



EU POLLINATORS INITIATIVE

A review of Member States actions to tackle the decline of wild pollinators

SPAIN



STRATEGY



Draft



INITIATIVES



Rural



Urban



Private sector



NATIONAL RED LISTS

Threatened species



Available for **some** bumblebees, butterflies and moths (2011)



RAISING AWARENESS



Citizens



Schools children



Farmers & beekeepers

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There is no national Spanish strategy aimed specifically at wild pollinators. However, the country is currently finalizing a national initiative for pollinators, including both wild and domestic pollinators, which is expected to be published in 2020.

The Spanish Atlas and Red List of threatened invertebrates was published in 2011 including only a limited number of wild bees, mostly alpine bumblebees. The national biodiversity database contains species records of the threatened pollinator species on the Spanish Red List, and the Doñana Biological Station (EBD-CSIC) is currently updating the atlas of bee fauna of Spain through an independent online database comprising records gathered from various sources. Butterfly abundances have been monitored in Catalonia since 1994 and it has intensified in other Spanish areas in recent years. A high number of research institutes are working on pollinator projects in Spain.

No specific action plans on endangered species or habitats have been found other than the support from agro-environmental schemes and the protection of Natura 2000 habitats.

Various local initiatives are raising awareness and improving collaboration led or supported by researchers, NGOs and other civil society groups. A number of educational and citizens engagement campaigns have also been launched. Some private sector initiatives have funded the creation of flowering plant strips or focus on the supply of native plant seeds that support pollinators.



STRATEGIES FOR WILD POLLINATORS OR ANY OTHER SIMILAR PLANS

There is not yet an officially adopted national Spanish strategy aimed specifically at wild pollinators, but the Ministry for the Ecological Transition is finalizing the preparation of a nationally coordinated pollinators initiative, including both wild and domestic pollinators, which is expected to be published in 2020. [The national action plan has been drafted](#) by the Ministry for the Ecological Transition in full collaboration with the Ministry for Agriculture, Fisheries and Food, with the participation of regional authorities, NGOs, farmers, the private sector and academia, and a public consultation on the document has been undertaken. The plan contains measures for both the State and regional level.¹

The action plan will cover the following objectives²:

- Protection of threatened pollinator species and their habitats
- Support of favourable habitats for pollinators in agricultural habitats, as well as urban areas and infrastructure margins
- Improvement of beekeeping management and implementation of risk mitigation measures regarding the impact of pests, pathogens and invasive species on pollinators
- Risk mitigation to pollinators in relation to the use of plant protection products both in rural and urban areas
- Knowledge improvement through the support of research activities on the conservation status of pollinators and the causes of their decline
- Ensure information access, promote citizens' engagement and raise awareness on the importance of pollinators

The above objectives will be supported by a series of specific measures and the implementing authorities and actors will be defined. No indicators are planned to be included in the strategy since the objectives that are to be published are mostly not measurable. However, the general success of the strategy will be evaluated in the future and some of the measures are expected to be integrated into sectoral programmes.

No examples have been found of government-led action in the autonomous regions to date, except the protection of the Canary Island honeybee race³. However, some Spanish regions such as in Catalonia⁴ plan to act on wild pollinators. Several research and awareness raising initiatives are being

¹ Personal Communication 7 January 2019, Tania López-Piñeiro, Ministry for the Ecological Transition, Spain

² Draft national Spanish strategy for pollinators: https://www.miteco.gob.es/es/biodiversidad/participacion-publica/borradorplanpolinizadores_tcm30-487605.pdf

³ <http://www.casadelamiel.org/sites/default/files/abeja-negra-canaria.pdf>

⁴ http://mediambient.gencat.cat/web/.content/home/ambits_dactuacio/patrimoni_natural/estrategia_patrimoni_biodiversitat/ESNATURA.pdf

carried out by research institutes with private and public funding from regional, national and EU sources.

As the national initiative for wild pollinators has not been finalised, actions in Spain currently take place by individual initiatives and no steering group has been formed. The lack of a policy framework, funding and knowledge has prevented the small but successful research and awareness-raising initiatives from being replicated in other areas of Spain or from expanding their scope and impact.



IMPROVING KNOWLEDGE OF POLLINATOR DECLINE, ITS CAUSES AND CONSEQUENCES

RED LISTS ON POLLINATORS AND DATA ON POLLINATOR POPULATIONS

Spain is very rich in wild pollinator species, including at least 1105 wild bee species (Ortiz-Sánchez, 2011). However, the European Red List of Bees still reveals large gaps in knowledge about Spanish bee species (Nieto et al, 2014). The Spanish National Council for Research (CSIC) is currently updating the [atlas of bee fauna of Spain](#) through an independent online database comprising thousands of records gathered from various sources.

The [Spanish Atlas and Red List of threatened invertebrates](#) was published in 2011 and includes a limited number of wild bees, mostly alpine bumblebees, and butterflies (Verdú et al 2011). The national biodiversity database ([Base de Datos EIDOS](#)) contains species records of the threatened pollinator species on the Spanish Red List.

The Catalonia region has a good database on butterflies, and a database for Basque Country and Navarra was created in 2008. As per work also covering the rest of Spain, the butterfly database has already been compiled with the support of a previous research project from University of Toledo. The main tasks in 2018 were to correct errors, add new information and prepare data for a new Iberian Butterfly Atlas. The work focuses on producing annual reports, supporting volunteers in their transect counts and starting the first analyses of existing data.

POLLINATOR MONITORING SCHEMES

The [association Zerynthia](#) coordinates the [Spanish Butterfly Monitoring Scheme](#). Since 2014 around 100 butterfly transects are sampled in various regions at least ten times a year from March onwards.

The monitoring programme engages academics, environmental managers, associations, protected areas authorities and volunteers. Monitoring has been carried out in the Basque Country and Navarra (Valle de Aranguren) since 2008 financed by the Basque government, and more recently the government of Cantabria and the local government of Tenerife have launched schemes. The [Catalan Butterfly Monitoring Scheme](#) has monitored butterfly abundances in Catalonia since 1994, with 187 species in 19 habitat types being studied from March each year. Butterfly monitoring is being set up in urban areas of Madrid and Barcelona ([uBMS Observatori de Papallones Urbanes](#)).

There is currently no regional or national monitoring of wild bees or hoverflies.

RESEARCH INITIATIVES

Many research institutes are working on pollinator projects in Spain, for example:

- The [Poll-Ole-GI](#) project is researching the impact of habitat creation and arable crop management on the pollinators of two major Mediterranean crops that depend on pollinators to increase yield and product quality: oilseed rape and sunflower. It aims to identify and recommend effective methods to increase pollinator communities in arable farmland. It is funded by the European Fund for Regional Development INTERREG from 2016 to 2019 in three pilot regions in Spain (Burgos and Cuenca) and France (Poitou-Charentes). Partner organisations are Universidad de Burgos, Centre Nationale de la Recherche Scientifique (CNRS), Universidad Autónoma de Madrid, Universidade de Coimbra, Institut National de la Recherche Agronomique (INRA) Entomologie.
- The Estación Biológica de Doñana (EBD-CSIC) in Andalucía is carrying out research into the ecology of plant-pollinator networks in Mediterranean natural habitats (matorral) within the EU FP7 funded project [BeeFun](#) since 2015. The project aims to expand scientific understanding of how extreme climatic events will affect wild pollinators and natural vegetation communities.
- A project coordinated by the Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria (INIA) with 7 universities and research centres and funded by the Spanish government for 3 years (2014-2017) to evaluate the risk factors to bees in Spain has produced a series of research findings on the [impacts of pesticides and parasites on honeybees](#). Although it also aims to cover wild pollinators, no research results on wild species have been published to date.
- The [POSHBEE project](#) includes the University of Murcia and aims to support healthy bee populations, sustainable beekeeping and pollination across Europe. The project will provide the first pan-European quantification of the exposure hazard of chemicals to managed and wild bees, determine how chemicals alone, in mixtures, and in combination with pathogens and nutrition, affect bee health and meet the need for monitoring tools, novel screening protocols, and practice- and policy-relevant research outputs to local, national, European, and global stakeholders.
- CREAM in Catalonia is conducting research on spatial distribution of pollinator communities and plant-pollinator networks to understand how spatial heterogeneity affects plant-pollinator interactions and the effects on pollination function and fruit/seed production ([SPALINK project](#)).

- CREAF is also conducting research on pollination services in apple orchards within a European project to evaluate the effects of agri-environmental schemes (local floral resources, organic *versus* conventional management) and landscape factors on pollinator communities, pollination levels and fruit production (European Biodiversa/FACCE-JPI [project ECOFRUIT](#)). Results showed that there is no inherent trade-off between species richness and fruit production. The availability of flowers in and adjacent to orchards increased pollination without compromising fruit production (Bosch Gras, pers comm). CREAF has recently completed a project that started in 2018 to assess the yield benefits of releasing managed populations of the solitary bee pollinator *Osmia cornuta* in orchard crops⁵. Results showed that the species is a good pollinator for almond, cherry and pear orchard crops in areas characterized by a low use of pesticides (Bosch Gras, pers comm).
- The [Terrestrial Ecology Group at the Mediterranean Institute for Advanced Studies](#) (IMEDEA) is conducting research on wild pollinators in almond and carob tree crops. One objective is to investigate their abundance and diversity, their effects on crop production and the related environmental factors. In addition, the impact on wild pollinator communities caused by landscape factors such as land use changes is analysed.
- Research activities on hoverflies (Syrphidae) in Spain are conducted at [Centro Iberoamericano de la Biodiversidad](#) (Universidad de Alicante). The centre has a good knowledge of the Iberian species, their biology and distribution, including wild pollinator species although they are not specifically addressed.

TAXONOMICAL EXPERTS ON POLLINATORS

See the research institutes above.



INITIATIVES TACKLING THE CAUSES OF POLLINATOR DECLINE

ACTION PLANS ON SPECIES AND HABITATS

No specific action plans on endangered species or habitats are available at the national level.

⁵ Demonstration project in commercial orchards (almonds, cherries, pears) funded by Catalan Department of Agriculture, personal communication, Jordi Bosch, CREAF

In addition to the legal protection provided by the EU Habitats Directive for 10 pollinator species in Spain (all Lepidoptera)⁶, the Spanish legislation also provides for the legal protection of species listed as threatened in the national catalogue of threatened species (Catálogo Español de Especies Amenazadas). This currently only lists two Lepidoptera species:

Maculinea nausithous – vulnerable

Polyommatus golgus – critically endangered

The [Association Zerynthia](#) is developing proposals for the inclusion of further species in the national catalogue. The first species proposed is the endemic Spanish Greenish Black-tip *Euchloe bazae*. The association is also working with the regional governments to include threatened Lepidoptera species in their regional catalogues of threatened species.

FARMER AND LANDSCAPE INITIATIVES, AS WELL AS LOCAL LEVEL STRATEGIES

A research project highlighted that Spain produces a large proportion of the EU's crops that depend on pollinators, and these may already be suffering from a pollination deficit, which will be exacerbated by climate change (Breeze et al, 2014).

Spanish rural development programmes can provide funding for farmers to carry out farming practices or create habitats and food resources for wild pollinators, though no information was available to quantify the impact. Some of the Spanish rural development programmes specifically support apiculture in areas of extensive agriculture in preference to irrigated areas, which helps to maintain beehives in the region throughout the year including the fallow season.

For example, the [Extremadura RDP](#) supports apiculture in order to benefit biodiversity in fragile (non-irrigated) areas, by maintaining a proportion of hives within the region during the dry season (rather than being moved to other regions), as it is assumed that without honeybee pollination, the vegetation cover would diminish increasing soil erosion and desertification.

The Spanish Environment Ministry provides funding for biodiversity conservation projects through the national fund Fundación Biodiversidad. It has funded the following projects for wild pollinators:

- The [Unión de Pequeños Agricultores y Ganaderos](#) (union of small farmers and ranchers) obtained funding from the [Fundación Biodiversidad](#) and Syngenta for the project [POLINIZ-UP](#) from 2017 to 2019. The farmers planted flowering margins and buffer strips for pollinators with seed mixtures designed to be attractive to pollinators and natural enemies of crop pests around their fields (olives, maize, winter cereals and plums). The project identified 142 pollinator species in the margins including some threatened species and endemics.
- The NGO Brinzal is carrying out the project [Misión: Polinizadores](#) until 2021 with funding from the [Fundación Biodiversidad](#). The project is creating pollinator habitat and researching pollinator populations both in agricultural areas in the regions of Madrid and Castilla la Mancha, and in the urban zones of Madrid and Barcelona.

⁶ *Eriogaster catax*, *Euphydryas aurinia*, *Graellsia isabelae*, *Hyles hippophaes*, *Lopinga achine*, *Lycaena hele*, *Maculinea arion*, *Parnassius apollo*, *Parnassius mnemosyne*, *Proserpinus proserpina*

The following regional public initiative was identified:

- The [Plan de Mejora de la Biodiversidad de Barcelona](#) (Biodiversity improvement plan in Barcelona), led by Barcelona Metropolitan Area (AMB), aims to establish strategic lines for the improvement of the biodiversity and the educational potential of the parks and beaches of the Metropolitan Area of Barcelona. This [initiative](#) includes a programme that supports the planting of pollinator-friendly flora. It focuses on planting a mix of high-density seeds, providing additional food for pollinators and creating additional habitats for insects to control pests and create a pollinator-friendly periphery of urban trees (Wilk et al, 2019).

MEASURES ON PESTICIDES

The [law 1311/2012](#) establishes the need to approve and publish guidelines on the integrated management of pests. Currently, a total of eight [guidelines](#) have been published.

The first national plan for the sustainable use of pesticides (2013-2017) established a national network of protection zones ([Zonas de protección](#)) in which pesticide use is restricted. The protection zones include Natura 2000 sites which contain wild species subject to special protection (Royal Decree 139/2011 of 4 February) and the Spanish catalogue of endangered species, and water protection areas. In these areas, pesticide users are asked to follow specific recommendations, including: use antidraft nozzles, use larger buffer zones than required by the pesticide label, avoid the use of pesticides labelled as highly hazardous to wildlife, minimise pesticide use and drift in areas with natural vegetation, respect buffer zones around nest sites of protected birds, establish ecological compensation zones and fallows without pesticide use, register for the approved pesticide container disposal system, conduct machinery tests every two years (e.g. MAPAMA 2015). The Wild flora and fauna committee (CFFS) is the body responsible for drafting and approving the integrated pest management guidelines, and the Spanish national plant protection committee (CFN) is responsible for collecting the information.

The national plan for the sustainable use of pesticides (2018-2022) requires the establishment of a method to assess the effectiveness of the protection zones through monitoring of trends in the populations of flower pollinating Hymenoptera, Lepidoptera and birds in agricultural environments within and outside the zones. The sampling method is being tested during the 2018-2020 period.



RAISING AWARENESS, ENGAGING SOCIETY-AT-LARGE AND PROMOTING COLLABORATION

TRAINING AND AWARENESS RAISING CAMPAIGNS

Various local initiatives are raising awareness and improving collaboration led or supported by researchers, NGOs and other civil society groups.

The [association Zerynthia](#) (Asociación Española para la Protección de las Mariposas y su Medio) is an NGO dedicated to butterfly and moth conservation in Spain. It carries out awareness raising activities including open days, public walks, regular articles in the media, and butterfly monitoring.

The [APOLO pollinator observatory](#) initiative ceased activities in 2012 after building a network of research and nature conservation organisations and businesses raising awareness of pollinators, financed by the Biodiversity Foundation. The network made efforts to promote a concept for a national pollinator monitoring programme.

EDUCATIONAL CAMPAIGNS AND MATERIALS ON WILD POLLINATORS

- [SOS Polinizadores](#) – an educational and citizen science project coordinated by the Royal Botanical Garden and CSIC in Madrid funded by FECYT (Fundación Española para la Ciencia y la Tecnología). Students monitor wild pollinators in their green spaces in Madrid and post observations on the [Natusfera citizen science platform](#). The project has also developed the [PolinizAPP game](#) to raise awareness of the pollination process and threats to bees. In addition, a number of identification guides have been published for educators and the general public.
- [GEPEC-EdC](#) NGO in Catalonia has organized a [series of talks](#) on pollinator awareness for producers, gardeners, land managers and the general public. These activities aim to stress the importance of the conservation of these insects. The talks are free and highlight the importance of conserving wild pollinating insects and the strategies that can be used to strengthen them.
- [Divulgate blog and video shorts](#) produced by Luis Navarro and other scientists in Vigo University to raise awareness about pollination and plant evolution amongst other issues.
- A field guide to the pollinators of Spain was published in 2015 (Aguado Martin et al 2015).

CITIZEN ENGAGEMENT CAMPAIGNS

- [SOS Polinizadores](#) – students monitor wild pollinators in their green spaces in Madrid and post observations on the [Natusfera citizen science platform](#).
- The urban butterfly monitoring project ([uBMS](#)) is producing the first thorough analysis of [urban butterflies in Spain](#). Twenty selected parks in Madrid and Barcelona were monitored by volunteers during 2018. The aim is to continue these counts in the coming years, at least for some of the parks. The project will develop a purpose-specific app and set up training in butterfly identification and a workgroup for the volunteers in which they can interact and share their experiences with experts.

PRIVATE SECTOR INITIATIVES FOR WILD POLLINATORS

- Semillas Silvestres is a company that supplies local seeds to private clients, as well as city and town authorities. This private sector entity has been involved in EU funded projects such as [SOS praderas](#) and [NASSTEC](#) with various objectives supporting the production of native plant seeds that support pollinators.
- The Spanish Aggregates Federation ([Federación de Áridos FdA](#)) has a partnership agreement with SEO Birdlife (Sociedad Española de Ornitología) to develop a national plan that promotes voluntary actions from companies to create better conditions and habitats for wild bees.
- The honey company [Granja San Francisco](#) sponsors the [HA BEE TAT](#) campaign in Catalonia to plant flowering margins for pollinators. More than 100 farmers took part in spring 2020.

APICULTURE SECTOR INITIATIVES FOR WILD POLLINATORS

None identified.

REFERENCES

Aguado Martín et al 2015. *Guía de campo de los polinizadores de España*. Ediciones Mundi-Prensa, Madrid.

Breeze, T D, Vaissière, B E, Bommarco, R, Petanidou, T, Seraphides, N, Kozák, L, Scheper, J, Biesmeijer, J C, Kleijn, D, Gyldenkerne, S, Moretti, M, Holzschuh, A, Steffan-Dewenter, I, Stout, J C, Pärtel, M, Zobel, M and Potts, S G (2014) Agricultural policies exacerbate honeybee pollination service supply-demand mismatches across Europe. *PLoS ONE* No 9 (1), e82996.

García-Barros E, Munguira ML, Stefanescu C, Vives Moreno A (2013) Lepidoptera Papilionoidea. In: Ramos Sánchez MA (ed) *Fauna Iberica*, vol 37. Museo Nacional de Ciencias Naturales, CSIC, Madrid

MAPAMA (2015) *Guía de Gestión Integrada de Plagas para el cultivo de Cereales de invierno*. Ministerio de Agricultura, Alimentación y Medio Ambiente, Madrid.

<https://www.mapa.gob.es/es/agricultura/temas/sanidad-vegetal/productos-fitosanitarios/guias-gestion-plagas/cultivos-herbaceos/default.aspx>

Munguira ML, Barea-Azcon JM, Castro-Cobo S, Garcia-Barros E, Miteva S, Olivares J, Romo H (2017) Ecology and recovery plans for the four Spanish endangered endemic butterfly species. *J Insect Conserv* 21:423–437. <https://doi.org/10.1007/s10841-016-9949-8>

Nieto, A, Roberts, S P M, Kemp, J, Rasmont, P, Kuhlmann, M, García Criado, M, Biesmeijer, J C, Bogusch, P, Dathe, H H, De la Rúa, P, De Meulemeester, T, Dehon, M, Dewulf, A, Ortiz-Sánchez, F J, Lhomme, P, Pauly, A, Potts, S G,

Numa C et al (2016) The status and distribution of Mediterranean butterflies. IUCN, Malaga. <https://portals.iucn.org/library/node/46183>

Praz, C, Quaranta, M, Radchenko, V G, Scheuchl, E, Smit, J, Straka, J, Terzo, M, Tomozii, B, Window, J and Michez, D (2014) *European Red List of Bees*. Publication Office of the European Union, Luxembourg.

Ortiz-Sánchez, F J (2011) Lista actualizada de las especies de abejas de España (Hymenoptera: Apoidea: Apiformes) [An updated list of the bee species of Spain (Hymenoptera: Apoidea: Apiformes)]. *Boletín de la Sociedad Entomológica Aragonesa* No 49, pp265-281. Sociedad Entomológica Aragonesa (S.E.A.).

Verdú, J.R., Numa, C. and Galante, E. (2011) Atlas y Libro Rojo de los Invertebrados amenazados de España (Especies Vulnerables). Dirección General de Medio Natural y Política Forestal, Ministerio de Medio Ambiente, Medio rural y Marino. Madrid, 1318 pp. 2 vols.

Wilk, B., Rebollo, V., Hanania, S. (2019). A guide for pollinator-friendly cities: How can spatial planners and land-use managers create favourable urban environments for pollinators? Guidance prepared by ICLEI Europe for the European Commission.

Educational materials

SOS polinizadores: Teacher's & environmental educator's guide. Produced by CSIC Spain. Authors: Authors: Laura Jiménez, Clara Vignolo y Raquel Alsedo.

<https://www.miteco.gob.es/es/ceneam/recursos/materiales/sos-polinizadores.aspx>

Language: English and Spanish.

Age: activities for primary to secondary classes

Identification guide: Bichos de tu entorno, guía de insectos y otros artrópodos. CSIC Spain, Language: Spanish.

<http://www.rjb.csic.es/jardinbotanico/ficheros/documentos/pdf/didactica/GuiaBichos-WEB.pdf>

Polinizapp - an educational game that simulates the pollination process of flowers in nature. The player becomes a pollinating insect that has two objectives: to get life and accumulate points.

App download at <https://www.greenappsandweb.com/en/android-en/learning-pollination-process-polinizapp/>

Language: English, Spanish and Catalan

Age: 9 years and up

Offered by: Real Jardín Botánico (Royal Botanic Garden) / IMEDEA. Author: Judit Urquijo