



The Gállego mouth in the Ebro river

European Green Capital Award 2016

4. Nature & Biodiversity



An initiative of the
European Commission



2016



Spain

4. NATURE & BIODIVERSITY

4A. Present Situation

Describe the present situation in relation to nature and biodiversity in your city, including any relevant disadvantages or constraints resulting from historical, geographical and/or socio-economic factors which may have influenced this indicator area. Where possible, show trends in biodiversity data and management over the past 5-10 years.

Make reference to whether:

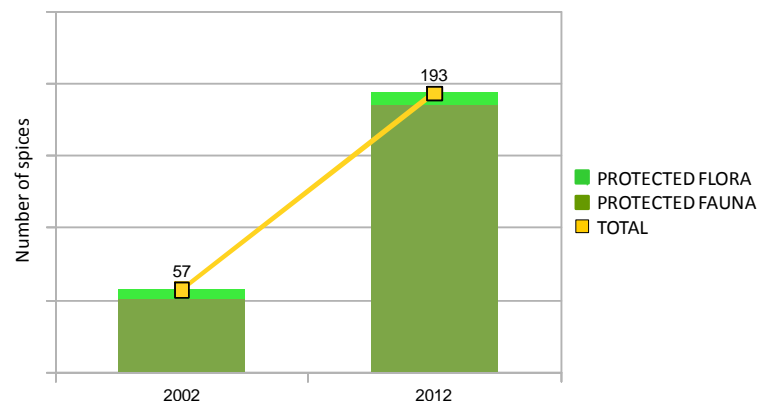
1. There are any Natura 2000 areas in and around the city;
2. There are Management plans for these sites;
3. The habitats and/or species for which the sites have been designated are in good conservation status.

Zaragoza is one of the vastest municipalities of Spain (near 1,000 sq km), and is placed in a peculiar site, at the Ebro Depression. It is crossed by three rivers but in an arid area modelled by an intense and traditional anthropic exploitation

All this has produced a big variability of ecosystems and landscapes: from rivers and orchards to the steppe and salt areas, an extensive singular and valuable natural heritage to preserve.

The municipality is home of 1,312 species of flora and 402 of fauna, from which 11% have been recorded (*graph. 1*), among them:

Margaritifera auricularia,
al-arba (Krascheninnikovia ceratoides gueldenst),
 lesser kestrel (*Falco Naumanni*)
 Bonelli's eagle (*Hieeraetus fasciatus*).



Graphic 1. Evolution of Zaragoza protected species

(1) The natural wealth of Zaragoza is structured around three elements:

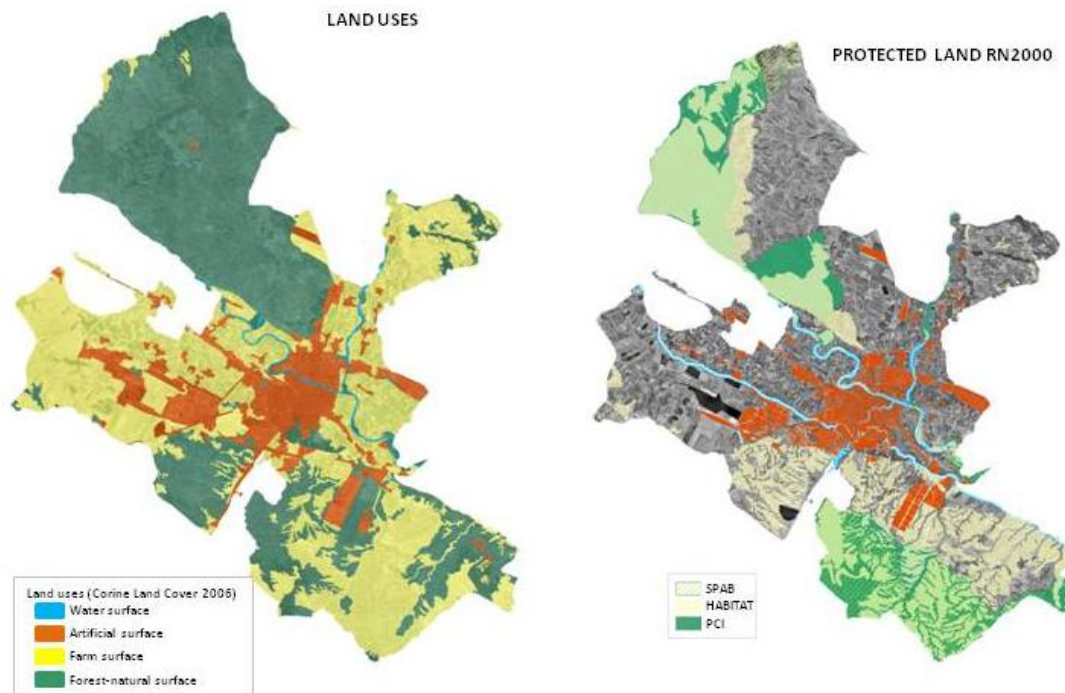
1. **Blue matrix:** rivers, wetlands, ponds, gullies, supply channels and canals.
2. **Green matrix:** LIC (place of community importance), ZEPA (area of special bird protection) and singular areas; urban green fabric
3. **Connections:** Zaragoza green ring (60 Km), network of rural paths (410 km), network of supply channels.

BLUE MATRIX: the river Ebro and its tributaries -Gállego and Huerva- form 57 km of natural paths and its banks are true biodiversity shelters.

The lowest terraces of the rivers, used for orchards and irrigation, are linked to another natural path, the Canal Imperial de Aragón (53 Km in Zaragoza), and to a network of 87 km of main irrigation paths.

The GREEN MATRIX is composed of the areas of Red Natura 2000: LIC, 24.652 ha, 25% of the territory); and ZEPA (11.359 ha, 12%); as well as 24,421 hectares of habitats of community interest. 13,200 Ha have been added to the municipal natural areas recorded.

Therefore, the **38% of the municipal territory is protected** (*graph. 2*)

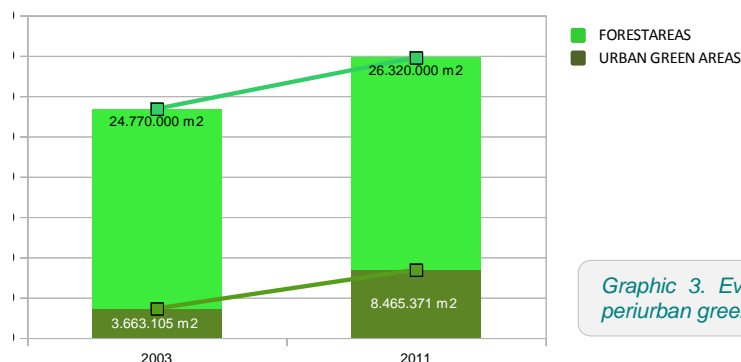


Graphic 2. Land uses and protected Land. Red Natura 2000

The General Urban Development Plan includes 52,806 hectares with a special protection. The uses of land corresponding to forests and open areas represent a 44% of the territory and the farm area a 46%.

(2) The City has reforested 16,000,000 m² of its land that added to the 10,000,000 m² of natural mount makes a total of 26,320,000 m² of municipal forest, with a ratio of 37.6 m²/person.

It must be also taken into account the parks in the urban green fabric. During the last 10 years, Zaragoza has multiplied by more than 2.5 its green areas, from 3,663,105 m² to 8,465,371 m², with a ratio of 12.1 m²/person. (graph. 3)



Graphic 3. Evolution of the new urban and periurban green areas of Zaragoza

(3) This natural wealth at the gates of a big European city (698,917 people), reinforces its singularity but also its fragility.

The isolation and fragmentation of the territory and the lost of quality of the spaces (infrastructures, urbanization, industrial areas...) are the main threatens against the preservation of these natural areas.

Zaragoza is also specially sensitive to the lost of land and biodiversity derived from the climate change due to its geographical and weather characteristics (highest temperature of 41 °C and lowest of -4°C, rainfall lower than 300 mm/year, more than 114 windy days with gusts of 55 km/hour).

Finally, another big problem is the lack of knowledge of Zaragoza citizens on the city natural surroundings.

To fight against those threatens, apart from an exhaustive surveillance and control, the municipal policy on environment has been developing for more than 20 years a defence strategy and an active protection based on three main elements:

- General Urban Development Plan of Zaragoza
- Agenda 21 of Zaragoza
- Environmental theme strategies: climate change, biodiversity, water,... and its development actions

4B. Past Performance

Describe the measures implemented over the last five to ten years. Comment on which measures have been most effective.

Make reference to:

1. *Managing and increasing Natura 2000 areas designated for nature protection and biodiversity as described above;*
2. *Dedicated conservation actions to manage and restore the sites;*
3. *Protecting nature in other open spaces; Promotion of public knowledge and understanding of nature and biodiversity, particularly among young people;*
4. *Communication activities to promote Nature and Biodiversity including the Natura 2000 network among the public;*
5. *Monitoring the effectiveness of management measures.*

(1) The City Council of Zaragoza has passed and integrated a *Strategy for the Conservation of the Biodiversity of Zaragoza* that includes the international and national guidelines for the conservation of biodiversity and the post-2010 goals. Therefore, Zaragoza is, from a local point of view, one of the scarce Spanish cities with a tool for the strategic management of biodiversity.

The Strategy presents six axes of action to reach its goals:

- ✓ Consolidation of biological and landscape diversity
- ✓ A full integration of biodiversity in the municipal policy.
- ✓ Reduction or elimination of present and future threatens.
- ✓ Secure the full participation and implication of the citizens of Zaragoza.

(2) The Strategy has allowed us to have a first record of the elements of the municipal biodiversity. This is the starting point for the diagnosis of the state of biodiversity in the area

ACTIONS IN THE BLUE MATRIX:

The Galacho of Juslibol (Graphic 4) (forms part of the LIC "Groves and Small River Islands of the Ebro")

- In 1995, the City buys the land of this abandoned meander
- Passing of the Special Plan of the Galacho of Juslibol (2004).
- Construction of the reception area (2007) with bioclimatic furniture and opening of a centre for educational and recreational activities.
- Adaptation and signalling of trails and periodical surveys of the water species.

River ecosystems

River Ebro: the performances of Accompaniment Plan of EXPO 2008 (2006-2008) for the restoration of the river banks, with a recovery of 14 areas (750.800 sq m and 90.3 million euro) and two singular elements, the Third Millennium Bridge (25.20 million €) and the dam of the river Ebro (22.20 million €).

River Gállego: Two restoration projects (more than 10 million €) included in the above mentioned plan were implemented for its river banks (*graph. 5*)

River Huerva: drawing up of the Master Plan of the river Huerva and Basic Survey of the Trail of the River Huerva.

GREEN MATRIX ACTION:

Urban Nature

- Consolidation and maintenance of urban green areas [8]
- Master Plan for José Antonio Labordeta park (2010)

Water Park: The International Expo on water (2008) launched the construction of one of the big natural areas, the Water Park. It combines extensive green areas, services and activities in its 120 Ha.

Forest ecosystems: the following goals have been reached in the seven mounts managed by the Municipality (more than 9,000 Ha):

- Planning: passing of the plan of sustainable forest management: Project of Management of Uses and Landscape Planning of Torrero Mount
- Certificate of Sustainable Forest Management (certificate FSC) of Torrero Mount (2005). Sylviculture: implementation of cutting and pruning for improving the phytosanitary state of the forest area.
- Reforestation: different reforestation stages have been carried out in the last 10 years, increasing forest area to over 1,600 Ha and for a quantity of 270,000 €. (*graph. 6*)



Graphic 4. 'Galachos' of Juslibol



Graphic 5. River walk by the river Gállego



Graphic 6. Steppe Zone

Farming ecosystems:

The City of Zaragoza -who owns 7,150 Ha of farming land- rents them to the citizens of Zaragoza for favoring the continuity of traditional farming exploitation.

More than 700 urban orchards have been created in land for green areas owned by the Municipality (*graph. 7*) in order to promote:

- Social orchards: productive area for groups with special necessities such as the unemployed, handicapped people and pensioners with low rents.
- Orchards for leisure: any citizen can have access to this service
- Agroecological market: meeting point for the ecological farmers of Aragon and Zaragoza consumers.



Graphic 7. Zaragoza urban orchards

(3)

Species of wild flora and fauna

The goal is to improve its knowledge:

- Study and banding raptors: kite nesting (2004-2006), golden eagle (2006) and evolution of nesting couples of birds of prey at Peñaflor preservation area (yearly).
- Yearly tracking of the protected falcon and the lesser kestrel, and implementation of the award given by the Spanish Federation of Municipalities to the City of Zaragoza for the improvement of its habitat, with a prize of 100,000 euro.
- Register of the birds included in the Plan of the Steppe (2010) (*graph. 8*). Survey and control of the birds at Ranillas meander (2010).
- Pallid swift: frilling and nest-boxes for increasing its number.
- Bats: nesting and increase of the presence of bats in the city.
- Peregrine falcon: favor and consolidate nest making, increasing breeding by putting nest-boxes in buildings of the city.



Graphic 8. Frilling of snake eagle

Control of exotic invasive species:

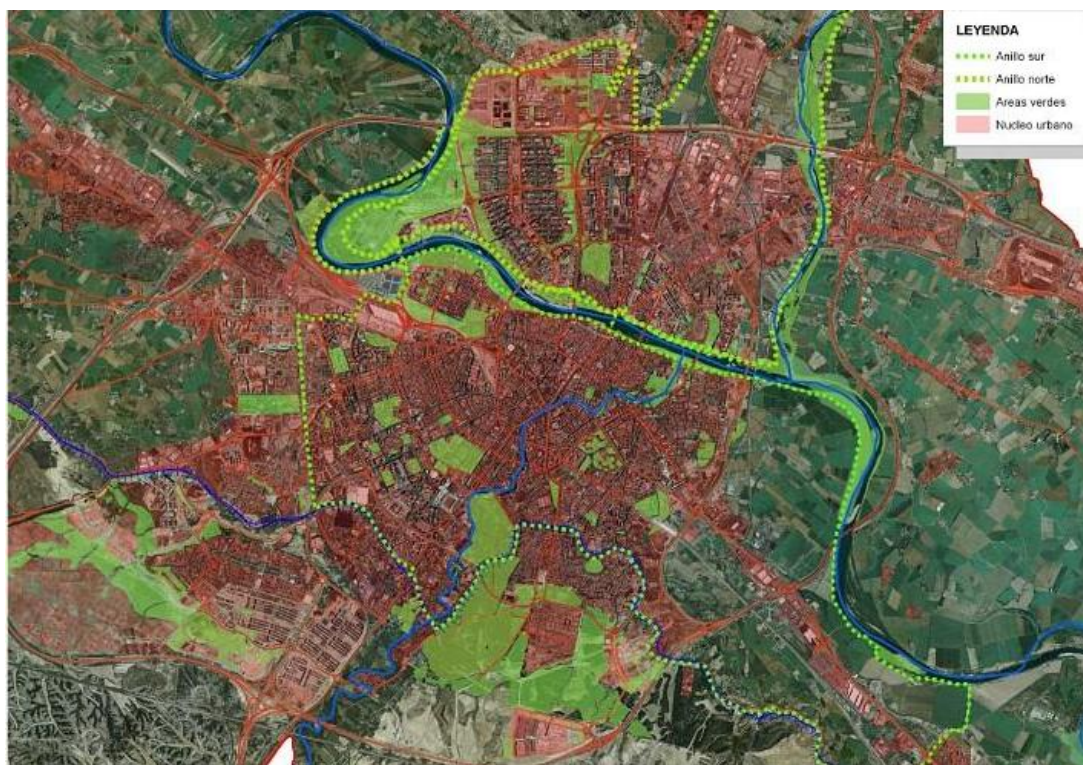
- Argentinean parrot: (2004-2013): tracking and control: 73 nests removed sterilization of 3,023 laying and capture of 106 adults.
- Florida turtle: (2003-2013): environmental volunteers of the Galacho of Juslibol; capture of 118.

ACTIONS ON CONNECTION NETWORKS

Goal: consolidate the connectivity of the urban and periurban areas of the city and integration of the rivers:

- **SOUTH GREEN RING** (2008): The 30 kilometers of Zaragoza Green Ring are structured in 9 linear consecutive stretches surrounding the city, with 4 circuits and 7 exits. It goes round the river Ebro and the Canal Imperial, covering the south of the city and its surrounding area.
- **NORTH GREEN RING**: (2011): extension of the Green Ring to the north of the city. It goes round the rivers Gállego and Ebro, with a total of 26 Km with a pedestrian and cycling path (50,000 euro).

The Green Ring has a total of 56 km in the city and its surroundings. (*graph. 9*)



Graphic 9. Connectivity between the North Green Ring and the South Green Ring of Zaragoza

(4) The most important activities are the programs of environmental education at the Galacho of Juslibol boosted in 1985, with the participation of more than 125,000 children:

- Orchards for school children with the participation of more than 97 schools.
- Reforestation of the municipal mounts made by school children (more than 1,500 per year).
- Programs for introducing the rivers and its banks to students, and activities in the city and its parks.
- Creation of the “Ebro Environmental Center”
- Different commissions (biodiversity, Galacho of Juslibol, Executive Board of Agenda 21 Local), organs of citizens’ participation, and the main associations and organizations of the municipal environmental management.

(5) The management measures adopted present positive results:

- The green areas in the period 2000-2010 have been multiplied by 2,5
- The improvement of knowledge foundations show a positive evaluation with respect to the number and conservation state of flora and fauna species
- The survey "Zaragoza, Seen by its Citizens" made every year in the framework of the monitoring activities of the Agenda 21 local, shows a positive evolution in the perception of the quantity and quality of the natural areas:
 - In reference to the quantity of areas, satisfaction has gone from a 57.7% in 2001 to a 75.2% in 2009.
 - About the quality of the natural areas, the degree of satisfaction has gone from 58.7% in 2001 to 68.4% in 2009.

But ignorance and citizenship limited use of natural areas require even greater reinforcement activities for its dissemination and promotion

One aspect to consider is the answer citizen towards the curbs of special protection areas which cannot be visited and often are not understood sufficiently.

It is also necessary to strengthen the transition from urban to periurban space because there are areas that need to connect and interface for ease of use and enjoyment.

4C. Future Plans

Describe the short and long term objectives for nature and biodiversity and the proposed approach for their achievement. Emphasise to what extent plans are supported by commitments, budget allocations, and monitoring and performance evaluation schemes. Demonstrate how this work coincides with the EU 2020 Biodiversity Strategy and Nature Directives and complementary national strategies

The goal is the development of the general guidelines of the Strategy on Biodiversity:

- ✓ Improvement of the background for the knowledge of biodiversity
- ✓ Connectivity of urban and periurban areas
- ✓ Consolidation of forest areas and restoration of rivers
- ✓ Conservation of species of wild flora and fauna
- ✓ Fight against exotic invading species
- ✓ Spreading of the values of biodiversity
- ✓ Development of documents and management plans

These goals will be articulated by the implementation of the actions framed for the period 2013-2016 in the LIFE projects of the Municipality:

Life Zaragoza Natural (LIFE12 ENV/ES/000567): 2,183,636 €. Its characteristics agree with the guidelines of the Strategy "Green Infrastructure: Improvement of the Natural Capital of Europe", adopted by the Commission (COM (2013) 249 final) and based on the map road for an efficient use of EU resources, and EU strategy on biodiversity until 2020.

Life Huerta Km 0 (LIFE12 ENV/ES/000919): 1,759,098 € for boosting the recovery of the activities of the traditional orchards of Zaragoza. The goals are:

- Recovery and environmental improvement of fertile land in periurban areas
- Recovery of native varieties
- Conservation of biodiversity
- Reduction of CO₂ through agriculture of proximity
- Fostering of green employments

These activities will count for the implementation of its measures and actions with the means of the Agency of Environment and Sustainability:

- Management Unit of Natural Environment, with specialists and inspectors
- Cabinet of Environmental Education
- Ebro Environmental Center, a structure for permanent spreading

The concrete biodiversity goals to be reached are:

1.- CREATION AND MANAGEMENT OF ZARAGOZA GREEN INFRASTRUCTURE

In compliance with the Strategy of the EU on biodiversity until 2020: life insurance and natural capital. (COM (2011)244 final). Objective 2: maintenance and restoration of the ecosystems and its services. Action 6. - Establish the priorities for restoring and fostering the use of the green infrastructure.

Goal: drawing up a nature and legal protection for the Green Infrastructure of Zaragoza, integrating it in the urban planning.

2.- IMPROVEMENT OF THE ECOLOGICAL STATE, CONNECTIVITY AND COHERENCE OF THE GREEN INFRASTRUCTURE.

Actions for the improvement, restoration and conservation of the areas of the blue and green matrix, and its connectivity.

Goals:

Forest ecosystems: (in compliance with the Objective 3. Increase the contribution of agriculture and silviculture to biodiversity, Objectives 3,9,11 and 12 of the Strategy)

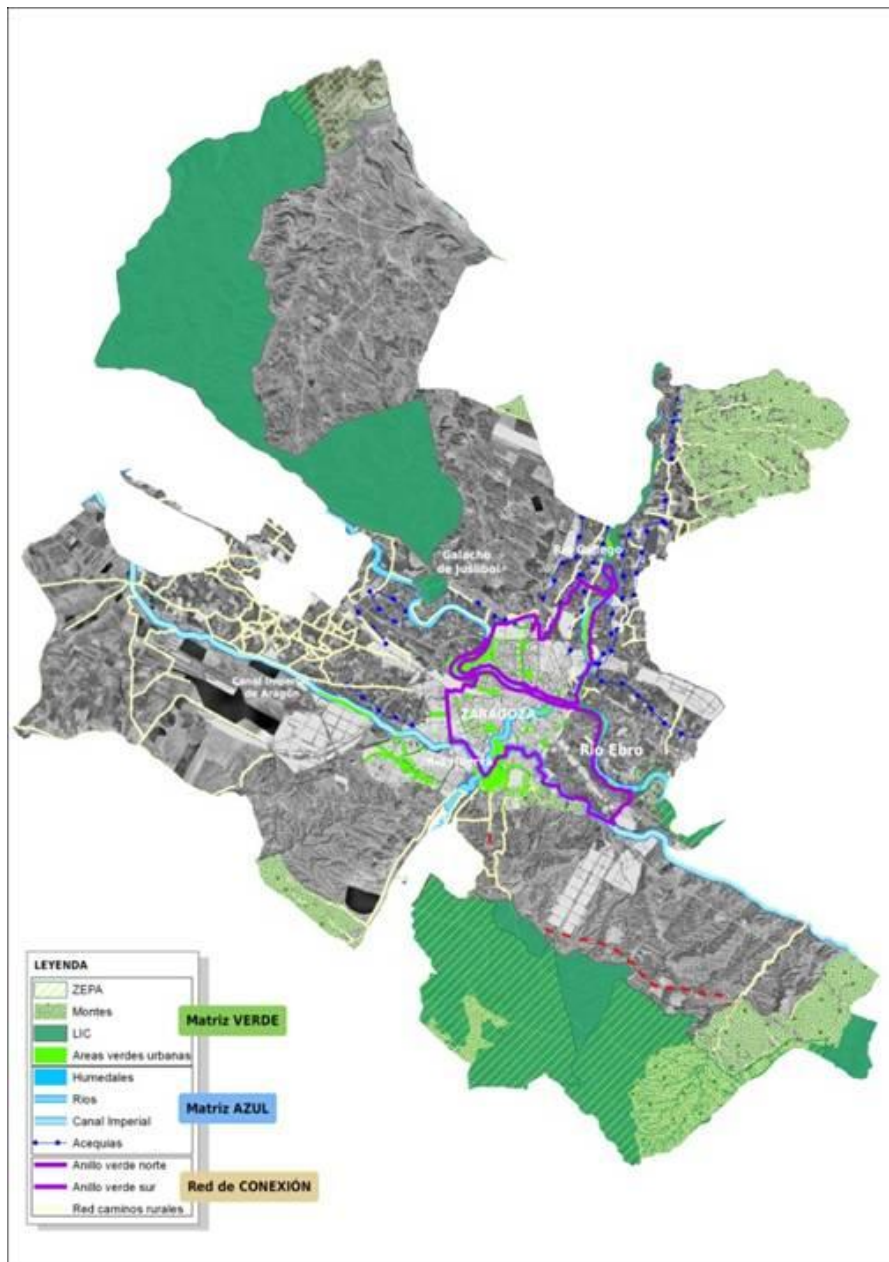
- Implementation of plans for the reforestation of 600 new hectares
- Development of plans for a sustainable forest management
- Improvement of the forests' structure in case of fire with the use of silviculture
- Tests for the regeneration of the management of forest masses.

Agricultural ecosystems: (in compliance with the Objective 3. Increase the contribution of agriculture and silviculture to biodiversity. Objectives 9 and 11 of the Strategy):

- A service of security for the farming plots owned by the Municipality
- Models for the conservation of biodiversity in the farming plots
- Implementation of 25 exploitations of ecological and proximity farming

Steppe ecosystems: (LIC "Planes and Steppes at the Ebro Right Bank" and ZEPA "River Huerva and Las Planas" and "The Steppes of Belchite, el Planerón and La Lomaza").

- Dealing with the Special Plan of the Steppes of Zaragoza (30,000 has.)
- Improvement of actions for the steppe fauna (drinking and eating places...).



Graphic 10. Zaragoza green infrastructure

2.2.- BLUE MATRIX

River ecosystems: The goal is to restore bank ecosystems improving its natural dynamics and recovering areas of river mobility through demarcation of hydraulic public domain operations:

- River Gállego (LIC "Low Gállego"): restoration of river banks through plantations, signaling, equipments and restoration of concrete areas of river connectivity.
- River Huerva: two restoration projects in Zaragoza (400,000 €)

Ecosystems of the humid areas

- Humid area of the "Galacho of Juslibol" (LIC "Groves and Small River Islands of the Ebro") (in compliance with the Objective 1. Full application of the Regulation of habitats and birds of the European Strategy)
- Demarcation of the public water domain
- Recovery of the habitats by introducing sheep and goats
- Survey on the evolution and advance of the 'galacho' through periodical bathymetries
- Control of invading exotic species: fishes, European turtles, American crabs.

2.3.- CONNECTING NETWORKS.

Urban ecosystems

- Planning and signaling of the connecting paths of the urban green areas
- Extrarurban connectivity: signaling of rural paths and livestock trails linking natural areas of Zaragoza.

3.- FIGHT AGAINST INVADING EXOTIC SPECIES (in compliance with the Objective 5. Fight against the invading exotic species included in the European Strategies)

- Control of Argentinean parrots
- Regulation of other species such as starlings and seagulls.

All in accordance with animal protection municipal policy that prohibits any sacrifice and will be soon regulated by municipal Byelaw.

4.- CITIZEN PARTICIPATION AND PROMOTION OF GREEN EMPLOYMENT (in compliance with Objective 2. Maintenance and restoration of the ecosystems and its services, Actions 5 and 7 of the European Strategy on Biodiversity).

- Increasing of the degree of knowledge and appreciation of the natural areas (training, brochures and exhibitions)
- Turn Zaragoza surroundings into a quality resourced controlled by the "green economy" framework
- Continuity of programs of environmental education.

4D. References

Documents and links

- General Urban Plan of Zaragoza:
<http://www.zaragoza.es/ciudad/urbanismo/planeamiento/pgouz/index.htm>
- Agenda 21 of Zaragoza:
<http://www.zaragoza.es/ciudad/medioambiente/agenda21/>
- Environmental theme strategies
<http://www.zaragoza.es/ciudad/medioambiente/proyectos.htm>
- Strategies for the Conservation of the Biodiversity of Zaragoza
- Galacho of Juslibol:
<http://www.zaragoza.es/ciudad/medioambiente/espacios/galacho/>
- River Ebro:
<http://www.zaragoza.es/ciudad/grandesproyectos/riberas/riberas.htm>
- River Huerva:

- <http://www.zaragoza.es/ciudad/grandesproyectos/proyectos.htm#huerva>
- Urban green areas:
http://www.zaragoza.es/ciudad/medioambiente/espacios/listado_Centro?id=820
- Master Plan José Antonio Labordeta Park:
http://www.zaragoza.es/ciudad/medioambiente/espacios/director_grande.htm
- Water Park:
<http://www.parquedelagua.com/>
- Project for the Management of Uses and Regulation of Landscapes of Torrero Mount:
<http://www.zaragoza.es/ciudad/medioambiente/espacios/torrero/>
- Urban orchards:
<http://www.zaragoza.es/ciudad/centroambientalebro/huertos-urbanos.htm>
- Agroecological market:
http://www.zaragoza.es/ciudad/medioambiente/educacionambiental/muestras_agroecologicas.htm
- Pallid swift
<http://www.zaragoza.es/ciudad/medioambiente/espacios/bio/vencejo.htm>
- Bats
<http://www.zaragoza.es/ciudad/medioambiente/espacios/bio/murcielago.htm>
- Peregrine falcon
<http://www.zaragoza.es/ciudad/medioambiente/espacios/bio/halcon.htm>
- Argentinean parrot:
<http://www.zaragoza.es/ciudad/medioambiente/espacios/bio/cotorras.htm>
- South green ring:
<http://www.parquedelagua.com/index.php/anillo-verde-de-zaragoza/anillo-verde-de-zaragoza-sur/>
- North green ring:
<http://www.parquedelagua.com/index.php/anillo-verde-de-zaragoza/anillo-verde-de-zaragoza-norte/>
- Program of environmental education of the Galacho de Juslibol:
<http://www.zaragoza.es/ciudad/medioambiente/espacios/galacho/edificio.htm>
- School orchards:
<http://www.zaragoza.es/ciudad/medioambiente/educacionambiental/huerta.htm>
- Program of Environmental Education:
http://www.zaragoza.es/ciudad/educacion/actividades_13.htm
- Commissions of Citizens Participation:
<http://www.zaragoza.es/ciudad/medioambiente/agenda21/consejo.htm>
- Life Zaragoza Natural (LIFE12 ENV/ES/000567):
<http://www.zaragoza.es/cont/paginas/noticias/LIFE+%20ZARAGOZA1.pdf>
- Life Huerta Km 0 (LIFE12 ENV/ES/000919):
<http://www.zaragoza.es/cont/paginas/noticias/LIFE+%20ZARAGOZA1.pdf>
- Sustainability Indicators of Zaragoza
<http://www.zaragoza.es/ciudad/medioambiente/agenda21/observatorio/indicadores.htm>
- Environmental Centre of Ebro River
<http://www.zaragoza.es/ciudad/centroambientalebro/>
- Strategy of the European Union 2020 on biodiversity:
 - Objective : improvement of the status of all the species and habitats protected under the EU laws

- Objective 2: keeping and improvement of the ecosystem services and restoration of degraded ecosystems in the EU

Zaragoza Municipal bylaws

- Protection of urban trees. 2013
- Protection and fight against forest fires. 2009
- Protection of the urban area. 2008
- Environment Sector Council. 1998
- Regulation on the Surveillance of the Mounts of Zaragoza. 1995
- Protection and management of the Galacho de Juslibol. 1992
- Use of green areas. 1986
- Common provisions of the Municipal Bylaws on Environment Protection in the municipal territory of Zaragoza. 1986
- Municipal bylaws on green areas and regulations for the drawing up of projects of the department of Parks and Gardens of the municipality of Zaragoza. 1979
- Regulation of the Municipal School of Gardening. 1975.