

LIFE LUTREOLA SPAIN  
**NEW APPROACHES  
FOR EUROPEAN MINK  
CONSERVATION IN  
SPAIN**

LIFE13NAT/ES/1171

INFORMATIVE  
SUMMARY  
OF THE PROJECT  
JUNE 2014 /  
JULY 2019



## The European mink, in critical danger

The European mink (*Mustela lutreola*) is a small mustelid and the **most threatened mammal in Europe**. Until the 19<sup>TH</sup> century it was found all over the continent, however **its area of distribution is now less than 3% of its original size**. Currently, its presence has been detected in Spain, France and the Danube Delta (Romania and the Ukraine). There is a reintroduced population in the island of Hiiumaa in Estonia, and there may be small fragmented groups in Russia.

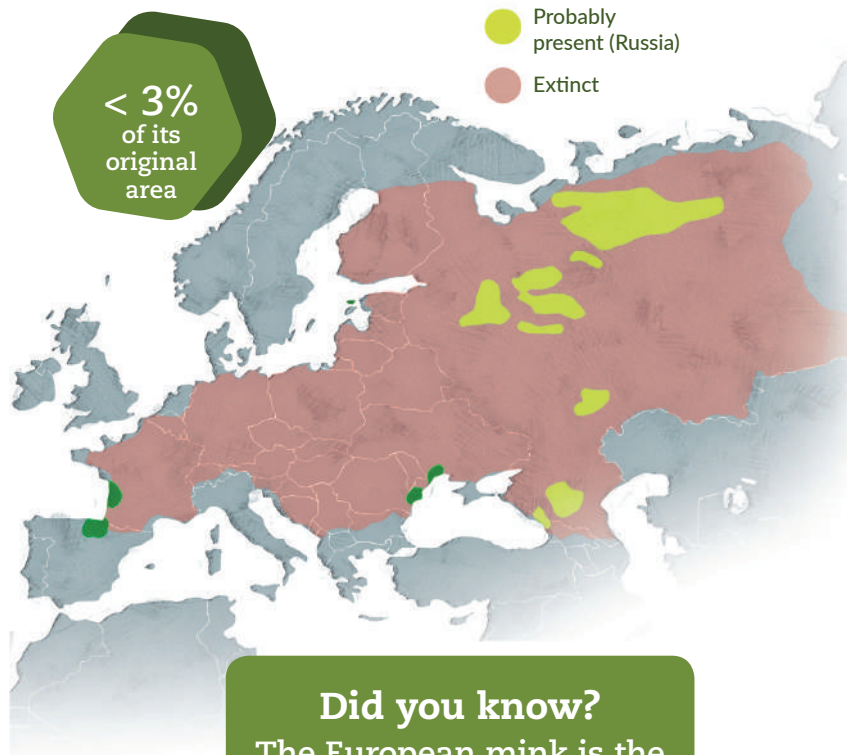
The Habitats Directive classifies it as a Priority Species of Community Interest **in need of strict protection** and the designation of special zones for conservation.

It is estimated that there are less than 500 individuals in Spain, and their population continues to decline. The greater part of these animals occupy the Mediterranean Watershed of the Ebro Valley and there are small groups in the eastern Cantabrian basins. The general trend observed within the last years lets us classify it as a critically endangered species, as it faces a high risk of extinction all over the world in the short term if necessary measures for conservation are not implemented.

Since 2011, this species has been **listed as critically endangered by the IUCN** (International Union for Conservation of Nature). In Spain it was catalogued as "in danger of extinction" in 2011, declared to be critical in 2018, and was also included in the *Atlas and Red Book of Land Mammals of Spain*.

< 3%  
of its  
original  
area

- Present (Spain, France, Romania)
- Probably present (Russia)
- Extinct



**Did you know?**  
The European mink is the only critically endangered mustelid in the world

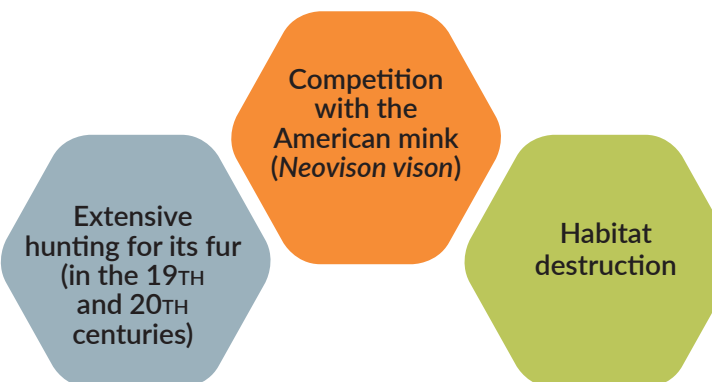
 **CRITICALLY ENDANGERED**



It faces an impending risk of extinction in the wild

## Threats

The species owes its decline to three main causes:



Currently, given the small size of its populations and the high level of fragmentation, it may also be affected by other threats:

- Loss of genetic variability and consanguinity
- Diseases: Aleutian mink disease virus and distemper
- Non-natural mortality: traffic collisions
- Low levels of social awareness regarding the conservation of this species and river ecosystems

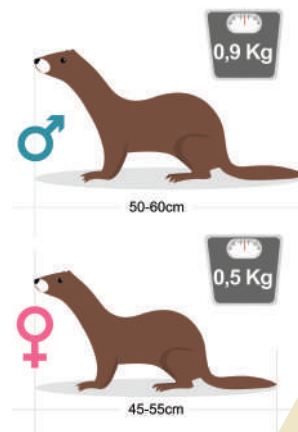


## Characteristics of the species

A small carnivore, with marked sexual dimorphism (males are larger in size than females).

### Features

Elongated body, short legs (with webbed feet) and chocolate brown fur, with a white muzzle above and below the lips.



### Total length

- ▶ Females: 45-50 cm
- ▶ Males: 50-60 cm

### Weight

- ▶ Females: 450-600 g
- ▶ Males: 800-1000 g

### Habitat

It inhabits aquatic environments such as rivers, streams, lakes and canals. In Spain it displays a special preference for the lower and middle reaches of rivers and streams, with wide banks and dense vegetation cover where it can find both shelter and prey.

### Diet

Mainly fish, amphibians, micro-mammals and crabs, occasionally insects, reptiles and birds.

### Reproduction

Breeding season between end-March and early-May.

- ▶ Gestation: 42-43 days
- ▶ Number of babies: 3-4.
- ▶ The babies start to leave the burrow when they are one month old and the litter stays together until late summer when, at around three months of age, the young begin to disperse.



## What does the project consist of?

LIFE+ Lutreola Spain was implemented in order to improve the situation of the European mink in Spain, which has one of the last natural and most viable populations of this species. Better techniques to eradicate the American mink and to monitor the European mink have been developed under this project. Actions for captive breeding and subsequent release (population reinforcement and assisted colonisation) as well as actions to reduce non-natural mortality have been developed, along with habitat restoration and citizen awareness.

## Legal Framework

Project activities are in accordance with the Strategy for the Conservation of the European Mink (*Mustela lutreola*) in Spain, approved in 2005, and in collaboration with the European Mink Working Group of the Committee of Wild Flora and Fauna. This group coordinates actions for the conservation of wild flora and fauna at the national level, as well as those sought by international conventions and European community regulations. The committee is made up of representatives from the Autonomous Communities, and the Ministry for Ecological Transition.

Additionally, the activities are based on management and recovery plans of the autonomous communities involved in the project.

## Where has it been implemented?

During these five years, activities have been carried out in 62 Locations of Community Importance (LIC in Spanish) of the Natura 2000 Network in the Basque Country, La Rioja, Aragón and Valencia.

### PARTICIPATING PROVINCES



## Who are the project participants?

Beneficiary and Coordinator  

 Tragsatec  
 Grupo Tragsa

The project is coordinated by the public company Tragsatec, and co-financed by the European Union (75%) through the LIFE+ grant. The Government of Aragón, the Regional Government of Bizkaia, the Regional Government of Álava, the Regional Government of Gipuzkoa, the Government of La Rioja, the Generalitat Valenciana, the City Council of Vitoria-Gasteiz, the Sendaviva Nature Park and the European Mink Association are members of this initiative.

### Associated Beneficiaries



## LIFE Lutreola Spain Project

OBJECTIVE	ACTION	RESULTS
Improved efficiency in detecting and capturing European and American mink. 2014	Creating new work protocols that aid in the <b>successful eradication of the American mink, the early detection of their dispersal movements and the monitoring of the European mink's conservation status.</b>	Creation of three protocols: «American Mink Eradication Protocol», «European Mink Monitoring Protocol», «American Mink Monitoring Protocol».
To eradicate the American mink from the distribution area of the European mink and in nearby areas (risk areas). 2015-2018	Execution of «American Mink Eradication Protocol». <b>Training</b> personnel in the use of new techniques and constantly updating the field information generated.	Capturing more than 1000 American mink. Elimination of the American mink population from the Ebro river basin within the European mink's distribution area and in part of the Cantabrian basins. Lowering the American mink population in the rest of the project territory. Training 262 forest rangers during 33 field workshops and 13 theoretical courses.
Activities for the release of European mink: a) Reinforcing the population of the most vulnerable groups (Cantabrian basins and the Ebro river basin). b) Creating a new population group in Aragón to increase the area of distribution (assisted colonisation). Individuals will be released only in zones free of American mink. 2017-2018	<b>Rearing in captivity.</b> <b>Construction of pre-opened cages</b> , that the animals adapt to, and are later released from. <b>Releasing European mink individuals</b> within their area of distribution and creating a new population group.	Birth of 74 European mink between 2016 and 2019. Construction of 14 pre-opened cages and renovation of 2 existing cages. Releasing 26 individuals within the European mink's distribution area, 11 in the basin of the River Leitzaran (Gipuzkoa), 7 in Salburua (Vitoria-Gasteiz) and 8 in the basin of the River Ebro (La Rioja and Álava). Releasing 8 individuals for assisted colonisation, in upper Aragón (Aragón).
After the eradication of the American mink, to create a monitoring network for (1) the early detection of the dispersal movements of American mink that threaten the area of distribution of the European mink and (2) the continued evaluation of the European mink's conservation status. 2016-2018	<b>Executing monitoring protocols</b> , for the European mink as well as the American mink. <b>Training</b> personnel to monitor both species of mink. Constant updates of the situation of the species in the wild.	Capture of 39 American mink and 55 European mink in the monitoring tasks during the autumn of 2017 and spring and autumn of 2018. Training 203 forest rangers in 11 field workshops and 7 theoretical courses.
Uniting the captured populations in the east and the west to improve the <i>ex situ</i> viability of the species. 2018-2019	<b>Experimental breeding</b> by interbreeding individuals from the populations in Estonia (Tallinn zoo) and Spain (FIEB).	3 females were transferred from Estonia to Spain, and 3 from Spain to Estonia, for two breeding periods. 4 babies were born in 2018 and 8 in 2019.

OBJECTIVE	ACTION	RESULTS
Improving the conditions of the Ebro river habitat of the European mink in the province of Álava. 2018-2019	<b>Restoring</b> the habitat of the European mink in the River Ebro LIC ES2110008.	The main activities were: – Opening a channel to connect the River Ebro and the lagoons of the old gravel pits, and to lower the turf at certain points to make the river flow better and to ensure continuous flow during floods. – Forest restoration of habitats and vegetation.
Awareness of the risks of American mink farms in the European mink Distribution Area. 2015-2019	Evaluating the threat posed by mink farms to European mink in Gipuzkoa.	Analysis report of risks associated with the farms and proposals for corrective measures.
Reducing the non-natural mortality of the European mink. 2015	Evaluating the threat posed by <b>road infrastructures</b> to European mink in Álava.	Drafting a report proposing corrective measures in the most critical spots to avoid future traffic collisions.
Boosting knowledge regarding the species and the activities of the LIFE+ Lutreola Spain project. 2014-2019	<b>Developing promotional, educational and awareness campaigns.</b>	–Imparting 27 lectures in schools with the participation of more than 800 students. –Imparting 39 lectures to the general public, with the participation of more than 1300 persons, including seminars for scientific forums and conferences. –Creating 4 technical posters. –Creating promotional materials for the local and school populations, including 2700 sheets, 3000 posters, 10,000 stickers, 3000 comics, 2000 notebooks, 300 badges, 6000 calendars and 600 folders. –Holding 3 informative sessions for the fishing and hunting sectors, organisations for vigilance and ecologist groups. –2 travelling exhibitions and 1 permanent exhibition, with more than 70,000 and 11,000 visitors respectively. Creating and updating the website <a href="http://www.lifelutreolaspain.com">www.lifelutreolaspain.com</a> and spreading awareness of the project on social networks, publishing more than 100 news articles. –Installing 9 information panels distributed in strategic locations. –Creating 2 informational videos – Holding 3 competitions: painting, microtexts and sculpture decoration.

## Eradication of the American mink



What is the American mink? The American Mink is a mustelid originating in North America. In Spain and in Europe, **it is considered an invasive species with a great impact on native species.** These animals were introduced in Spain in the late 50's for the commercial exploitation of their fur. The first wild populations in the natural environment were formed in the early 80's from individuals that had escaped or had been released from farms, and over the next three decades, they occupied a fourth of peninsular Spain. The American mink affects a large number of native species through ecological competition or direct aggression. It is currently **the primary cause of extinction of the European mink** both in Spain and in other areas where the native species is still present.

The eradication of the American mink is of vital importance to the conservation of the European mink and other threatened native species in Spain. **Tasks to monitor and eradicate this invading exotic species had met with little success before the commencement of this project.** Therefore, the main objective was to improve the efficiency of these actions.

At the beginning of the LIFE+ Lutreola Spain project, **different methods were rehearsed** (conventional traps vs. floating platforms) and **platforms were found on average to be seven times more efficient** than conventional traps. Based on the trial results, the «**American Mink Eradication**



American Mink



Male  
1,200-1,500 g  
60-70 cm

Brown-black fur

Brown upper lip

5-6 kits

Less territorial  
2-3 individuals per river km

Same diet as the European mink, in addition to larger prey.



European mink



Male  
800-900 g  
50-60 g

Chocolate brown fur

White upper lip

2-5 kits

Territorial.  
Less than 1 individual per river km

Diet: Crabs, amphibians, micro-mammals, birds and fishes

**Protocol\***» was created, which describes the method and efforts necessary to successfully eradicate the American mink. It also includes the criteria to evaluate this success, that is to say, to determine the moment when this action may be deemed complete and the second step may begin, which is the monitoring.

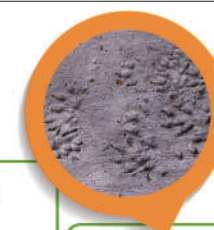
A platform was placed every kilometre along the river where the American mink was present or where its presence was a possibility. The eradication was based on the detection-capture-detection model, where the presence of the species is first discovered and then the location and time when the capture was made is predefined. This targeted method does not usually trap other species, leaving them undisturbed.

As a result the American mink population has been eliminated from the Ebro river basin area, over an area covering 400 km of river course,

### CONTROLLING THE AMERICAN MINK



Floating platforms are used to remove American mink from rivers in an effective and respectful manner.



They consist of a base supporting a tunnel with a clay pad inside.

Thanks to the clay pad, the presence of mink can be detected and then a trap is placed to capture them alive.



and from certain Cantabrian basins. In the rest of the territory covered by the project, their population has been significantly reduced. The results obtained have allowed the European mink to continue to inhabit the Ebro river basin, although in fragmented and low density groups.



## Monitoring network

After two years of implementing the American mink eradication protocol, a monitoring network was set up at the rivers cleared of this species, in order to detect its possible recolonisation and also to evaluate population trends of the European mink.

Monitoring was carried out with floating platforms as well as conventional traps. The monitoring network showed that after two years of eradication, the American mink was only sporadically present in the larger part of the work area.

The number of European mink has increased, nevertheless their situation continues to be critical owing to their low density and high fragmentation levels in the natural environment.

## Captive breeding, population reinforcement and introduction

The critical situation faced by the European mink in its habitat makes its natural recovery difficult, as in these moments, the population is fragmented and of low density. This is why **actions to release individuals bred in captivity** have been needed to improve the status of the species in the natural environment.



included throughout the programme (all males) to increase the viability and the reproductive capacity of the captive population.

The LIFE+ Lutreola Spain project supported the captive breeding programme during the 2016-2019 period. During these years, 74 babies have been born and 34 individuals have been released. Of these, 26 were used to **reinforce the population**: 11 in the Cantabrian basins in Gipuzkoa in 2017, and 15 in the Ebro river basin, in La Rioja and in Álava in 2018.

To increase the area of distribution of the European mink, eight individuals were released in 2017 in Aragón, an area that does not coincide with the distribution area of the European mink, but possesses the necessary ecological requirements for its development (what is termed **assisted colonisation**). All released individuals were intensively monitored via radio-tracking, in order to evaluate their adaptation to the natural environment. In the case of assisted colonisation, during the first two weeks, a high mortality rate was observed among the released individuals. Although it may seem negative, this experience helped to improve release methods, and the later results for population reinforcement were much better, as more than half of the individuals survived during the first two months, the most critical period for their adaptation to their natural habitat.



### Captive breeding of the European mink and its reintroduction into the wild

Captive breeding has been carried out within the framework of the **national *en situ* conservation programme** that began in 2004. The captive population is distributed among various centres of which El Pont de Suert in Lérida and the FIEB (Foundation for Research in Ethology and Biodiversity) in Toledo are the largest. Due to the reduced number of individuals within the programme (less than 50 adults) and the difficulties of captive breeding, 6 individuals from the natural environment have been

## Improving genetic variability



In addition to the **small size of the Western population** of the European mink in the natural environment, a further risk is its current separation into two groups (Spanish and French), as a consequence of the invasion of the American mink.

A small population rapidly loses genetic variability, which may affect its presence in nature. Although there are captive populations in the north of Europe and in Spain, they do not have enough individuals for long-term viability. Bringing together the two captive populations could improve the situation, but a trial must be made first.

During 2017 and 2018, experimental captive breeding was attempted among the individuals in the north of Europe and in Spain. Three minks were sent from the Tallinn zoological park in Estonia to FIEB in Spain, and three from Spain to Estonia.

For reasons unknown, the minks from Estonia had difficulties entering estrus (in 2018 they did not enter estrus and in 2019, estrus was delayed).

The specimens from Spain had fewer difficulties adapting, and two of the three females successfully gave birth to young.

The first-generation young reared in Estonia and Spain bred without difficulties.

The results are inconclusive and therefore experimental breeding should continue, preferably in centres with environmental conditions that are similar to the north of Europe. The first and second-generation individuals must then be released in order to assess their adaptability to the natural environment.

## Habitat improvement

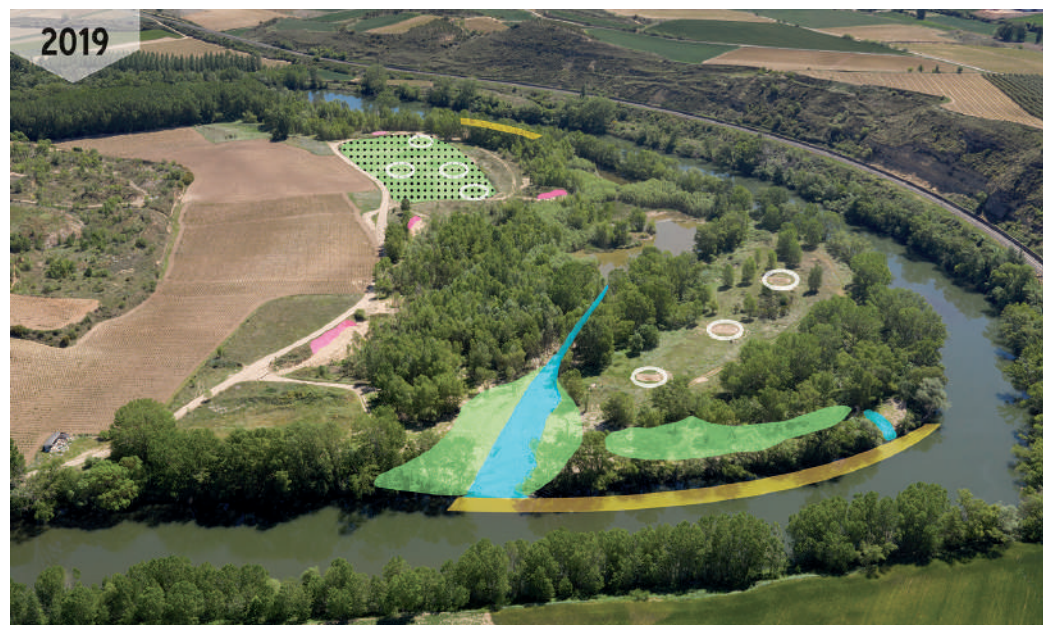
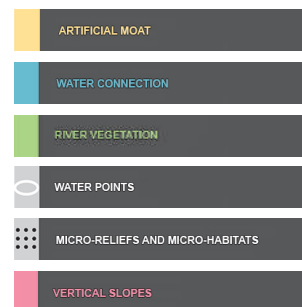
The European mink lives in different types of aquatic environments. In Spain, it displays a preference for the lower and middle reaches of rivers, with groves in a good state of conservation, and dense and varied vegetation (brambles, shrublands, reeds, willow forests, ash and alder groves. This type of habitat usually holds a large variety of prey and extensive shelters, both of which are very important for this small carnivore.

Due to human pressures, the natural dynamics of the course of the River Ebro and its banks have been affected in different zones, especially in the Gimileo or Andaverde meander, which



was considerably reduced in environmental value owing to its use as a gravel pit during the previous century. As this is a habitat of great interest for the European mink, LIFE+ Lutreola Spain developed an environmental restoration plan, meant to improve shelter and food availability for the European mink in the River Ebro LIC ES2110008, an area that is regularly inhabited by the species. In time, connections will be developed with other sections of the basin and the high quality habitat area available to the species will be extended.

### RESTORATION ACTIVITIES



IMAJIS PÓDRA



## Reduction in the non-natural mortality of the European mink

The linear arrangement of the European mink's habitat, its spatial behaviour and the deterioration in river ecosystems have contributed to **deaths by traffic collisions** in areas where road infrastructure intersects with river courses or run alongside them.

Although this threat has not been considered a notable problem for the mink population, it does have a significant effect at local level as the populations, apart from being fragmented, are composed of a limited number of members.

Mortality due to traffic collisions generally occurs at the same points due to a lack of permeability in

the infrastructures and effective animal corridors, which forces them towards the highways, thus increasing the risk of death due to passing traffic.

For this study, data on deaths due to traffic collisions from the 80's onwards was compiled in the province of Álava, and blind spots and sections were reviewed. Subsequently, a report was drafted proposing corrective measures in the most critical spots to avoid future traffic collisions.

These corrective measures have been made available to the highway service of the Regional Government of Álava for implementation.

## Dissemination and raising awareness



Due to its discreet nature, the European mink is largely unknown to the general public. For this reason, promoting knowledge regarding this species as well as its need for protection has been one of the pillars of the LIFE+ Lutreola Spain project.

At the same time, the fragility of river ecosystems, especially in the Mediterranean basins, has also been highlighted and public awareness on the need for proper ecological conservation has been promoted.

These activities were aimed at the general public as well as specialists, in the form of educational and technical talk sessions.

More than eight hundred school students attended the lectures in educational centres that provided an introduction to this species. A wide range of awareness and communication activities were also accomplished in addition to the aforementioned educational campaign to promote public involvement in protecting this charming mustelid.

Other initiatives for dissemination included three competitions: one on drawing, one on microtexts and one on decorating mink sculptures. The works created in these competitions were later exhibited at the Ataria interpretation centre in Vitoria-Gasteiz. Other promotional materials such as an educational book, sheets, stickers, videos, calendars and a comic were also created in Basque and Spanish.

Three exhibitions were also held, of which two were transported all over the project area, and one was hosted at the Casa de las Ciencias in Logroño, with guided visits and children's workshops attended by more than 80,000 visitors.

A large number of communication and dissemination actions on social media were also carried out.

The website [www.lifelutreolaspain.com/](http://www.lifelutreolaspain.com/) contains all the project information, promotional materials and technical documents for consultation and dissemination.



As it is not an emblematic species, society is, by and large, unaware of its existence.



## And after LIFE?

The project partners continue to work on the recovery of European mink populations and thanks to the collaboration of government administrations, activities will be carried out, in the medium and long term, to boost the species and its habitat within the area of distribution.

In order to ensure that the results obtained are long-lasting, they will continue to actively combat the proliferation of American mink

populations. They will also continue to develop measures for monitoring the European mink populations, captive breeding and reinforcing their population, as well as other activities aimed to improve their habitat. LIFE Lutreola Spain has given visibility to this little-known species, and will continue to promote actions to boost awareness and promote knowledge on this species.



Beneficiary and Coordinator



With the contribution of the financial instrument  
LIFE of the European Union

Associated Beneficiaries

