

# CONSERVATION STATUS ASSESSMENT OF THE LONG-FINGERED BAT (*Myotis capaccinii*) IN THE IBERIAN SOUTHEAST



With the support of:



## THE PROJECT

ANSE (Southeast Naturalist Association) is developing this project throughout **2020 and 2021** with the support of the **Biodiversity Foundation** of the Ministry for the Ecological Transition and the Demographic Challenge. In addition to the Spanish Lemon and Grapefruit Interbranch Organization (**AILIMPO**).

### OBJECTIVES

The main aim of this project is to **learn about the current conservation status** of this particular bat in the Iberian SE, taking advantage of other studies on Chiroptera species that share the same roosts and hunting habitats.



## DEVELOPMENT AND CONTENT



### RANGE

This project, whose territorial scope affects **4 autonomous communities** (Región de Murcia, Andalucía, Comunidad Valenciana y Castilla-La Mancha), is articulated around the following course of action:



1

**Dissemination, communication and social participation** in the project.



2

**Revision of the current state of knowledge** being thus shared with the scientific community.



3

Monitoring of the **main known roosts** and the **inventory of new localities**, as well as the establishment of **early warning systems** for threat detection.



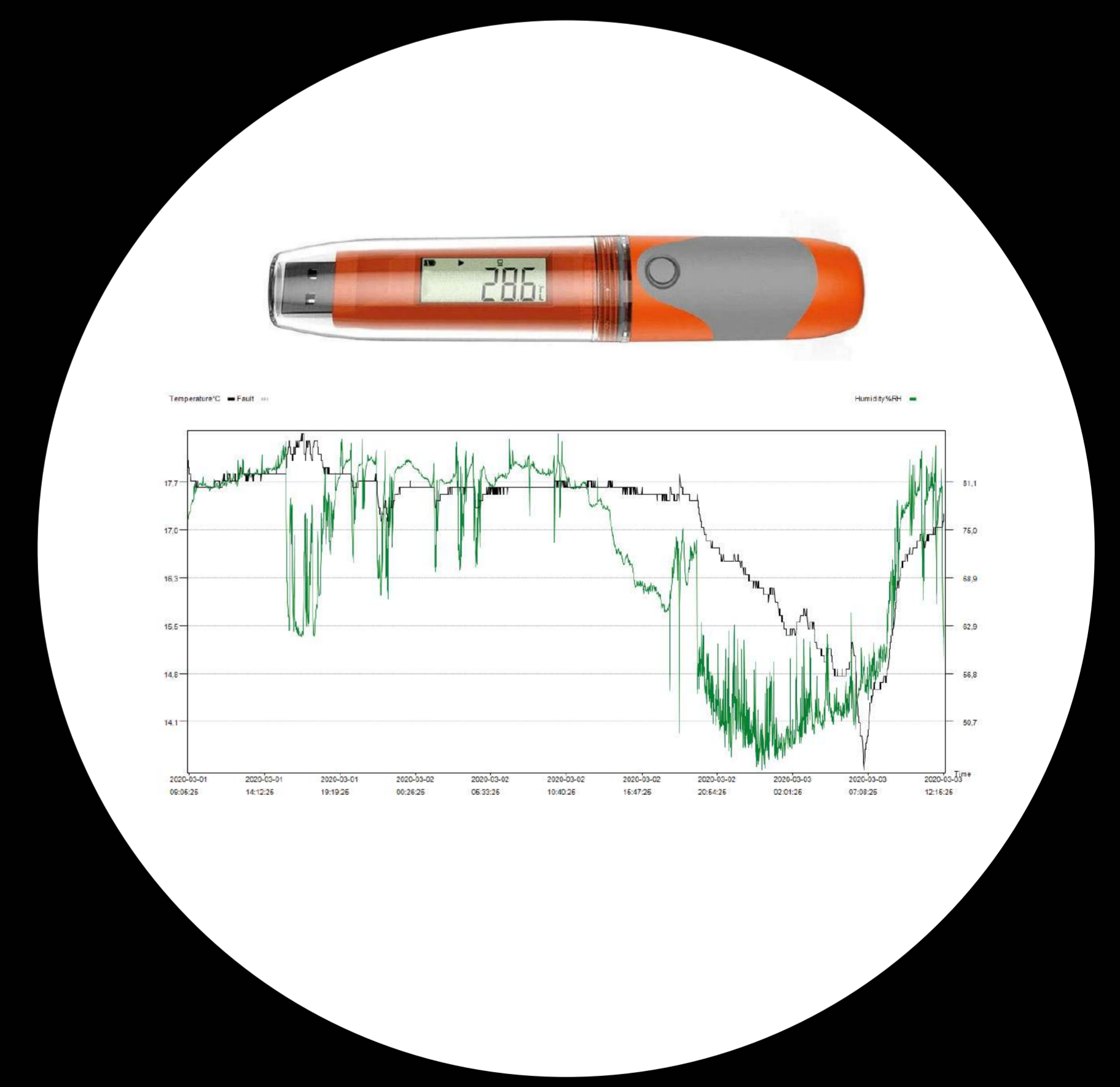
4

Inventory by **radiotracking and ultrasonic detectors surveys** of breeding areas and establishment of **early warning systems** for threats to potential hunting habitats.



5

Determination of **microclimatic conditions** of key roosts and their likely alteration due to climate change.



# FLYING MAMMALS

Bats are currently the only animals, including birds and insects, capable of active flight.

Scientists classify them into the order **Chiroptera**, derived from the Greek terms *cheiro* (hand) and *ptera* (wing), which literally means "winged hands".



## CHIROPTERANS: SEASONED AERIALISTS

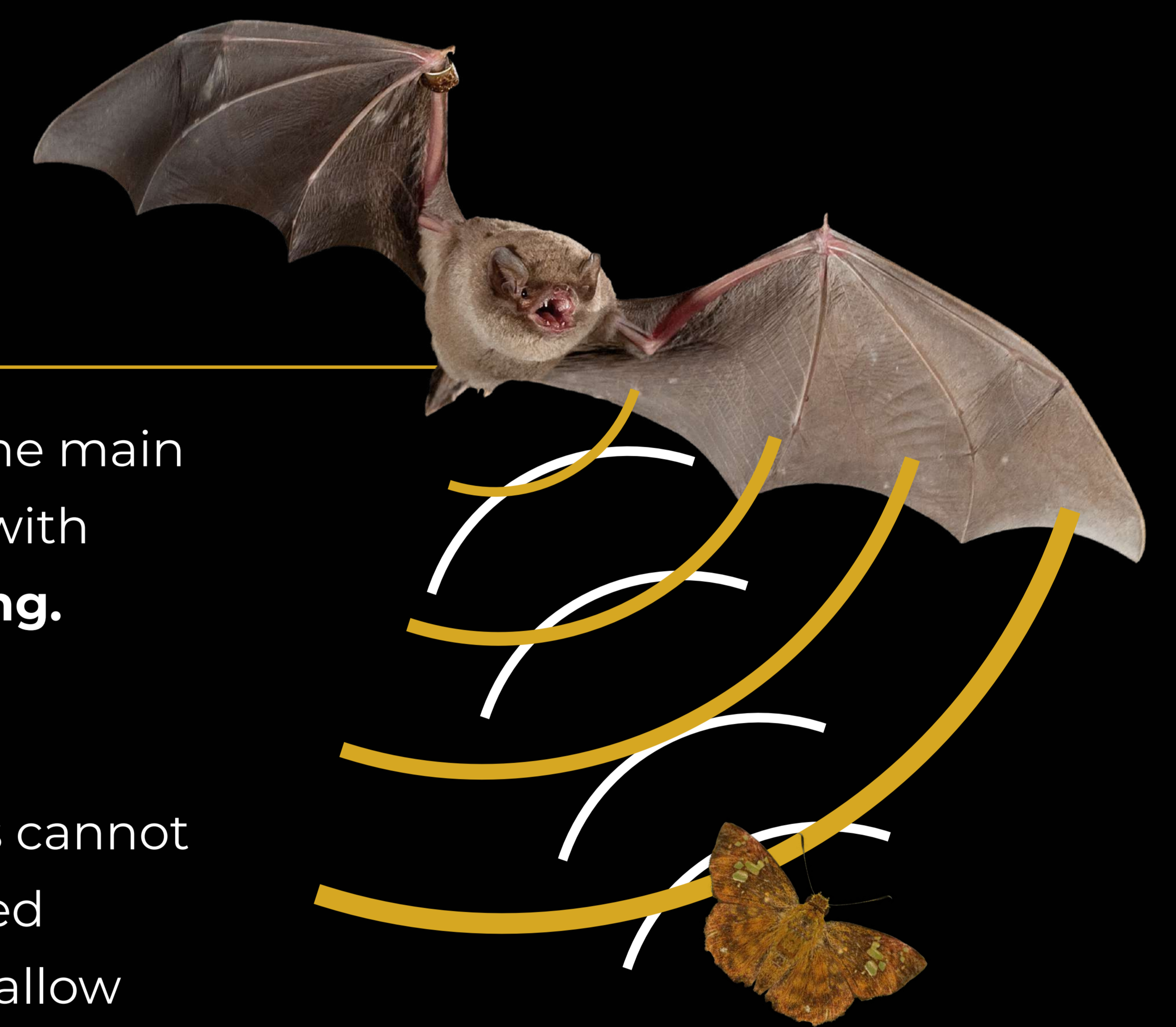
### DIVERSITY AT ITS PEAK

There are **over 1,400 species** that we currently know of, ranging from the large flying foxes from the Old World to the small bats we see hunting around streetlights on spring nights.

### BAT SENSORY SYSTEMS

Despite **not being blind**, the main sense they use to interact with their environment is **hearing**.

Many bats emit **ultrasonic sounds**, which we humans cannot hear. Therefore, the reflected echoes of these emissions allow them to determine the shape of its surroundings or to capture the prey they feed on. This is known as **echolocation**.



### LONG-LIVED ANIMALS

The bats in our area **reproduce only once a year** and usually give birth to a single pup in spring. At this time, mature females gather in colonies of hundreds or thousands of individuals.

Bats allow themselves these low reproductive rates, despite their small size, as they get to live for many years. The **longevity record** is held by a tiny Brandt's Bat (*Myotis brandtii*) that reached **the age of 44 years**.

### SAVING ENERGY

In times of food shortage, such as winter in temperate climate zones, bats **reduce their body temperature to go into hibernation**. They remain inactive for as long as necessary until insects resume their activity the following spring.

### A COLORFUL DIET

Most species **feed on insects and other invertebrates**. Meanwhile, there are others, particularly in tropical regions, that have a considerably more varied diet: **fruits, pollen, small birds, rodents, amphibians, fish and even the blood** of other vertebrates in the case of true vampires.



### TRULY NIGHTHAWKS

Bats are **crepuscular and nocturnal animals**. They spend the day resting or carrying out other activities inside their roosts (hollow trees, caves, old buildings, etc.), but when the sun goes down, they leave in search of food.



# WHO IS THE LONG-FINGERED BAT?

*Myotis capaccinii*

Order: Chiroptera

## THE ANATOMY OF THIS FISHING BAT



### ETYMOLOGY

Its common name, *Myotis*, derived from the combination of the Greek terms *mys* (**mouse**) and *otos* (**ear**).

### HUGE FEET

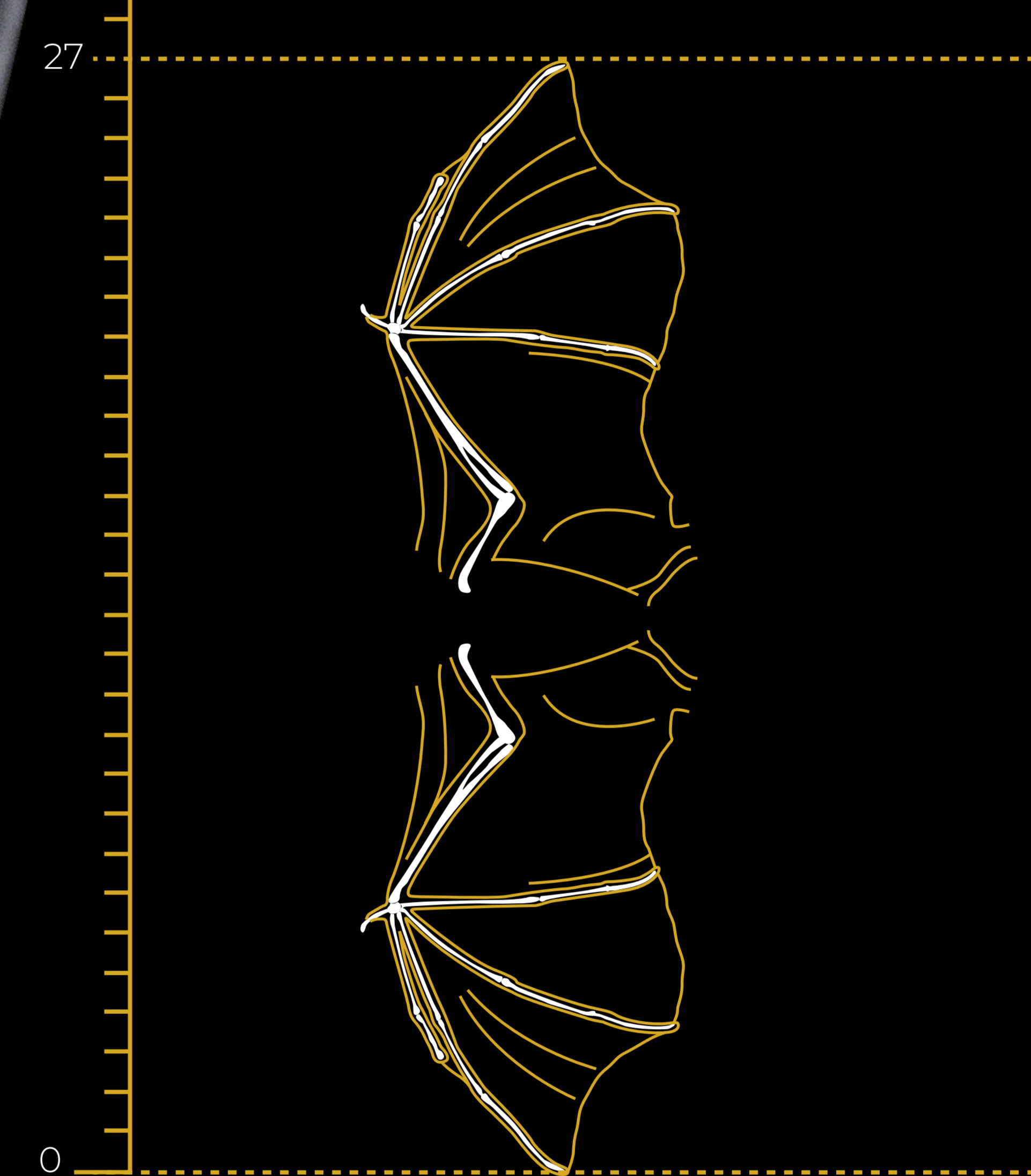
Feet make themselves useful when it comes to **hunting the bat's prey** on water surfaces, where it usually feeds.



### DESCRIPTION

Grey-furred back with **whitish and lighter shades of grey** on the underside. Both legs and interfemoral membrane (uropatagium) are covered by soft fluff.

Medium-sized.  
Wingspan of 23-27 cm.

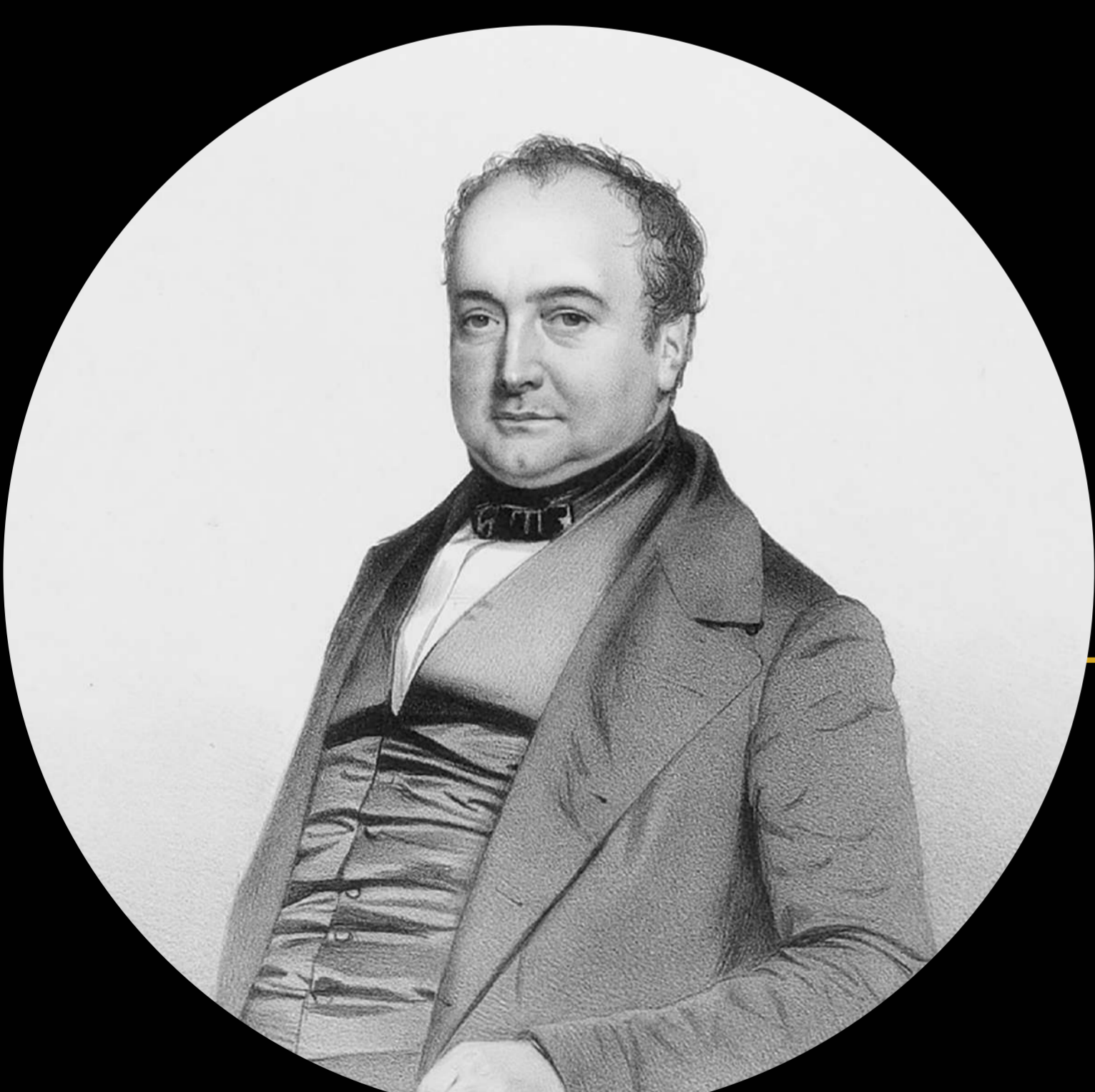


### DIET

They feed on insects and small fish.



## THE "LONG-FINGERED": NAPOLEON AND SPIONAGE



Charles Lucien Bonaparte

This species was named in **1837** by **Charles Lucien Bonaparte**, French naturalist, politician, and **nephew of Napoleon**.

Married to his first cousin, Zénaïde Laetitia Julie Bonaparte, Infanta of Spain and daughter of Joseph I Bonaparte (our so-called "Pepe Botella"). Her name inspired the naming of an American genus of pigeons (Zenaida).



Francesco Capaccini

**Charles Lucien** also dedicated the specific name of this bat to **Francesco Capaccini**, an Italian cardinal and apostolic internuncio in the Netherlands, who sponsored the publication where our bat was described for science.

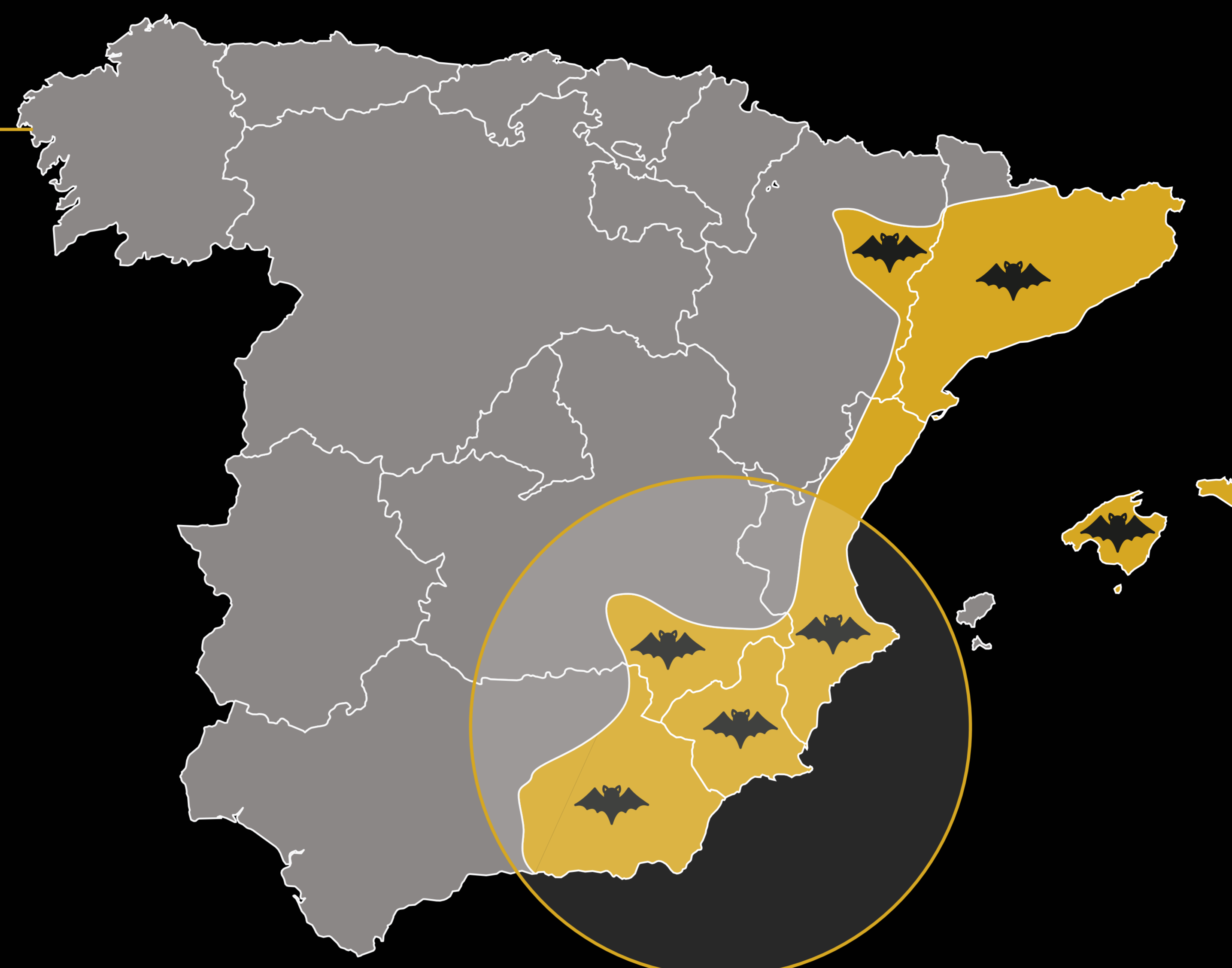
In the mid-19th century, Capaccini was the **first head of the Vatican's cryptographic department**, where he developed a system of communication encryption. It is still partly used today for the transmission of confidential messages between Rome and its embassies.



# DISTRIBUTION OF THE LONG-FINGERED BAT

## MEDITERRANEAN HABITAT

In Spain, the long-fingered bat is distributed along the **Mediterranean coastline**, in territories of the autonomous communities of Andalucía, Castilla La Mancha, Región de Murcia, Comunidad Valenciana, Aragón y Cataluña, as well as in the Islas Baleares and the Ciudad Autónoma de Ceuta.

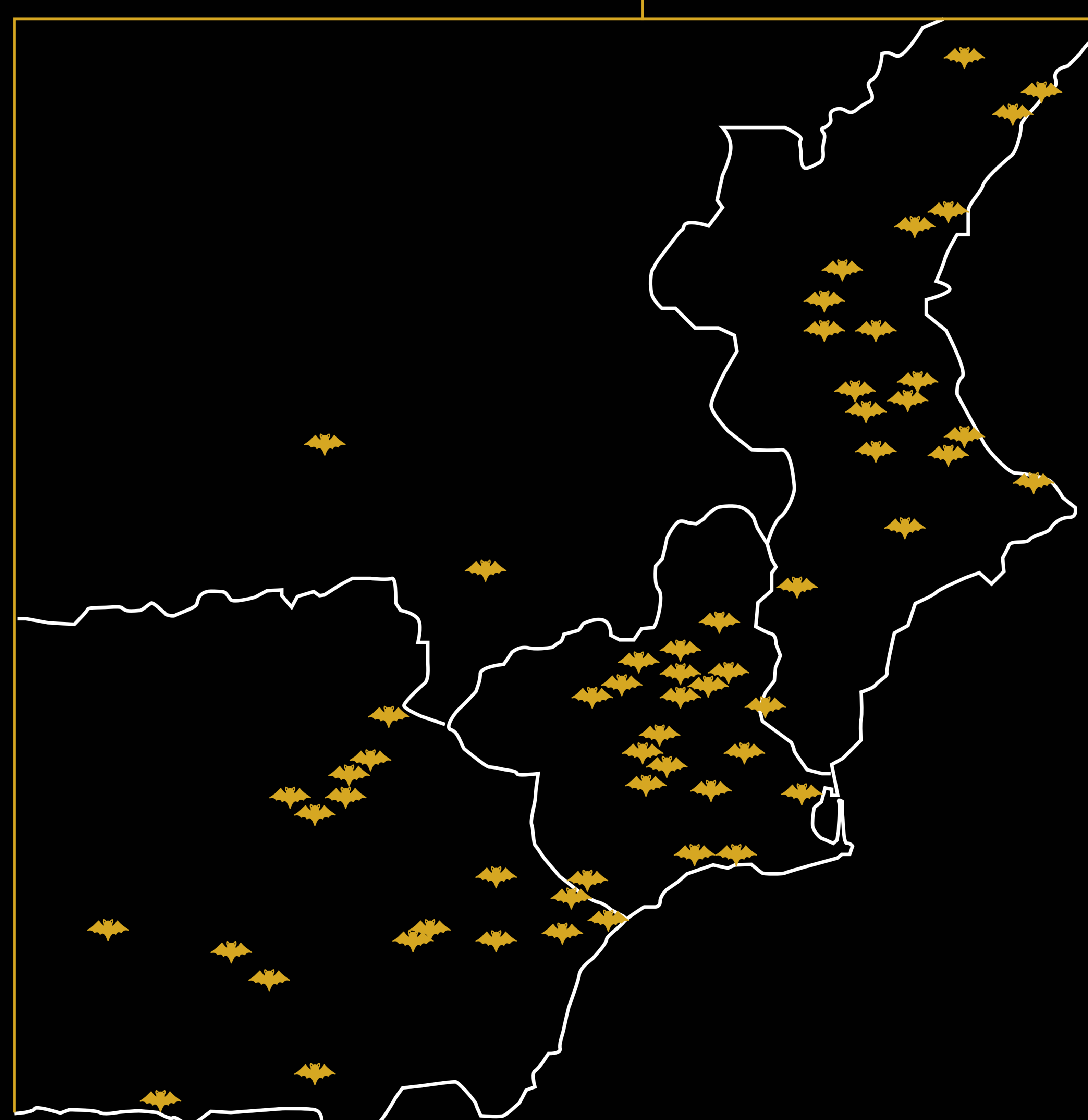


## HOW MANY SPECIMENTS ARE LEFT?

### ENDANGERED SPECIES

The Spanish population is estimated **not to surpass 10,000 individuals**. This is one of the main reasons why it is classified as "**Endangered**", at the same level as more symbolic species such as the Iberian lynx, the Brown bear, or the Iberian Imperial Eagle. In the area of influence of this project, there are just over **fifty known roosts**.

Nevertheless, only isolated individuals or a few specimens have been found in many of them.



### CAVES INHABITANTS

It is a **strictly cave-dwelling species**. It is often associated with other troglophilic bat species. In particular, the Bent-winged bat (*Miniopterus schreibersii*) in whose swarms, which are much more numerous, often goes unnoticed.



On the left, the Bent-winged bat. On the top right, the Long-fingered bat.

### EVASIVE AND RARE

They take shelter throughout the year in caves, pit **caves, mines, and the like**. In Spain, they are usually found in colonies of a few hundred individuals at most.

They often hide in cracks and crevices in walls, especially during hibernation, making their presence difficult to detect.



# BEHAVIOUR, DIET AND REPRODUCTION

## LONG BREEDINGS

Mature females gather in colonies to give birth to their only pup. Labours take place from the middle of May, and young bats start learning to fly at 4-5 weeks of age. They may sometimes alternate between a network of several nearby roosts during breeding.

Once breeding is over, females join males again in intermediate roosts towards the end of summer. This is where mating begins, which can last for the entire winter in the Iberian SE. Females store the sperm in their uterus, then the fertilisation of the egg only takes place the following spring.

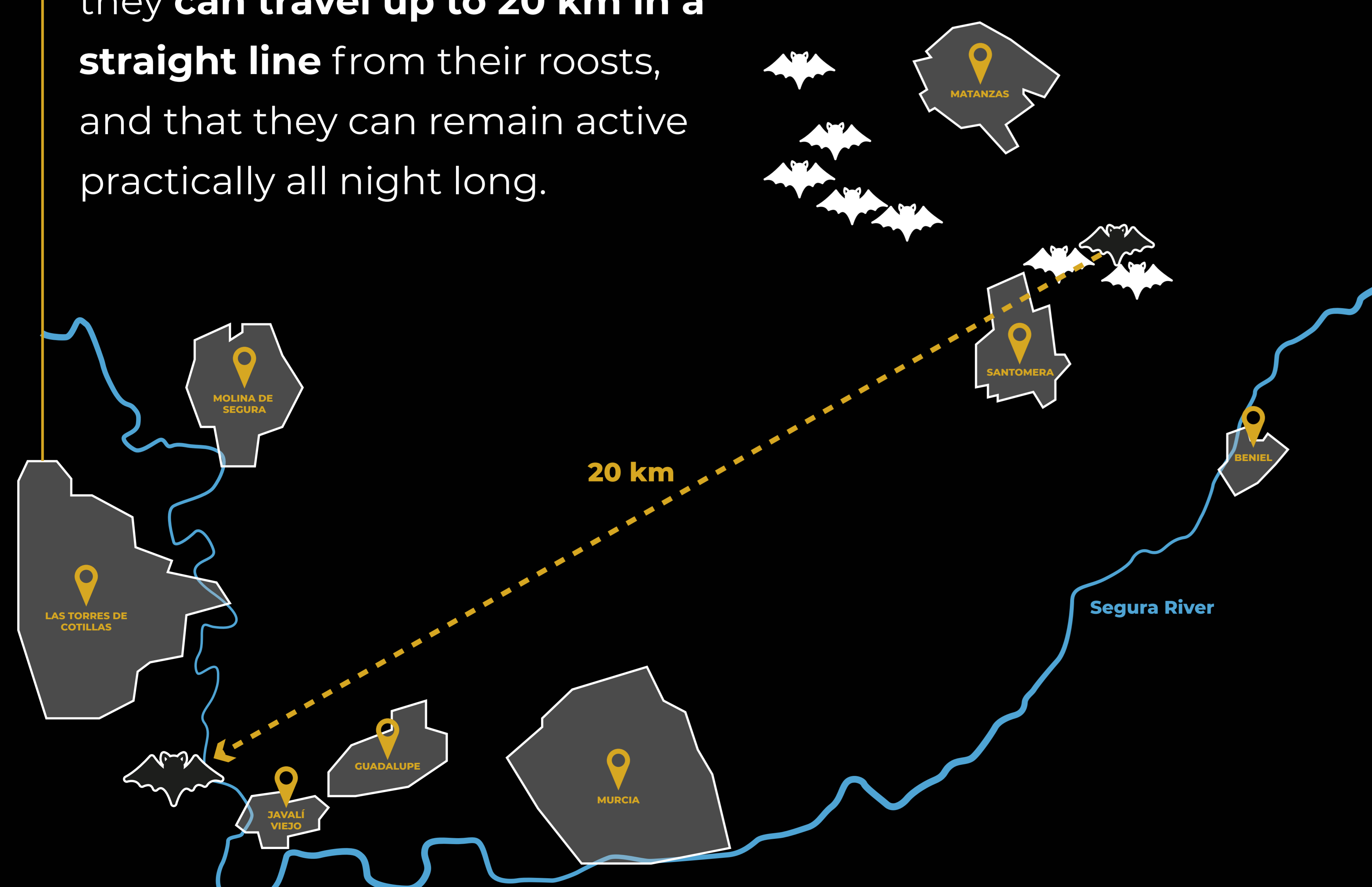


## TIRELESS TRACKERS



### TIRELESS TRACKERS

During their nocturnal hunts, they make considerable displacements. Thanks to the radiotracking of 8 specimens in Murcia, it has been found that they can travel up to 20 km in a straight line from their roosts, and that they can remain active practically all night long.



### LIKE A FISH IN ITS ELEMENT

The Long-fingered bat is closely linked to aquatic environments. They hunt mainly by flying over water surfaces such as rivers, ponds, lakes, reservoirs, etc. They prefer water bodies of stagnant or slowly moving streams, with abundant vegetation on the banks. In addition to other types of rather more artificial environments (irrigation ponds, canals, etc.).

### WHAT'S ON THE MENU?

Its diet consists mainly of aquatic insects (mosquitoes, caddisflies), moths and occasionally small fish such as the Eastern mosquitofish (*Gambusia holbrooki*).



# CONSERVATION AND VULNERABILITY



## THE REASONS BEHIND ITS SITUATION

Apart from its status in Spain, the Long-fingered bat is **listed by the IUCN as "Vulnerable" worldwide**. The main factors threatening its population are:



1

**Roosts being disturbed** because of unrestrained visits.



2

**Loss of roosts** due to direct destruction or blockage of entrances.



3

**Alteration of the water bodies** where they feed (destruction of streambank vegetation, changes in the water regime, etc.).



4

**Water pollution** by pesticides and fertilisers.

## INITIATIVES FOR ITS CONSERVATION

The Long-fingered bat is **the only Iberian Chiropteran species considered as "Endangered"** in the Spanish Inventory of Threatened Species (RD 139/2011). It is also included in Annex II and IV of the Habitats Directive.

In pursuance of the aforementioned, several **Sites of Community Importance** have been proposed in Spain and some caves or areas where the species is present have been declared **Special Areas of Conservation**.



### THE CAVE OF "LAS YESERAS"

In 2019, the ANSE Foundation acquired one of these **SACs, the cave of "Las Yeseras"** (Santomera, Murcia), which is home to one of the largest colonies of the species in Spain. ANSE has launched various initiatives for the **dissemination, protection and research** of the bats that take shelter in this cave.



### POLLUTION REDUCTION

**Reducing the use of pesticides** in the catchment areas of watercourses and water bodies.



### ROOSTS PROTECTION

**The entire network of roosts** used by the different regional populations throughout their life cycle **must be protected**. Visits to the most important breeding and hibernation roosts should be controlled by **blocking their access with enclosures that are permeable to bat flight**.



### REVEGETATION OF DISTURBED BANKS

**Maintenance of plant diversity** (gallery forests, natural streambank vegetation) and the environmental flow of watercourses.