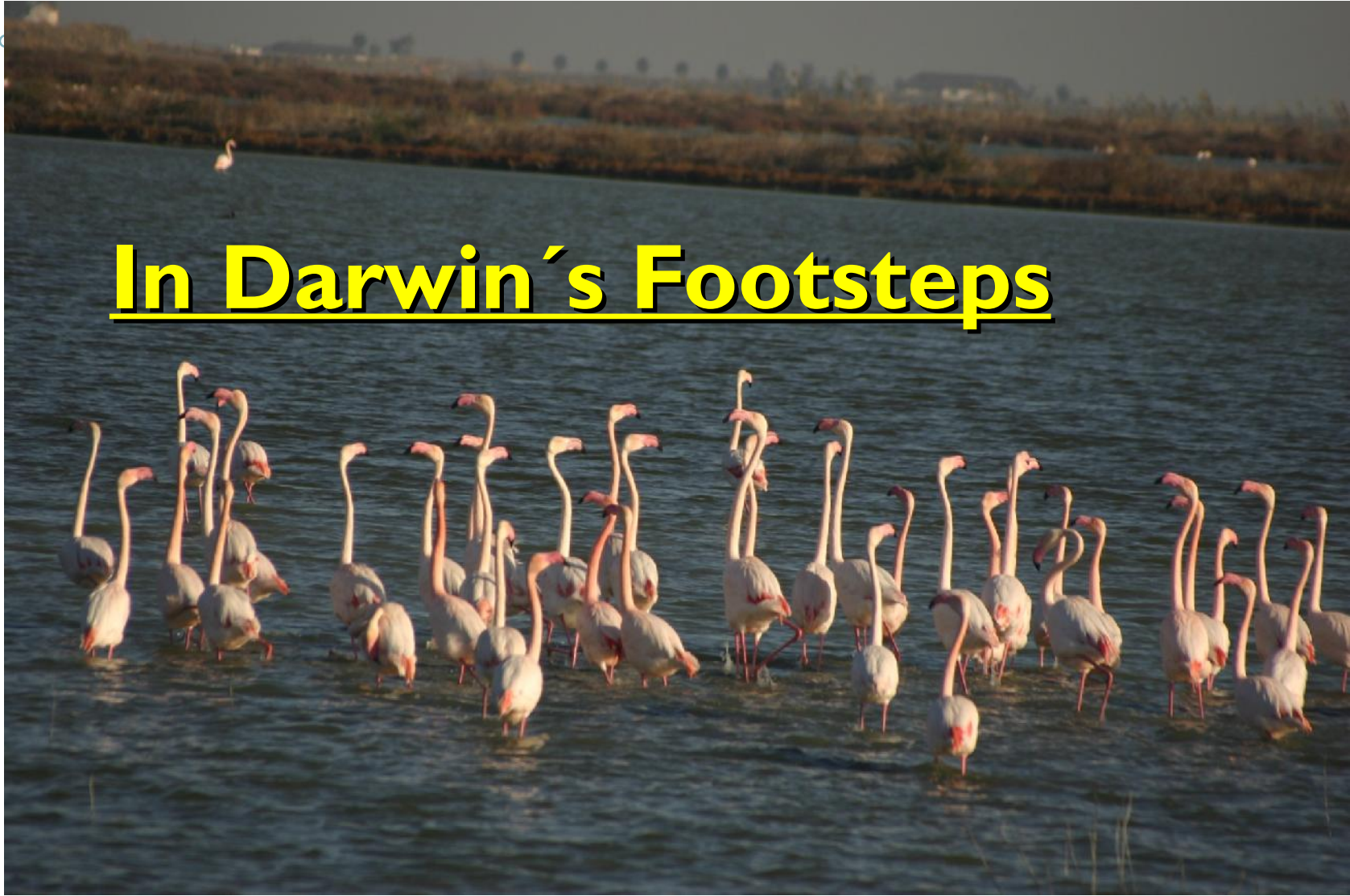
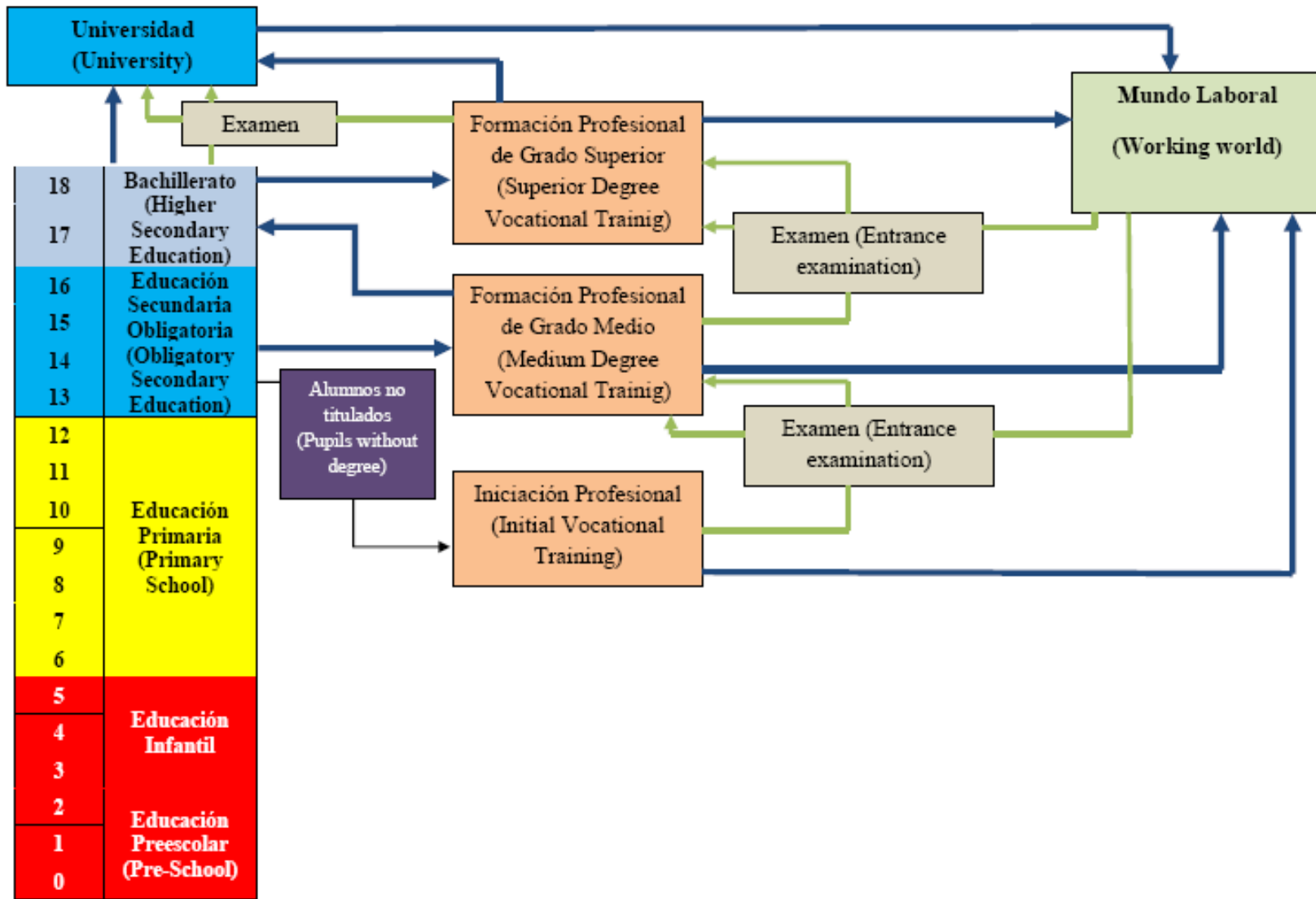


how are you delivering Biodiversity in your workplace?

In Darwin's Footsteps



Spanish Education System



Superior Degree Vocational Training

- Our pupils come after finishing Higher Secondary Education (Bachillerato).
- In some cases, they can come, passing an exam, from labour world or from a Medium Degree in Vocational training.
- So, we have pupils with high preparation and high motivation, normally with ages between 18 and 30.
- Our courses are called “Ciclos Formativos”, with 2000 hours length divided in two years.
- During the second year, each pupil must spend three hundred hours working as apprentices in a company linked to the subjects of the “Ciclo”
- Pupils get a high rate of employment.

GESTIÓN DE LOS RECURSOS NATURALES Y DEL PAISAJE (natural resources and landscape management)



CICLO FORMATIVO SUPERIOR
I.E.S. DOÑANA
ALMONTE (HUELVA)

MÓDULOS PRIMER CURSO

- FOREST RESOURCES MANAGEMENT AND TIMBER HARVESTING
- FOREST CALCULATIONS
- FOREST DISEASES AND FIRES
- OPERATING AND MACHINES MAINTENANCE
- PRODUCING TREES. FOREST NURSERYS
- COMUNICACION
- FOREST SECTOR IN ANDALUCIA

MÓDULOS SEGUNDO CURSO

- CREATING A SMALL FOREST COMPANY
- HUNTING AND FISHING MANAGEMENT
- LANDSCAPE RESTORATION
- ENVIROMENTAL GUIDES ON PROTECTED AREAS
- INTEGRATED PROJECT
- 300 HOUR PRACTISES IN A COMPANY OR IN THE ENVIROMENTAL PUBLIC ADMINISTRATION

Superior Degree Vocational Training in “Natural Resources Management”

- Pupils having earned this Degree are qualified to work as:
 - Rangers in Spanish environmental administrations.
 - Technicians in timber companies.
 - Environmental guides in the tourist sector, environmental educators...

How do we deliver Biodiversity?

- We start from a privileged situation:
 - Our school is near a large pine wood which is owned by the Council of Almonte. So, We have about 7.000 Hectares of Nature only five minutes far away.
 - The best: We are in the influence area of Doñana National Park, one of the most important protected areas in Europe.

ALMONTE'S PINWOOD

- With the Council of Almonte, we learn to make good use of the wood:
 - Learning to manage the use of the timber, how to plant the trees, when to cut them down, which ones , how and why.
 - Learning to manage and use other profits of the wood, as pine nuts, mushrooms, livestock or games

ALMONTE'S PINWOOD



- ✓ Pupils are making here a forest inventory.
- ✓ It's very important to simulate real work situations.
- ✓ First, they've prepared the work in the classroom.

- ✓ Using new technologies, as GPS, PDA, digital cartography, etc, you can increase the interest of the pupils.
- ✓ It's essential that they must be always the protagonists



In Darwin Footstep; An experience from vocational training in Andalucía

ALMONTE'S PINewood



- ✓ Pine nuts are an important resource in our area.
- ✓ Knowing how ancestors had developed a culture based on the maintenance of the forest is another step to increase their interest in learning more about BIODIVERSITY and to love it.

✓ Making a forest inventory you can learn a lot about botanical species which grow under pine trees.



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ALMONTE'S PINWOOD

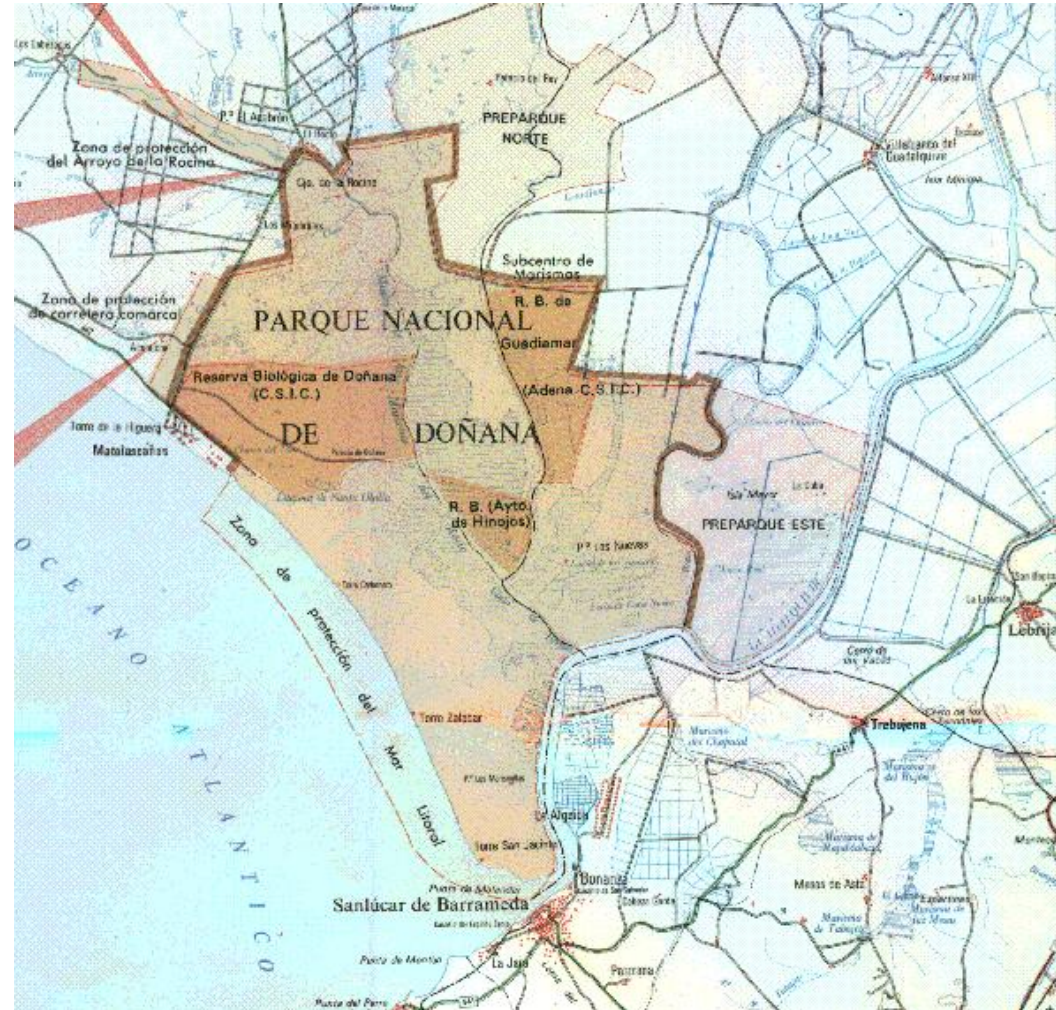
- ✓ Rabbits, hares or partridges are some of the games people hunt in Almonte's Pinewood.
- ✓ It's necessary a good management of the game population.
- ✓ Pupils make censuses and samples of these species and all protected species that live in the area



In Darwin Footstep; An experience from vocational training in Andalucía

DOÑANA

- ✓ With about 75.000 Has, Doñana is one of the biggest National Parks in Europe.
- ✓ It is the main rest and winter area for all the european birds that fly to the South in cold weather.
- ✓ Many of the European threatened species live here:
 - ✓ Imperial eagle
 - ✓ Pardel lynx
 - ✓ White-headed duck
 - ✓ Marbled duck
 - ✓ Greek tortoise
 - ✓ And many more



In Darwin Footstep; An experience from vocational training in Andalucía

DOÑANA

✓ The CSIC (Superior Council of Scientific Research) has an important scientific team working here.

✓ One of their workline is to take periodical measurements of all biotic and abiotic parameters of Doñana's ecosystems.

✓ A group of scientist,s helped by the rangers of the Park, work in this task. They are called the "Equipo de Seguimiento" (surveillance team) and are divided in more little especific groups (birds, carnivores, micromammals, soil and erosion, water quality, limnology, atmosphere...)

✓ Our Highschool has signed an agreement with CSIC in order to help our pupils in their training.

✓ From October to May, all Tuesday, pupils go to the National Park to work with the "Equipo de Seguimiento"

✓ In this way, they can see and work with all the biodiversity and abiotic parameters in the park.

✓ One day, they go to work with birds team, next day with reptils, next with seaweed, next with invader plants...



DOÑANA

Capturing, ringing and measuring zampullín cuellinegro (podiceps nigricollis L.) They come to Doñana from Ucrania, Rusia and Baltic countries every winter.



In Darwin Footstep; An experience from vocational training in Andalucía

DOÑANA



✓ Making a census of aquatic birds in the marshes



In Darwin Footstep; An experience from vocational training in Andalucía

DOÑANA

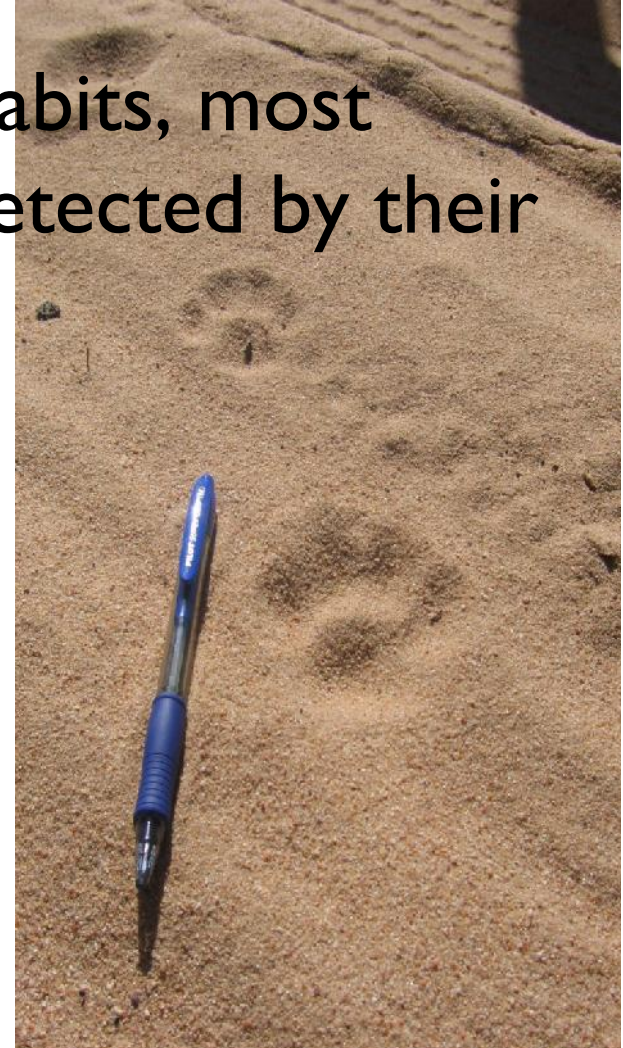
- Due to their nocturnal habits, most carnivores can only be detected by their footprints.

Meloncillo (*Herpestes ichneumon*)



Tejón (*Meles meles*)

Lince ibérico (*Lynx pardina*)



In Darwin Footstep; An experience from vocational training in Andalucía

DOÑANA



✓ By working with “egagrópilas” collected by pupils, you can know what kind of nocturnal predatory birds there are in the area, and, most importantly, it is the best way to know the micromammals, very difficult animals because of their habits and size



In Darwin Footstep; An experience from vocational training in Andalucía

DOÑANA

- Finally, our pupils can work as natural educators or natural guides.
- We use the perfect environment that Doñana give us to work with primary and secondary schools.
- Our pupils practise working as guides for groups of younger students from these schools in the public area of Doñana.



In Darwin Footstep; An experience from vocational training in Andalucía

Superior Degree Vocational Training in “Farming Management”

- This “Ciclo” is located in Cartaya, SW Andalucía.
- Our area is the first strawberries producer in Europe (second in the world, only after California).
- We are one of the principal producers of fruit in Europe (oranges, peaches, nectarines, plums, mandarines. ..)
- Pupils qualified in this “Ciclo” are able to work as managers in small and medium farming enterprises.
- Also, they can work as technicians in these companies and in bigger ones.

How do we deliver Biodiversity?

- Intensive agriculture have brought richness to our area.
- But the increase in the use of pesticides and fertilizers causes serious problems in the environment.
- Also, the need to use high-production varieties causes the loss of traditional varieties of crops.
- These old varieties could need being mixed with the new ones in case a new disease or pest appears. They are plants wich have evolved in the area, so, they are perfectly adapted to the environment

How do we deliver Biodiversity?

- Pupils are now beginning a project to recover old varieties.
- They are interviewing old farmers who still plant these crops in little familiar orchards.
- We are researching the old methods, how they associated the crops, how they alternated them, what the best techniques were...
- We are expecting to publish a book with the help of the Council of Cartaya







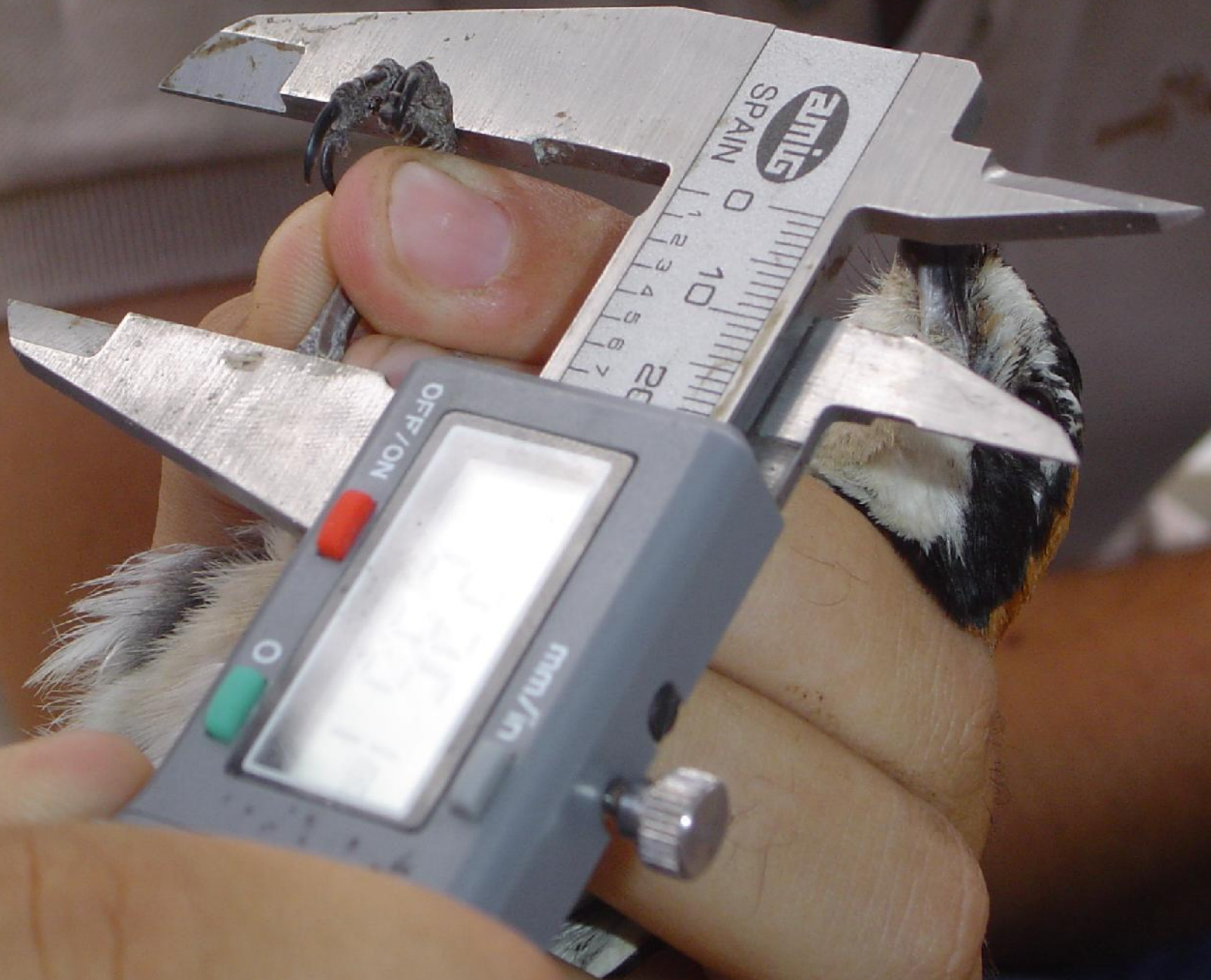


















**THANK
YOU!**