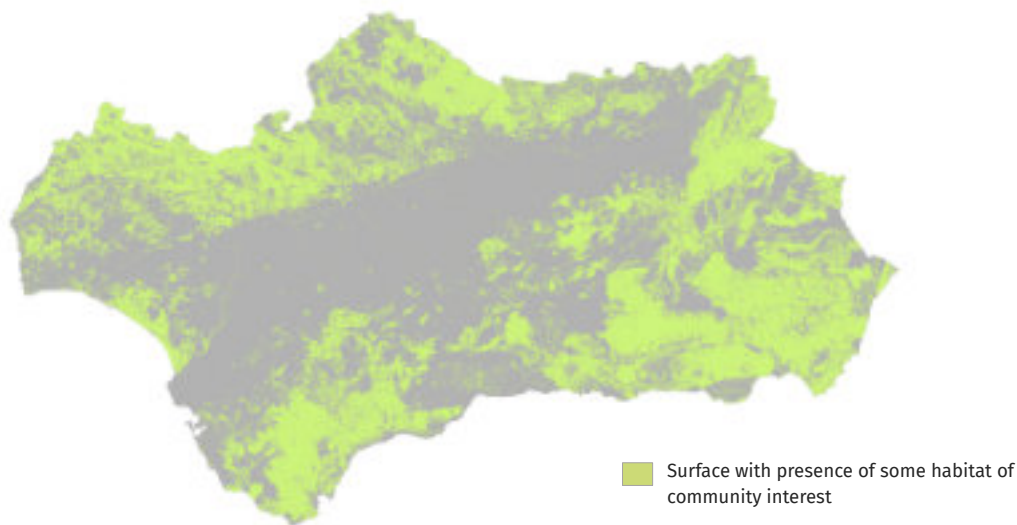
Areas protected by international instruments	Number	Surface (ha)
Biosphere Reserve	9	2,052,102.0 **
World Heritage	1	54,251.7
Geopark	3	259,044.5
RAMSAR wetland	25	143,138.8
Specially Protected Areas of Importance for the Mediterranean Intercontinental	4	84,132
Mediterranean Biosphere Reserve (RBIM)	1	907,185

SITUATION OF THE NATURA 2000 NETWORK IN ANDALUSIA 2020

Figure	Number	Surface(ha)
Sites of Community Importance (SIC)	190	2,608,368.4
Special Protection Areas (SPA)	63	1,665,310.4
Special Areas of Conservation (SCA)	176	2,557,771.5
Total protected areas	198	2,682,899.2

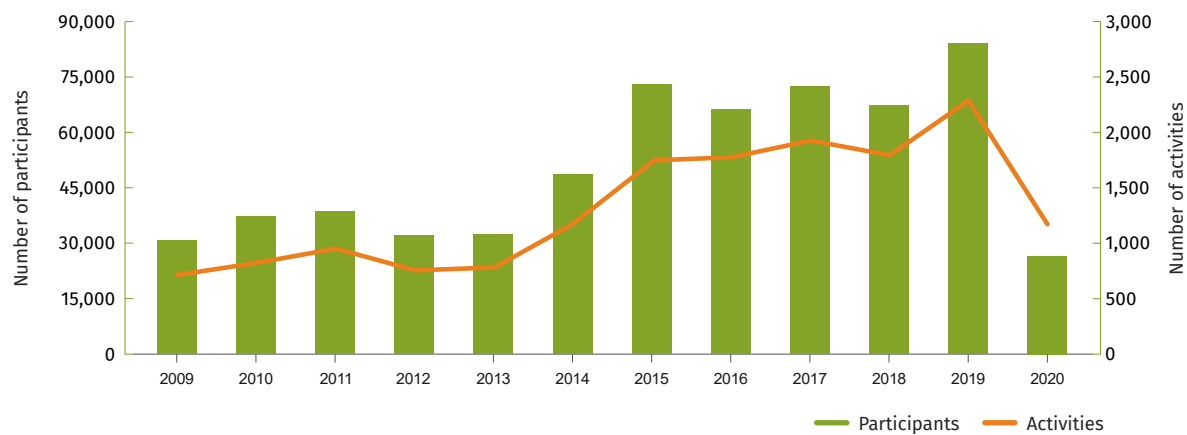


DISTRIBUTION OF HIC IN ANDALUSIA



68 terrestrial HIC distributed in 35,142 km²

PARTICIPATION IN THE PROGRAM OF VISITS TO NATURAL AREAS



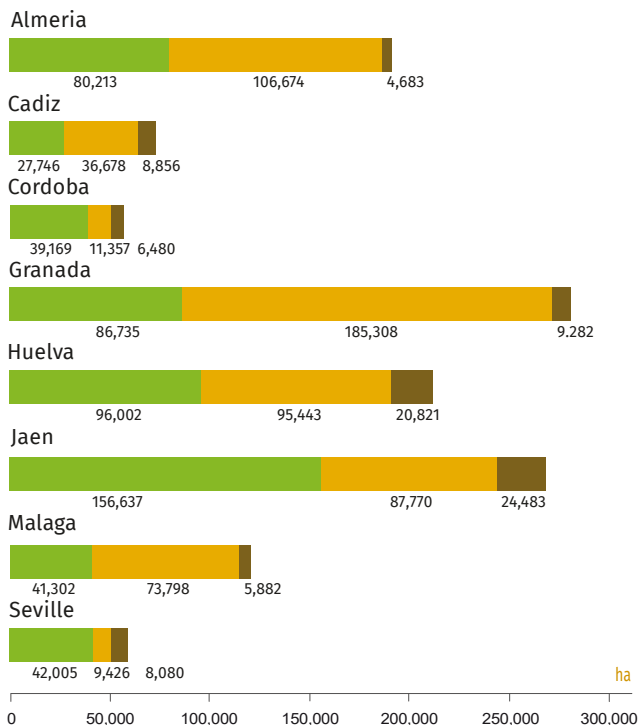
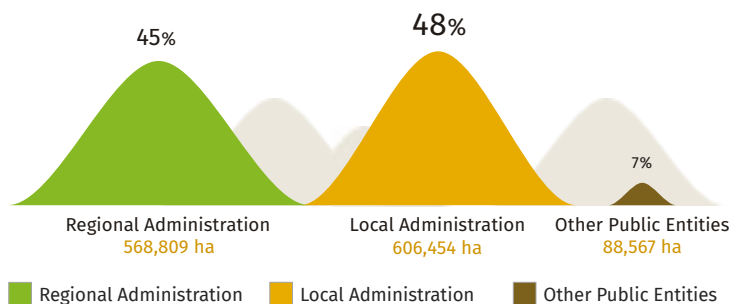
Forest areas

The situation of the forest and natural areas, according to the SIOSE update in 2020 and referring to the year 2016, does not vary appreciably with respect to the evolution in previous years, as corresponds to large formations of territorial significance.

As a positive aspect, the state of the health of the trees stands out, considering the reduction in the percentage of damaged trees. On the negative side, a large fire was declared in Almonaster la Real (Huelva).

A total of 771 claims were recorded, affecting 15,100 hectares.

MOUNTAINS IN ANDALUSIA OF PUBLIC OWNERSHIP 2020



FOREST AND NATURAL SURFACES¹

44,034 km²

50.3% of the regional surface

PUBLIC OWNERSHIP MOUNTAINS 2020

1,433 mountains

1,264,831 ha

DAMAGED TREES IN SAMPLED PLOTS²

2020 [4]

24.8% defoliation in hardwoods

20.9% defoliation in conifers

GAME SPECIES CAPTURED

53,380 Deer

491,157 Red kite

1,125,952 Wild rabbit

¹ Information extracted from the cartographic base of the SIOSE-Andalusia project (System of Land Occupation Information for Spain) updated to 2016.

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

FOREST AND NATURAL SURFACES, SIOSE 2016

Coniferous forest

Eucalyptus forest

Other hardwood forest

Mixed forest

Quercus forest

Combinations of crops and vegetation

Scrub

Shrubland with mixed woodland

Shrubland with pure woodland

Grassland

Grassland with mixed woodland

Grassland with pure woodland

Firebreaks

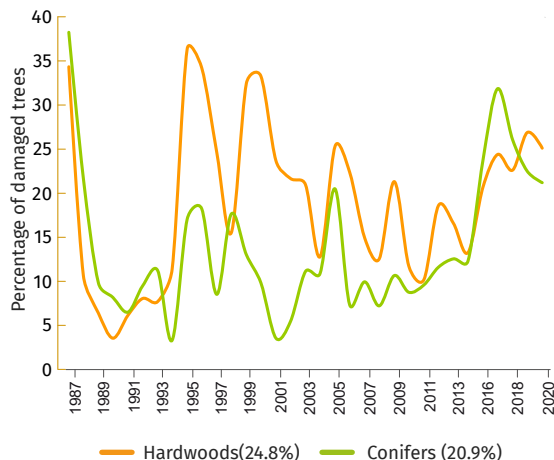
Beaches, dunes, cliffs and sandy areas

Unstructured soil

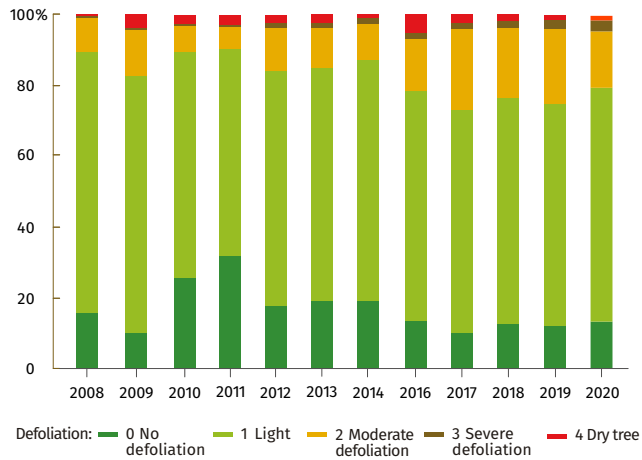
Bare soil



PHYTOSANITARY STATUS OF THE FOREST OF ANDALUSIA. PERCENTAGE OF DAMAGED TREES ACCORDING TO GROUPS OF SPECIES [4]

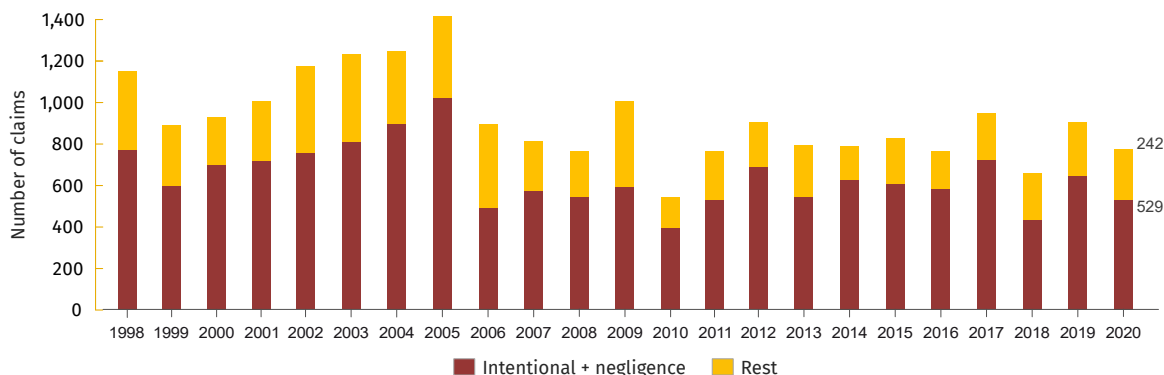


EVOLUTION OF THE PHYTOSANITARY STATE OF ANDALUSIAN FOREST [4]

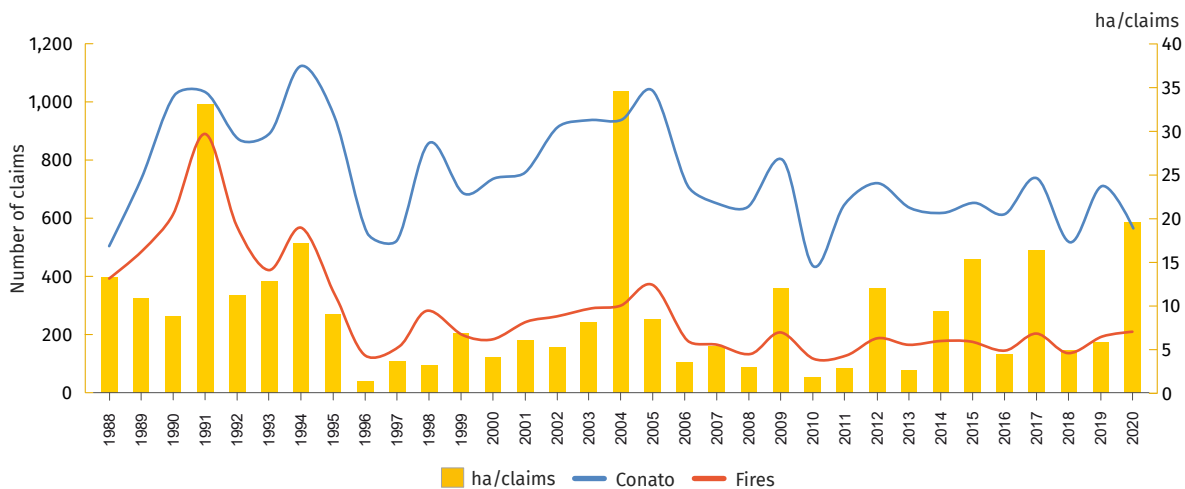


Degrees of defoliation or damage according to European regulations: 0. Trees without damage (defoliation 0-10%); 1. Slightly damaged (11-25%); 2. Moderately damaged (26-60%); 3. Severely damaged (> 60%); 4. Dry or dead tree (100%).

NUMBER OF CLAIMS PER CAUSE



AVERAGE AREA AFFECTED AND NUMBER OF CLAIMS



The air quality situation improved in 2020, as the values of the main pollutants were better than those recorded in 2019, which is predictable given the reduction of activity and mobility caused by the measures implemented against covid-19. However, the main difficulties related to the legal values of nitrogen dioxide in certain urban agglomerations remain, as well as the values of particulate matter in some urban and industrial areas.

Also noteworthy is the high concentration of tropospheric ozone, a characteristic shared with the rest of the regions of southern Europe, which are subject to high solar radiation.

Overall, the situation of emissions of tropospheric ozone precursor gases, as well as acidifying and eutrophying gases, has been assessed negatively.

One noteworthy item of news is the approval in September 2021 of the Andalusian Air Quality Strategy.

AIR QUALITY INDEX

96% Days with admissible situation

AIR QUALITY AND HEALTH

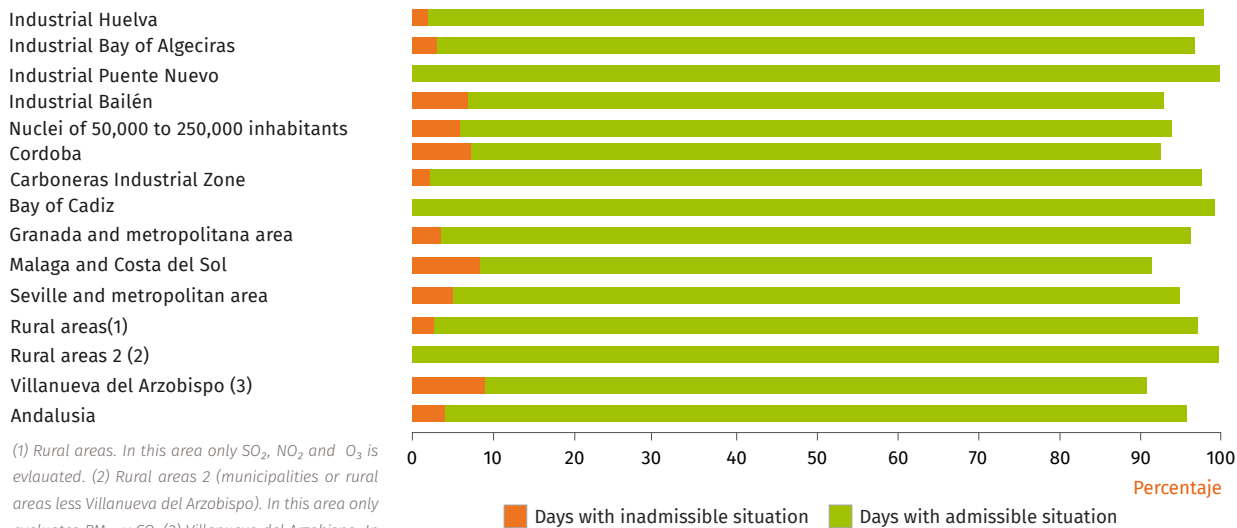
PM₁₀¹ **24 µg/m³**

Average annual ozone concentration index (SOMO 35)² **6,717 µg/m³**

¹ Population-weighted annual average concentration of particulate matter in bottom stations in urban agglomerations. The legal limit is met (40µg/m³); OMS recommendation is exceeded (20µg/m³).

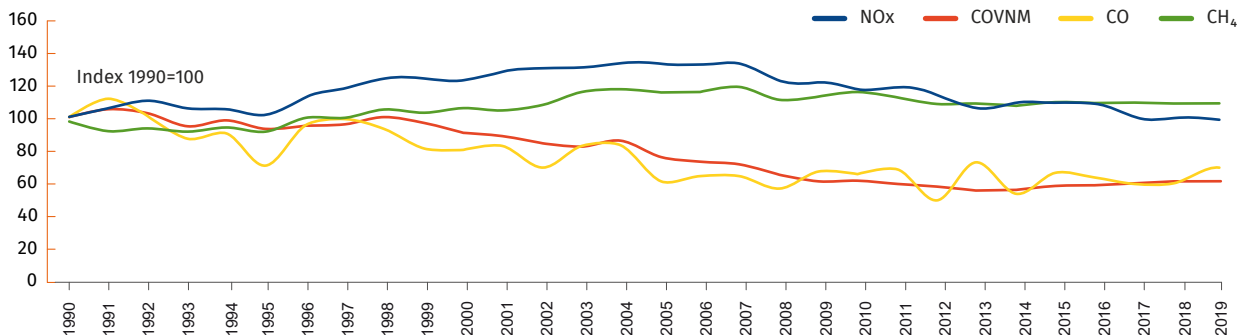
² The OMS defined the mean concentration index annual ozone to assess the exposure of the population to ozone, based on the maximum threshold of concentration – 70 micrograms of ozono per m³ (35 parts per billion) –.

AIR QUALITY INDEX BY ZONE 2020



(1) Rural areas. In this area only SO₂, NO₂ and O₃ is evaluated. (2) Rural areas 2 (municipalities or rural areas less Villanueva del Arzobispo). In this area only evaluates PM₁₀ y CO. (3) Villanueva del Arzobispo. In this zone only PM₁₀ and CO are evaluated.

EMISSIONS OF TROPOSPHERIC OZONE PRECURSOR GASES IN ANDALUSIA [4]



Circular economy

The results for 2019 were ambivalent. On the one hand, they were negative due to the increase in the volume of municipal waste produced, while, on the other hand, there were positive data on treatment, as the recovery and composting plants increase activity, along with selective collection, which increases in the three types: paper-cardboard, light packaging and glass.

Hazardous waste follows a positive trend, as volume is reduced in absolute terms and with respect to GDP, indicating that economic activity needed to produce less waste of this type.

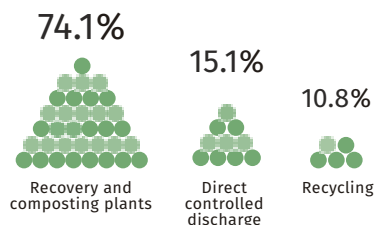
TOTAL MUNICIPAL WASTE WITHDRAWAL IN ANDALUSIA 2019

4,690.5 thousand of tonnes
1.5 kg/inhabitant/day

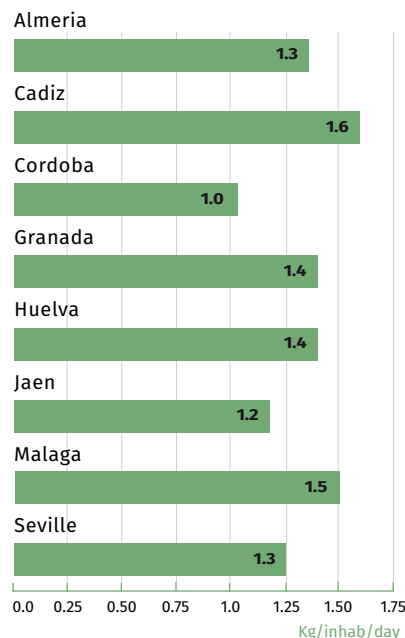
DECLARED GENERATION OF HAZARDOUS WASTE 2019

305.9 thousand of tonnes
8.1% less than in 2018

TREATMENT OF MUNICIPAL WASTE



GENERATION OF MUNICIPAL WASTE 2019



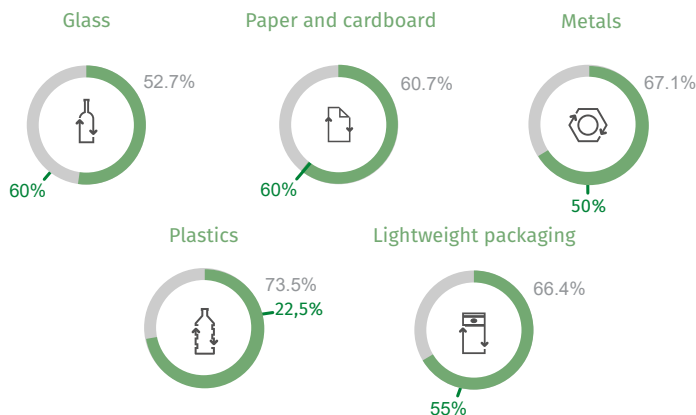
Collection waste is not included separate, only the mixed.

CONTAINERS FOR SEPARATE REMOVAL OF MUNICIPAL WASTE 2019

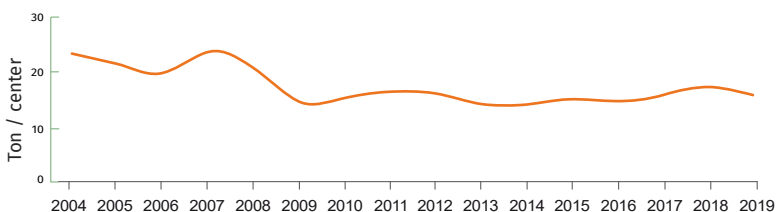


PACKAGING RECYCLING 2019 [9]-[10]

— Law objective



DECLARED GENERATION OF HAZARDOUS WASTE



Environmental information

22

TOTAL UNIQUE USERS 2020

2,085,130 on the environmental web
214,481 in the Rediam channel

REQUEST FOR ENVIRONMENTAL INFORMATION 2020

301 request received and attended

OFFER OF SERVICES IN THE REDIAM CHANNEL 2020

4,443 fact sheets published
2,676 consultation and download services of information
2,212 contents of the download area new or updated

INTEGRATED CARE SERVICE CITIZEN (SIAC) 2020

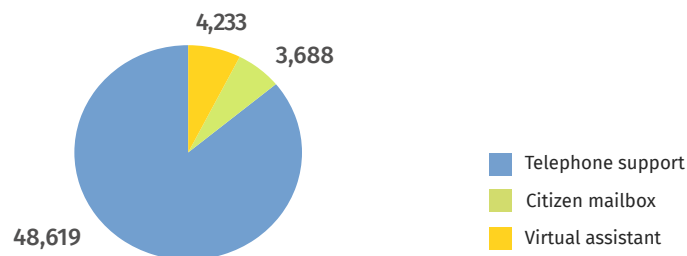
56,540 consultations attended

In 2020 there was a significant increase in visitor traffic to the Andalusia environmental website and the Rediam channel.

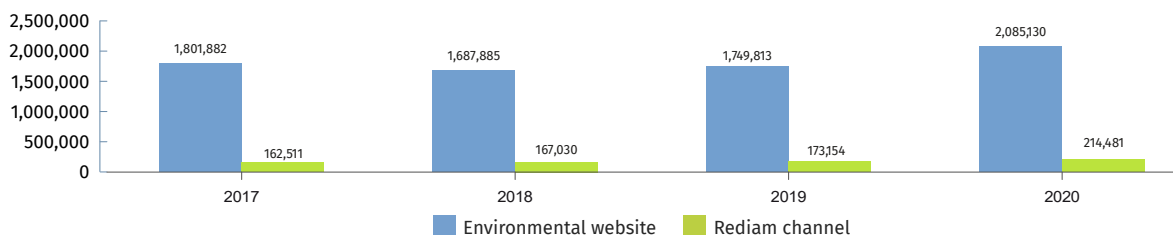
It is worth highlighting the 30% growth in accesses to the e-Administration channel. The offer of digital services has also increased, with initiatives such as the new map viewer of the Rediam Geoportal or the virtual itineraries of the Visitor's Window.

A noteworthy development is the creation of the new Environmental Portal of Andalusia, within the website of the Consejería de Agricultura, Ganadería, Pesca y Desarrollo Sostenible.

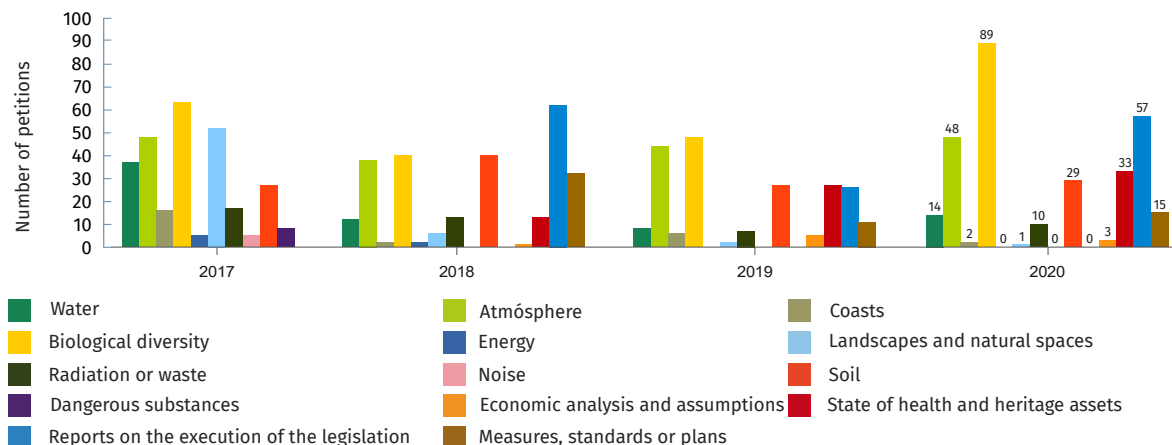
SIAC. CONSULTATIONS ATTENDED 2020



TOTAL UNIQUE USERS OF THE ENVIRONMENTAL WEBSITE AND THE REDIAM CHANNEL



REQUEST FOR ENVIRONMENTAL INFORMATION BY SUBJECT



Training, participation and environmental awareness

Covid-19 and the measures decreed for its control, especially those limiting mobility and group activities, compromised the activity of the environmental administration in terms of training, environmental awareness, participation and environmental volunteering in 2020, including postponement of the Andalusian Environmental Training Plan to 2021.

The most noteworthy volunteer activity was linked to the development of the recovery work on the land affected by the fire in Almonaster la Real (Huelva).

TRAINING CENTER AND FORESTRY EXPERIMENTATION CAZORLA 2020

262 participants

VOCATIONAL TRAINING FOR EMPLOYMENT WITH ENVIRONMENTAL CONTENT 2020 [7]

393 participants

VOLUNTEERING

41 volunteers in the fire from Almonaster la Real (Huelva)

306 in the LIFE Adaptamed project

TRAINING ACTIONS DEVELOPED AT THE CAZORLA TRAINING CENTER



	Students	Women	Men
Regulated training	51	4	47
Non-regulated training	211	78	133
Total	262	82	180

TRAINING ACTIONS UNDER THE VOCATIONAL TRAINING FOR EMPLOYMENT PROGRAM [7]

Name of the training action	N° of actions	Participants
Preparation of biocidal and phytosanitary products	1	1
Surveillance, private security and protection of people	3	45
Surveillance, private security and explosives protection	21	307
Pest control services	4	35
Management of services for the control of harmful organism	1	5
Total	30	393



PRIMARY ENERGY 2019 [8]

Consumption **19,120.7 Ktoe**
19,247.1 Ktoe in 2018

Consumption from sources renewable
3,724.8 ktoe

Renewable energy penetration 19.5%
17.2% in 2018

Degree of self-sufficiency: 19.3%

Consumption per capita:
2.3 toe/inhabitant

FINAL ENERGY 2019 [8]

Consumption **13,565.5 Ktoe**

Renewable consumption: 1,075.9 ktoe

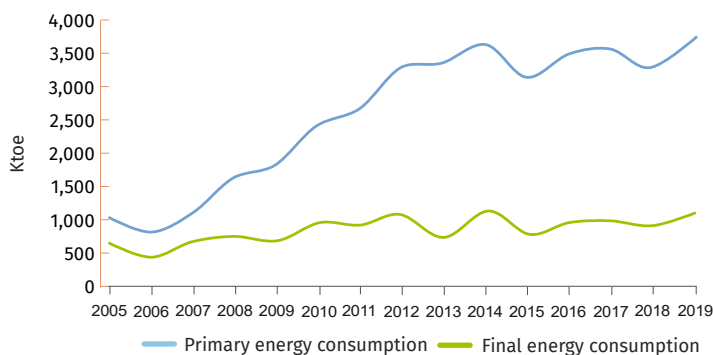
Consumption per capita: 1.6 tep/inhabitants

INSTALLED RENEWABLE ELECTRICAL POWER IN 2020 [8]

8,103.4 MW, 42.98% of the total electrical power

The use of energy in 2019 maintained a similar profile to that of recent years, although with respect to 2018 there was an increase in participation of renewable sources, both in primary and final energy, which leads to an improvement in the degree of self-supply (since Andalusian energy production is basically renewable) and a decrease in emissions in electricity production, although the decrease in the use of coal also has an impact. Also noteworthy is the strong increase in the use of renewable sources in electricity production.

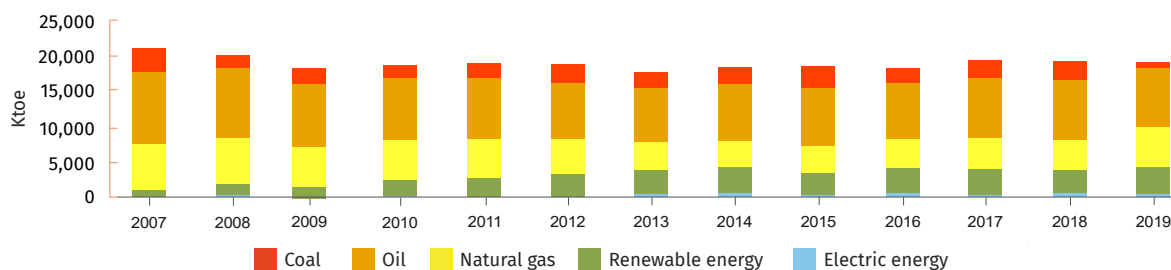
CONSUMPTION OF RENEWABLE ENERGY [8]



Ktoe: One thousand equivalent tons of oil.

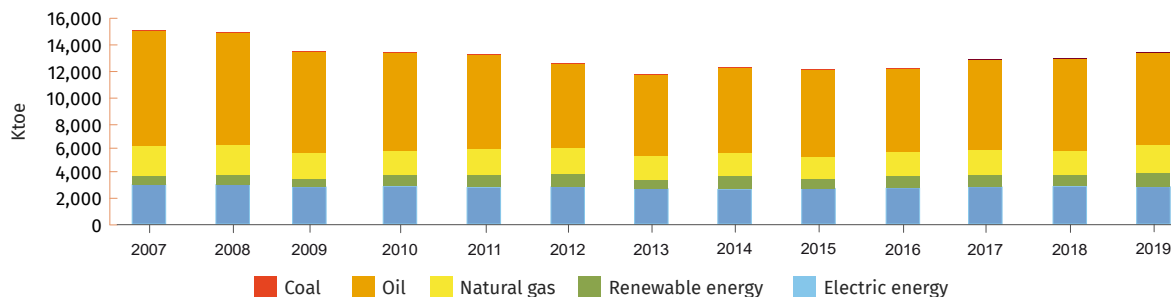
PRIMARY ENERGY CONSUMPTION BY SOURCE [8]

Ktoe: One thousand equivalent tons of oil.



FINAL ENERGY CONSUMPTION BY SOURCE [8]

Ktoe: One thousand equivalent tons of oil.



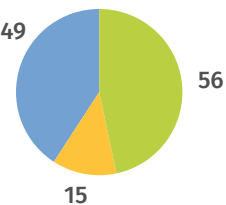
Productive sectors

The situation with regard to economic activity most closely linked to the environment in Andalusia shows two trends. On the one hand, the growth of primary activities, such as integrated and ecological agriculture or aquaculture, as well as the increase in the number of establishments related to the environment, is maintained, and on the other hand, there was an abrupt fall in tourist activity, both in general and in rural and natural destinations, due to the effects on the mobility of travellers caused by the fight against covid-19.

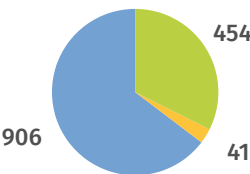
In 2020, a programme of free advice was launched for companies in natural parks to adapt their business model to the environment and certify the quality of their products and services. There are 120 companies who adhere to the Natural Park of Andalusia brand.

BRAND NATURAL PARK OF ANDALUSIA 2020

Number of companies (120)



Number of products or services (1,401)



- Nature tourism
- Handmade product
- Natural product

ANDALUSIA NATURAL PARK BRAND 2020

120 companies
1,401 services

ESTABLISHMENTS DEDICATED TO ENVIRONMENTAL ACTIVITY 2020

49,150

AREA UNDER INTEGRATED FARMING 2020

519,400 ha

AREA UNDER ECOLOGICAL AGRICULTURE 2020

1,098,812 ha

AQUACULTURE 2019

10,105.9 tons
73,064,127.2 euros

INDUSTRY AND ENVIRONMENTAL QUALITY 2020

AAI¹ files: 31
AAU² files processed: 258

¹ Integrated environmental authorizations.
² Unified environmental authorizations.

AESENA 2020 PROGRAM

AESENA

Sustainable Business Advice for Natural Areas in Andalusia

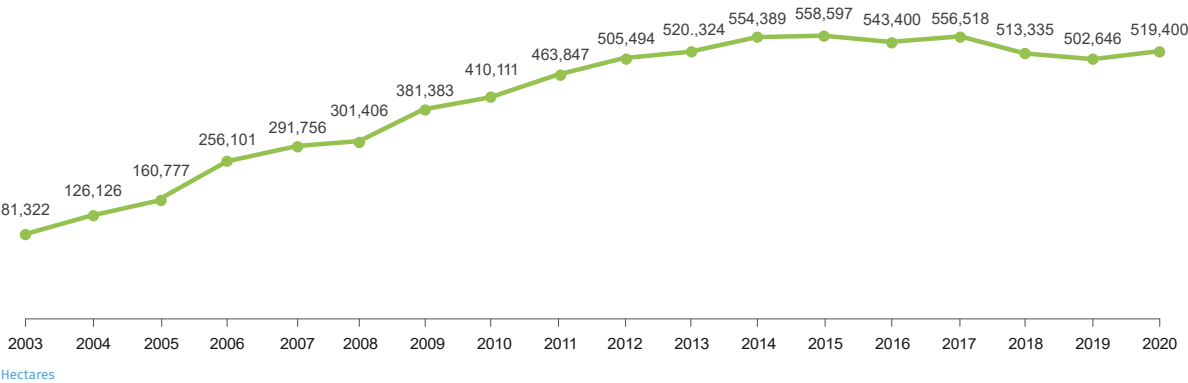
In business model and environmental

53
Companies

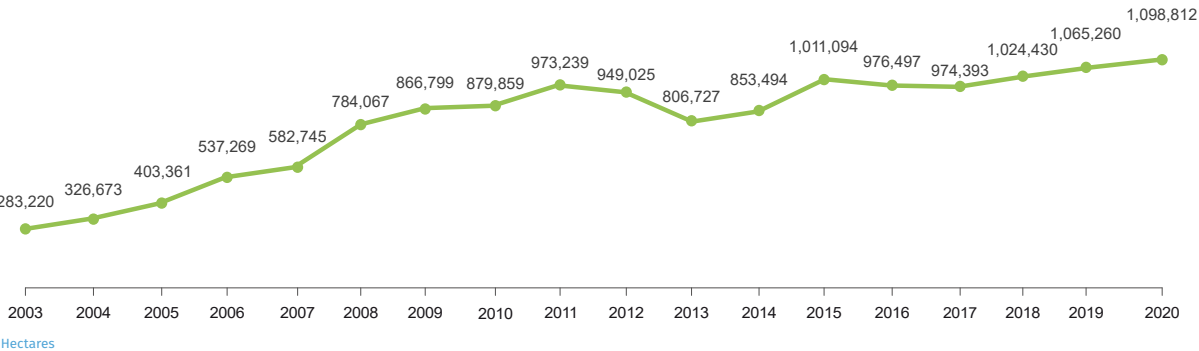
For the implementation of the quality
system natural Park brand

37
Companies

INTEGRATED AGRICULTURE



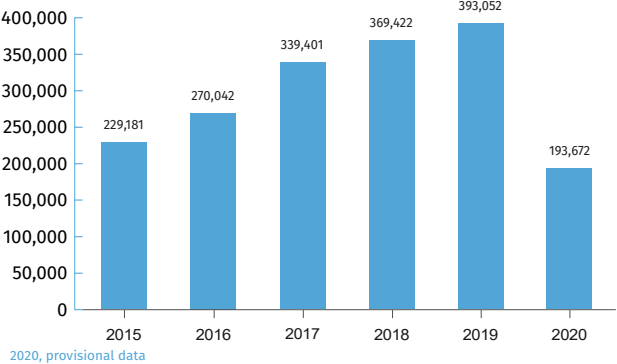
ECOLOGICAL AGRICULTURE



COMPANIES RELATED TO THE ENVIRONMENT
2020

	Establishments
Almeria	6,491
Cadiz	6,091
Cordoba	5,786
Granada	7,501
Huelva	3,609
Jaen	4,276
Malaga	7,904
Seville	7,492
Total	49,150

EVOLUTION OF THE NUMBER OF TRAVELERS IN
RURAL TOURISM ACCOMMODATION [2]

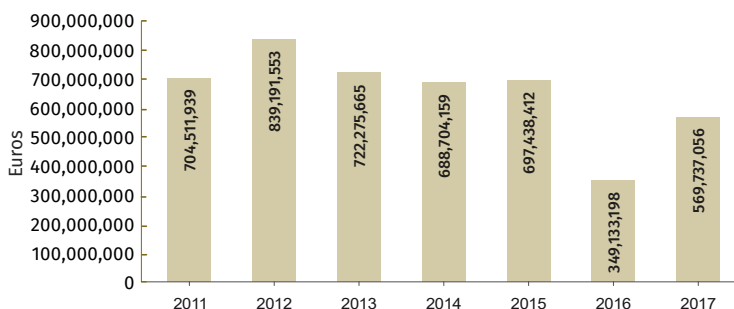


Planning and strategic environmental assessment

Strategic planning is a tool at the service of administrations that allows them to design and implement their actions by using a global and integrating vision of the reality on which they act and that guarantees coherence with other intervention proposals. All this is used to address and solve the problems and needs of civil society or to face the challenges that arise.

Among these strategic planning instruments is the Environmental Plan, promoted by the Regional Ministry with environmental competences with the aim of integrating the main lines of action of the Regional Government of Andalusia in the same document.

INVESTMENT EXECUTED IN THE ENVIRONMENT PLAN HORIZON 2017



ANDALUSIA ENVIRONMENTAL PLAN (PMA)

3 PMA published

FIRST PMA

1997-2002

5 annual monitoring reports

SECOND PMA

2004-2010

8 annual monitoring reports and
1 midterm evaluation

THIRD PMA. HORIZON 2017 *

7 annual monitoring reports and
1 final evaluation

* Currently in force.

Andalusian Environmental Plans

Year	Plan in force	Extended	Monitoring	Evaluation
1997 1998 1999 2000 2001 2002 2003	First plan Environmental Plan 1997-2002		Annual report 1997-1999 Annual report Annual report Annual report Annual report	
2004 2005 2006 2007 2008 2009 2010 2011	Second plan Environmental Plan 2004-2010		Annual report Annual report Annual report Annual report Annual report Annual report Annual report	Midterm evaluation
2012 2013 2014 2015 2016 2017 2018 2019 2020	Third plan Environmental Plan Horizon 2017		Annual report Annual report Annual report Annual report Annual report Annual report Annual report	Final evaluation

In 2021, the processing of the new Andalusia 2030 Environmental Plan began.

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 Information Network of Andalusia, which was also published in the 2020 Andalusia Environment Report.

Topic	Evolution	Status	Trend	Indicator
Climate	●	●	●	Standardized rainfall drought index
	●	●	●	Moisture Index
	●	●	●	Vegetation global water stress
	●	●	●	Average, maximum and accumulated
Climate change	●	●	●	Thermal anomalies and global warming
	●	●	●	Ozone layer thickness
	●	●	●	Ultraviolet index (UVI)
	●	●	●	Emissions of greenhouse gases
	●	●	●	Emission rights trading regime (RCDE)
Soil and land use	●	●	●	Erosivity of rain and soil losses
	●	●	●	Evolution of land occupation
Water	●	●	●	Water resources available
	●	●	●	Surface water quality
	●	●	●	Groundwater quality
	●	●	●	Sanitation and wastewater treatment

i 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 **status** refers 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 following symbols:

- Positive / Good result / Favourable
- Intermediate / Acceptable result / Stabilized
- Negative / Bad result / Unfavorable
- In all cases, undetermined assesment

Topic	Evolution	Status	Trend	Indicator
Coast	●	●	●	Occupancy licenses in Maritime Public Domain
	●	●	●	Autorizations for use or occupation in Maritime Public Domain
	●	●	●	Autorizations for use in the Zone of protection easement (ZSP)
	●	●	●	Polluting load of urban effluents dumped on the Andalusian coast
	●	●	●	Industrial discharges to the coast
	●	●	●	Sanitary qualification of coastal bathing waters in Andalusia
Biodiversity	●	●	●	Fauna registered
	●	●	●	Conservation of necrophagus birds
	●	●	●	Income of animals in the endangered species recovery center
	●	●	●	Inclusion of wild flora in botanical gardens
Protected natural areas	●	●	●	Protected surface (RENPA)
	●	●	●	Facilities for public use and citizen participation in the RENPA
Forest areas	●	●	●	Phytosanitary status of forest stands
	●	●	●	Forest fires
	●	●	●	Investments in forestry actions
Air quality	●	●	●	Assesment of air quality levels
	●	●	●	Air quality index by zones
	●	●	●	Annual mean concentration index of particles less than 10 microns
	●	●	●	Average annual ozone concentration index
	●	●	●	Emissions of tropospheric ozone precursor gases
	●	●	●	Acidifying and eutrophying gas emissions
Circular economy	●	●	●	Generation of municipal waste in cities
	●	●	●	Selective collection of municipal waste in cities
	●	●	●	Selective collection and recycling
	●	●	●	Production of hazardous waste
Environmental information	●	●	●	Active dissemination of environmental information
	●	●	●	Access to environmental information
Energy	●	●	●	Primary energy consumption
	●	●	●	Final energy consumption
	●	●	●	Renewable energy penetration rate
Productive sectors	●	●	●	Evolution of the area under integrated agriculture
	●	●	●	Evolution of the area under ecological agriculture
	●	●	●	Integrated management of environmental quality

Main environmental regulations in Andalusia

ESTRUCTURE AND ORGANIZATION

President's Decree 2/2019 of 21 January on the restructuring of the Ministry (amended by President's Decree 6/2019).

Decree 103/2019 of 12 February establishing the organic structure of the Ministry of Agriculture, Livestock, Fisheries and Sustainable Development.

WATER AND COASTAL AREAS

Law 9/2010, of July 30th, on waters of Andalusia.

Decree 14/2005 of January 18th 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 20th, which determines the territorial limits of the intercommunity river basins in Andalusia.

Decree 66/2011 of March 29th, on the transfer of means and services by the Spanish national government to the Andalusian regional government regarding coastal area planning and management.

Decree 1019/2015 of 17 March, approving the regulations on discharges into the hydraulic public domain and the maritime-terrestrial public domain of Andalusia.

Decree 477/2015 of 17 November regulating the collegiate bodies for administrative and social participation of the andalusian water administration.

Agreement of 26 October 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 18th, approving the inventory of Protected Natural Areas of Andalusia and establishes additional protecting measures.

Law 2/1995 of June 1st, modifying the Law 2/1989 of July 18th, approving the inventory of protected natural areas of Andalusia and establishing additional protecting measures.

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

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

Law 8/2003 of October 28th, on wild flora and fauna.

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

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

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

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

Decree 98/2004 of March 9th, creating the inventory of wetlands of Andalusia and the andalusian committee on wetlands.

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

FOREST MANAGEMENT

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

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

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

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

Decree 232/2007 of July 31st, approving the Andalusian Hunting Plan.

Decree 371/ 2010 of September 14th approving the Andalusian Forest Fire Emergency Plan and modifies the Forest Fire Prevention and Firefighting Regulations approved by the Decree 247/2001

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

Decree 172/2017 of 24 October, which approves the master Plan for the pastures of Andalusia, creates the Monitoring Committee of same and modifies Decree 57/2011, of 15 march, which regulated the composition, functions and regulations of the Biodiversity Council of Andalusia.

ENVIRONMENTAL QUALITY AND PREVENTION

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

Law 3/2015, of 29 December on measures for integrated management of environmental Quality, water, taxes and animal health.

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

Law 1/2020 of 13 July, on improving the thermal and environmental conditions of edu-

cation centres in Andalusia by means of bioclimatic techniques and the use of renewable energies.

Decree 6/2012 of January 17th, which approving the regulation on protection against noise pollution in Andalusia.

Decree 7/2012 of January 17th, approving the plan for the prevention and management of hazardous waste in Andalusia 2012-2020.

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

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

Agreement of 19 March 2019, of the Governing Council, approving the formulation of the integral waste plan of Andalusia. Towards a circular economy in the Horizon 2030 (PI-Rec 2030).

Agreement of 22 September 2020, of the Governing Council, approving the Andalusian air quality strategy.

ENVIRONMENTAL INFORMATION

Law 3/2013 of 24 July, approving the statistical and cartographic plan of Andalusia 2013-2017 (amended by Law 6/2017 of 27 December, extending the validity of the plan until 2020).

Law 1/2014, of June 24, on public transparency of Andalusia.

Decree 347/2011 of November 22nd approving the structure and functioning of the Andalusian environmental information network and the access to environmental information.

Directory and information sources

Territorial offices (Desarrollo Sostenible)

■ Almería

C/Canónigo Molina, 8
04004 Almería

■ Cádiz

Plaza de Asdrúbal, 6
Edif. de la Junta de Andalucía
11071 Cádiz

■ Córdoba

C/Tomás de Aquino, s/n
Edif. Servicios Múltiples,
4ª – 8ª planta
14071 Córdoba

■ Granada

C/Joaquina Egúaraz, 2
Edif. Almanjazar
18071 Granada

■ Huelva

C/Sanlúcar de Barrameda, 3
C/Emires, 2, A
21071 Huelva

■ Jaén

C/Dr. Eduardo García-Triviño
López, 15
23071 Jaén

■ Málaga

Avda. de la Aurora, 47
Edif. de Usos Múltiples,
5ª y 6ª plantas.

C/ Mauricio Moro Pareto, 2.
Bloque sur, 3ª planta.
29071 Málaga

■ Seville

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

CONSEJERÍA DE AGRICULTURA, GANADERÍA, PESCA Y DESARROLLO SOSTENIBLE

C/ Tabladilla, S/N. Avda. Manuel Siurot, 50, 41071 Sevilla.

GABINETE DE LA CONSEJERA

VICECONSEJERÍA

Secretaría General Técnica

Dirección General de Pesca y Acuicultura

SECRETARÍA GENERAL DE AGRICULTURA, GANADERÍA Y ALIMENTACIÓN

SECRETARÍA GENERAL DE FONDOS EUROPEOS AL DESARROLLO RURAL SOSTENIBLE

SECRETARÍA GENERAL DE MEDIO AMBIENTE, AGUA Y CAMBIO CLIMÁTICO

Associated entities

Agencia de Gestión Agraria y Pesquera de Andalucía

Instituto Andaluz de Investigación y Formación Agraria, Pesquera, Alimentaria y de Producción Ecológica

Agencia de Medio Ambiente y Agua

Fundación para el Desarrollo Sostenible de Doñana y su Entorno

Fundación Centro de Nuevas Tecnologías del Agua

Information services

- Web Site of Consejería de Agricultura, Ganadería, Pesca y Desarrollo Sostenible (CAGPDS):
juntadeandalucia.es/organismos/agriculturaganaderiapescaydesarrollosostenible

- Web Site of Medio Ambiente, Agua y Cambio Climático dentro de la CAGPDS:
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

Information sources

[1] Instituto Nacional de Estadística.

[2] Instituto de Estadística y Cartografía de Andalucía.

[3] Instituto Nacional de Técnica Aeroespacial.

[4] Ministerio para la Transición Ecológica y el Reto Demográfico.

[5] Asociación de Educación Ambiental y del Consumidor (ADEAC).

[6] Consejería de Salud y Familias.

[7] Consejería de Empleo, Formación y Trabajo Autónomo.

[8] Agencia Andaluza de la Energía.

[9] Ecovidrio.

[10] Ecoembes.

The information where the source of the data is not mentioned, corresponds to the Red de Información Ambiental de Andalucía (Rediam) de la Consejería de Agricultura, Ganadería, Pesca y Desarrollo Sostenible.