

# Cyanopsitta

The newsletter Loro Parque Fundación

LORO PARQUE  
FUNDACIÓN  
VISITS THE  
GERMAN  
PARLIAMENT

ALL COCKATOOS  
OF THE WORLD  
FOR THE FIRST  
TIME TOGETHER  
AT LORO PARQUE

LORO PARQUE  
FUNDACIÓN  
HOPE FOR  
WORLD'S MOST  
ENDANGERED  
SEAL

2019

# 115





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Mediterranean monk seal (*Monachus monachus*)  
Photo: Nuno Sá

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IBAN: ES40 0061 0168 8100 5034 0118  
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Banco Santander, Puerto de la Cruz  
CUENTA: 0049 0290 37 2113529526  
IBAN: ES46 0049 0290 37 2113529526  
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BBVA, Puerto de la Cruz  
CUENTA: 0182 5310 6100 1635 6158  
IBAN: ES85 0182 5310 6100 1635 6158  
BIC: BBVAES33

Legal deposit: TF-1643/2003

Cyanopsitta is printed on recycled environmentally-friendly paper.



# LORO PARQUE FUNDACIÓN

WE CARE

Dear friends,

*This Cyanopsitta comes into your hands a few weeks after a UN report has warned that there could be 1,000,000 endangered species and, more worryingly, that the rate of biodiversity loss is accelerating. In case anyone was not yet convinced, it is already clear that we are in the midst of the Sixth Mass Extinction on Planet Earth, this time man-made. Loro Parque Fundación is fully committed to the fight against extinction, that's why we wanted to dedicate this issue to the most endangered marine mammal in Europe, the Mediterranean monk seal. Loro Parque Fundación is involved in the LIFE project that works for the conservation of this species. The foundation is already collaborating in the satellite tagging and monitoring of the monk seal population on the island of Madeira, where there are only 25 of them left.*

*Nearly coinciding with this report, the Vatican has issued a statement endorsing zoos at an international conference in which they have been described as the Noah's Arks of the 21st century. In the sixth point of its conclusions, the conference stressed the need for greater support from society and administrations as the unique ability of zoos and aquariums to save animals from extinction. This support and recognition is what Loro Parque and the "Association of Zoological Gardens" (VdZ) were trying to achieve during their visit to the German Parliament by raising international political awareness.*

*Meanwhile, in the northern hemisphere, we are entering another summer that once again promises to break records for maximum temperatures and, consequently, for the permanent Arctic ice to reach a new minimum. NASA's data indicate that the Arctic sea ice surface shrinks by 12.8% every decade, meaning that in the last 40 years we have already lost half of the ice and by 2060 it will completely disappear. Concern about alarming climate change has prompted Loro Parque to co-finance with the Canary Islands Government the largest public/private marine conservation project: CanBIO, which will invest € 2,000,000 over the next four years to investigate the effects of temperature increase and marine acidification in Macaronesia. Thanks to the strong financial support of LPF, the two Canary Islands Universities have already received this year's funds and have started to work. So much so that in the next Cyanopsitta we will be able to inform you of the first results.*

*Although we do not forget the rest of our projects either. On this occasion we keep you informed of the successful Lear's macaws reintroduction, which have shown an enormous energy in their re-adaptation to nature. We will also talk about the ecological importance of parrots in preserving the ecosystems where they live as seed dispersers. This is why our commitment to the conservation of parrots goes far beyond preserving their beauty, as protecting them also protects the very existence of the forests.*

*Last but not least, we bring you in this issue a unique event in the world: the representation of all cockatoos' species in the world at Loro Parque. After an intense work by the foundation, the few missing species have been imported from Australia to Loro Parque, which is now the only place where this characteristic zoological group can be contemplated in its entirety.*

*All this work for nature would not have been possible without the commitment of all of you: our sponsors, partners and donors. Nor would it have been possible without the effort of all the collaborators who carry out the projects in the Canary Islands, Macaronesia and the rest of the Planet. Thank you all! And to those who have not yet done so, join us, the animals need us more and more.*

## WE CARE

Christoph Kiessling,  
President of Loro Parque Fundación



# Loro Parque Fundación visits the German Parliament



Loro Parque advocated again for the conservation of the animals at the German Parliament.

Photo: VdZ

On 4 April 2019, VdZ, the German association of zoos, alongside Loro Parque organised its first parliamentary night in Berlin. *Under the slogan "Protecting species, animal welfare, education and research in modern zoos"*, the two partners were invited to the German Parliamentary Society near the Bundestag. Wolfgang Kiessling, the founder and president of Tenerife's Loro Parque and Volker Homes, the managing director of VdZ, the German association of zoos, welcomed 14 members of the current Bundestag to this event as well as 75 representatives of ministries, zoos, associations and non-governmental organisations. A major boost was given by Doctor Till Backhaus along with the Minister for Agriculture and

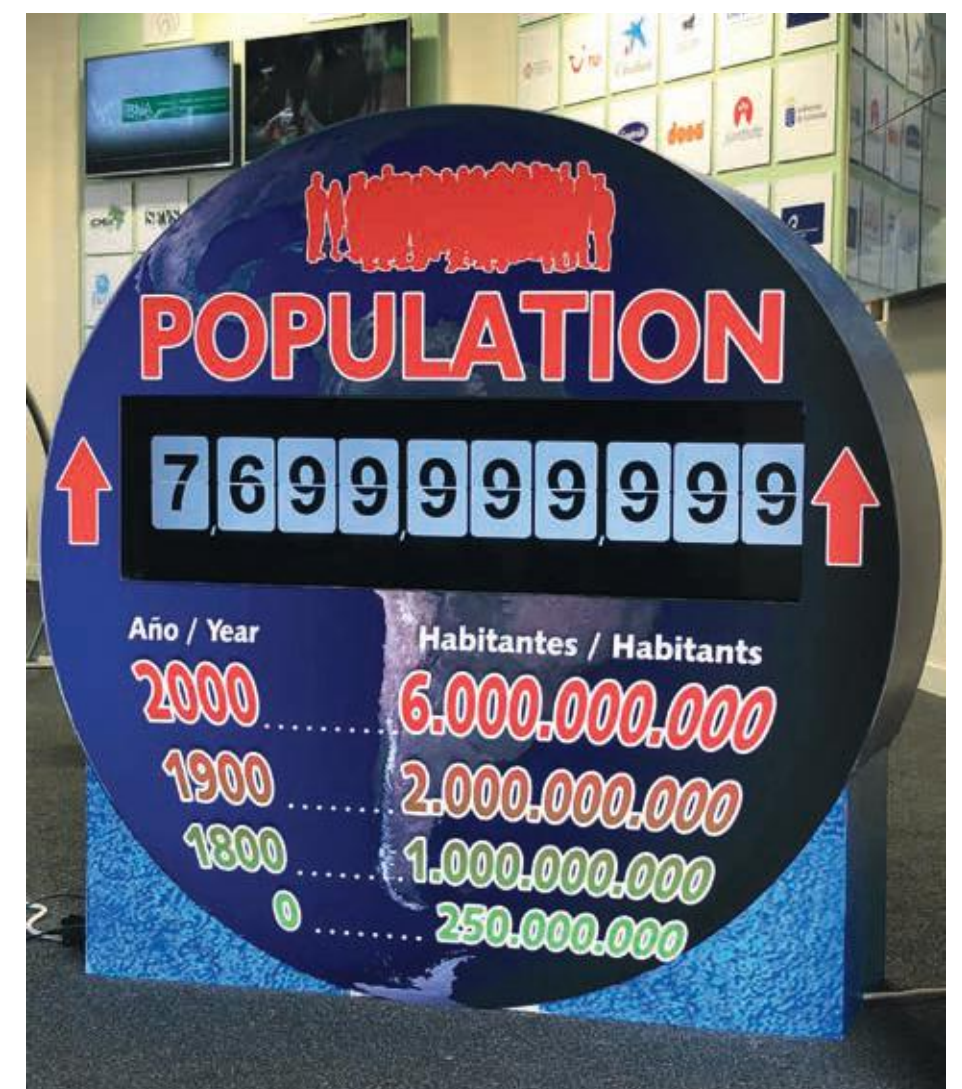
the Environment of Mecklenburg-Vorpommern. Professor Theo Pagel, the director of Cologne zoo and vice-president of the European Association of Zoos and Aquaria (EAZA), explained how international conservation of species functions as a network. The official section ended with a round table on how zoos today can combine advanced maintenance of species with animal welfare. The talk was chaired by Wolfgang Rades, the conservation representative of Loro Parque. The participants in the conversation were Dr Andreas Franzky, executive director of the Veterinary Association for Animal Welfare, Heike Finke as a member of the board of NABU (Nature and Biodiversity Conservation Union) and Dr Dag Encke, director of Nuremberg Zoo. The lively debates which then carried on late into the night showed that the work of modern zoos arouses interest and that most people see it as extremely valuable ■

# 7.7 billion humans

At the end of April, the number of people on Planet Earth exceeded 7.7 billion, according to the most recent estimates made by the United Nations. According to this trend, 8 billion will be reached in 2023, and in 2056 the human population will reach 10 billion. Five times more than in 1927. Although the annual growth rate has been declining since the 1950s, the enormous inertia of a young population (with an average age of 30 years) means that the upward trend remains unchanged. Asia is the most populous continent on the planet, with 4.478 billion people and a density of 144 people per square kilometer, followed by Africa with 1.246 billion and Europe with 739 million. Population densities in Europe and America do not exceed 30 people per square kilometer, yet the enormous amount of infrastructure and agricultural use have fragmented and reduced natural habitats.

*The enormous pressure of a growing population is driving animals out of their habitat.* Thus, it is estimated that there could have been more than 29 million elephants in Africa before the Europeans arrived. By 1935 that original population had been reduced to 10 million, and the latest estimate by the International Union

for Conservation of Nature (in 2012) estimated that there were no more than 440,000 left. The same situation has been experienced by blue whales, whose population in Antarctica went from 340,000 to just over 1,000 in less than 100 years. Fortunately, the whale population is slowly recovering thanks to international protection. But other cetaceans such as the vaquita in Mexico have not been so lucky and are on the verge of extinction with fewer than 50 specimens. UN estimates shows that *57% of the world's population now live in cities*, far from contact with nature and animals. It is estimated that *by 2050 that percentage will exceed 80%* making contact with nature even scarcer and that many people will not have the opportunity to establish affective links with wild animals. Therefore, more than ever, it is necessary to recognize the role of modern zoos that, like Loro Parque, strive to preserve endangered species, work to increase scientific knowledge about animal species in order to protect them, and seek to inspire love and protection for animals of all their visitors. In an increasingly populated and urban world, Zoos are the embassy of animals and nature. ■



World population clock in Loro Parque.

Photo: LP



# 1,000 professionals trained by Loro Parque

One of the most important challenges for people studying a profession is experience-based professional training. *Loro Parque has been the base for many animal experts who are now spread all over the world.*

End of course practical experience is a vital process, which prepares young people and guides to carry out their work with animals. Doing this in a place that is at the forefront of the latest veterinary and animal welfare techniques undoubtedly reflects high standards with a view to the future among everyone who has similar experience.

Loro Parque and Loro Parque Fundación, with their example, imprint the quest for this standard of quality for the animals in their care. And this is why it is so important that the academic training of so many experts follows these lines.

*Every year on average 20 veterinary students from the University of Giessen in Germany receive theoretical and practical training* from the specialists in Loro Parque Fundación's different departments, who they share their day-to-day life with and receive detailed information from about the processes involved in attaining excellence when looking after animals, which in this institution are real ambassadors for their counterparts in the wild.



Nuhacet Fernandez, a Loro Parque vet along with veterinary professionals from Uruguay.

Photo: LPF

In many cases these professionals work with wildlife and their experiences are shared with the specialists at Loro Parque. This knowledge exchange and skills development, based on different situations and circumstances, favours a major step forward in favour of caring for animals in these settings.

Nations that have had trainees at Loro Parque:



Researchers from the University of Morocco at the Animal Embassy.

Photo: LPF



Veterinary students from the University of Giessen during their training with Marcia Weinzettl.

Photo: R.Zamora / LPF

# Successful adaptation to the wild

The specimens of Lear's macaw born in Loro Parque Fundación are developing all of their genetic potential in the tough semi-desert environment of Brazil's Caatinga.

Now they have successfully been reintroduced to this habitat, the most important thing is to find out how they are developing and whether they can take care of themselves in the environmental conditions of this habitat. Monitoring is continuing, with all the of the necessary precautions of camouflage. And we know that they are not just *dominating the airspace with great skill*, but that they are also able to feed themselves without having to rely on the palm fruits that the researchers continued to provide for them in the area around the adaptation aviary.

They are also keeping their personalities according to the initial diagnoses carried out by the scientists. For example, two of them are going deeper into unknown areas, suggesting they are more independent from the group. Meanwhile, the others are maintaining their positions in the group and watching their distance with the two resident macaws. These are now perching in the same palm trees as the new inhabitants of the area,

and interestingly the group has a system of look-outs taking turns, in which *an individual always stays in a high area to warn the flock of anything unexpected or any potential danger.*

Advance training of these individuals has enabled them to recognise potential threats in the environment, including birds of prey, human beings themselves and their domestic animals trained to hunt. According to the field scientists, *their reactions are immediate and this lesson will be one of the keys to their long-term survival.*

Licuri palm fruit is still provided using corridors where the macaws cannot detect the presence of humans. Although we do know they are not eating them, this supply will be kept up for a while in case the macaws cannot make long journeys in search of food for some unforeseen reason.

Monitoring of the individuals is very important in this phase and is done in parallel with informing the local population of the presence of these new inhabitants in their region, as the farmers in the area can provide very important data thanks to their visual contact. ■



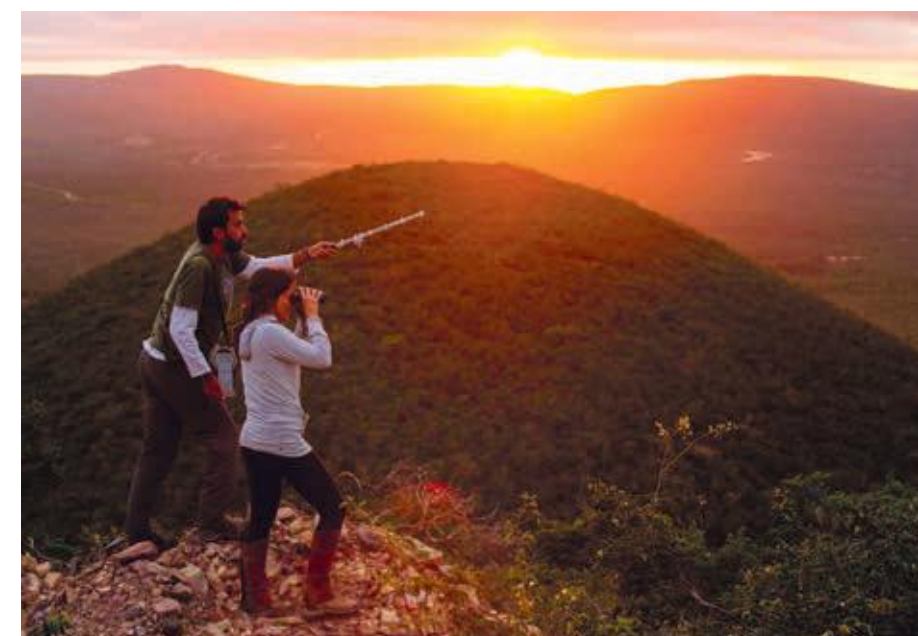
One potential hazard in the area is snakes, which stay motionless looking like branches as they wait for the birds to perch.



Photo: Fernanda Riera.



You will view more images of this project through these QR codes.



Locating the individuals when night falls enables us to obtain data about their movements.

Photo: Joao Marcos Rosa



The Lear's macaws from Tenerife are dominating the airspace of their natural habitat in the Caatinga.

Photo: Fernanda Riera



# The gardeners of the forest

Austral parakeet (*Enicognathus ferrugineus*) performing pollination functions.

Photo: J.L. Tella

Thanks to the support of Loro Parque Fundación in collaboration with the Biology Conservation Department of the Doñana Biological Station and Spain's Higher Council for Scientific Research (CSIC), along with the Evolution Ecology Department of Spain's National Museum of

Natural Sciences and the Renewable Resources Department of the University of Alberta, Edmonton, in Canada, an important scientific article has been published in the academic journal *Fronteras en Ecología y Evolución*.

The research done over time by

this team *identifies parrots as key pieces in the ecosystems they inhabit as they are true gardeners in their habitats*. They disperse seeds, pollinate and even do pruning. Their beneficial relationship

with plants has led to coevolution between plants and animals, which is very important to consider when conserving natural spaces.

*This article sets out the results obtained by observing the actions of parrots on Araucaria trees in different parts of the world*, where these large trees have evolved different seed sizes that favour their dispersal by parrots, which they attract with their descendants colonising other areas in reward.

Scientific articles are extremely important because they leave a record researchers from anywhere in the world can use. But even more importantly, they are informative and so a whole community can share in the importance of science.

You can find this open access academic article using this QR code:



Tella JL, Blanco G, Dénes FV and Hiraldo F (2019) Overlooked

Parrot Seed Dispersal in Australia and South America: Insights on the Evolution of Dispersal Syndromes and Seed Size in Araucaria Trees.

Front. Ecol. Evol. 7:82.  
doi: 10.3389/fevo.2019.00082. ■



Lear's macaw transporting seeds.

Photo: Joao Marcos Rosa

# Loro Parque Fundación in Columbia

Over 600 delegates came together in the Eje Cafetero area in Pereira close to the territory of an endemic species in Colombia which Loro Parque Fundación has saved from extinction, the yellow-eared parrot.

A major ornithological event took place in this location, bringing together speakers from important foundations in the world of Colombian and international conservation and ornithology. Our scientific director Rafael Zamora was one guest speaker among the impressive list of delegates at this event held at the Technological University of Pereira, and in his paper, "Methods and Systems for the Conservation of Species", he described the background of the record of successes in conservation achieved by the Foundation, especially in Colombia.

The sums invested by LPF in recent years in the conservation of Colombian parrot species surprised the delegates. Likewise, the professional and advanced management of so many species in controlled environments and the

Foundation's knowledge of parrots particularly caught their attention, creating much interest.

*This conference focussed on the importance of birdwatching for science, but also on the positive impact of bird tourism on local populations.*

Some three hundred bird guides were present to acquire more training, share their experiences of day-to-day work with birds in the most varied habitats in the country and get to know international figures from the world of birdwatching.

The festival featured theory sessions and also field outings to observe the vast quantity of birds found in the region. In these, our scientific director along with the team of the Fundación Vida Silvestre did an outing on one of the routes to try to find the species Loro Parque Fundación has supported for so many years with over 1.6 million dollars.

*The first sighting, early in the day, among the mist,*

*was the golden-plumed conure (Leptopsittacus branickii) which shares a habitat with the yellow-eared parrot (Ognorhynchus icterotis) in the mountains of Toche and Tolima where the densest forests of Cerroxylon quindiuense wax palms in the world are located with over 600,000 specimens of this species. Guerrilla fighters made birdwatching here unsafe for a long time, but this also certainly promoted the almost complete maintenance of an environment which is unique in the world. These palm ecosystems have undergone major changes all over the country. Farmers cut down dead palm trees so that they do not harm their livestock when they inevitably fall. But it is in these dead trunks specifically that the species breeds.*

Furthermore, the undergrowth beneath the palms has also been eliminated in most regions where the species is found. This is a rainforest, similar to laurel forest, which captures the horizontal rain from the constant mist in the region. This transformation of the habitat has undoubtedly affected the parrots that live there as their diet does not just consist of palm dates. And the absence of this undergrowth also has serious ecological implications for the ground because the shoots of these palms need shade to grow in the first years of their lives. The sun, when it emerges from the mist, is intense and burns the leaves of the unprotected new plants. This gives few opportunities for the habitat to recover.

Over the years these mountains have been used for livestock farming but also for extracting wax from the trunks of the palms to use as fuel. Traces of this activity can still be seen on the trunks of the oldest trees.

*Finding the yellow-eared parrots was rather more complicated. They could be heard flying in the thick mist but seeing them in this area is more difficult than it might seem.* The wildlife was especially silent. Just as it is louder in other places without mist, here it remained silent, giving an atmosphere of stunning calm.

After several kilometres of travel, the yellow-eared parrots were giving few signs of being present, until part-way through the day a magnitude 6 earthquake lasting for some time shook the mountains in the area and all of the local fauna showed signs of having noticed the phenomenon. This was enough of a clue for the field team from Loro Parque Fundación and Fundación Vida Silvestre to be



Yellow-eared parrots in a nest with two openings. Photo: R. Zamora/LPF



Differences between the original and transformed woodland. Photos: R. Zamora/LPF



María Clara Díaz, the project biologist looking for the individuals. Photo: R. Zamora/LPF

able to find this species at the top of a mountain. There was also the great surprise of discovering that one pair was incubating in a particular nest with two entrances.

One of the advances of this conservation project by the Foundation in 2019 consists of monitoring these parrots in the specific area of the central Andes: Toche (Ibaqué-Tolima). And we are convinced that protecting these species will benefit this location which is like nowhere else on Earth, the world's highest palm forests, where parrots are, once again, the major stars. ■



Rafael Zamora during one of his contributions at the Risaralda Bird Festival. University of Pereira, Colombia. Photo: Risaralda Bird Festival



Doctor Renfijo, the author of "Libro rojo de las aves de Colombia" and Miquel Rafa from the Catalunya La Pedrera Foundation who spoke about the recovery of the bearded vulture, were some of the highlights of this event. Photo: R. Zamora/ LPF



# All cockatoos of the world for the first time together



Cacatua goffini



Cactua haematurpygia



Cacatua ducorpsii



Cacatua sanguinea



Cacatua pastinator



Cacatua tenuirostris



Cacatua alba



Cacatua sulphurea



Cacatua galerita



Cacatua leadbeateri

Loro Parque, recognised as the world's best zoo, has recently added a group of young black cockatoos to its Australian aviaries. Some of these species are being exhibited in the park for the first time and one of them is endangered. Their presence will help raise visitors' awareness of the need to protect wild species and their habitats in the natural environment.

*As a result, Loro Parque, as a wildlife conservation centre, has become the only zoo where all of the species of cockatoo can be seen.*

Some of the examples that have joined the exhibition have come directly from Australia and others hatched in the breeding centre of

Loro Parque Fundación, where most of the examples that make up the largest collection of species and subspecies of parrots in the world can be found.

*The facility, which is specially adapted for cockatoos, comprises a system of aviaries with panoramic viewing with*

*the environments of the different ecosystems* so people can watch the activity of these majestic birds, enabling visitors to see examples flying in their environment

while they enjoy enrichment with eucalyptus logs and other elements to keep them physically and psychologically active, as well as food typical of their country of origin.

From the little cockatiels and the threatened red-vented cockatoo and salmon-crested cockatoo, to the exuberant black cockatoos and exotic gang-gang cockatoos, all of them can be appreciated in their full splendour at Loro Parque. A unique experience nobody should miss.

*Cockatoos are unique birds that are distinguished by a prominent crest, which they can raise and lower* to defend their territory and is also used when in search for a mate. Not all their species have a colourful crest. For instance, the feathers of the Philippine Kakadu's crest are single-coloured and slightly longer. The underside of its tail is between bright red and orange.

Also, spectacular are the tails of the black cockatoos, which can be admired when flying. Depending on the species, the tail shows an intense contrast between red, orange, white or yellow. These dark cockatoos from Australia are very elegant because of their attractive plumage. Despite the impressive wingspan of their wings, they are very light and can fly very high over the wide and open landscape of Australia. Now this charismatic parrot can be admired in a large near-natural aviary in Loro Parque. ■

The spectacular black cockatoos are one of the main stars. Photo: LPF



Major Mitchell's cockatoo (*Cacatua leadbeateri*). Photo: M. Pérez / LPF



Moluccan cockatoo (*Cacatua moluccensis*). Photo: M. Pérez / LPF



Cacatua moluccensis



Cacatua ophthalmica



Nymphicus hollandicus



Calyptrorhynchus banksii



Calyptrorhynchus lathami



Zanda baudini



Zanda latirostris



Zanda funerea



Callocephalon fimbriatum



Probosciger aterrimus



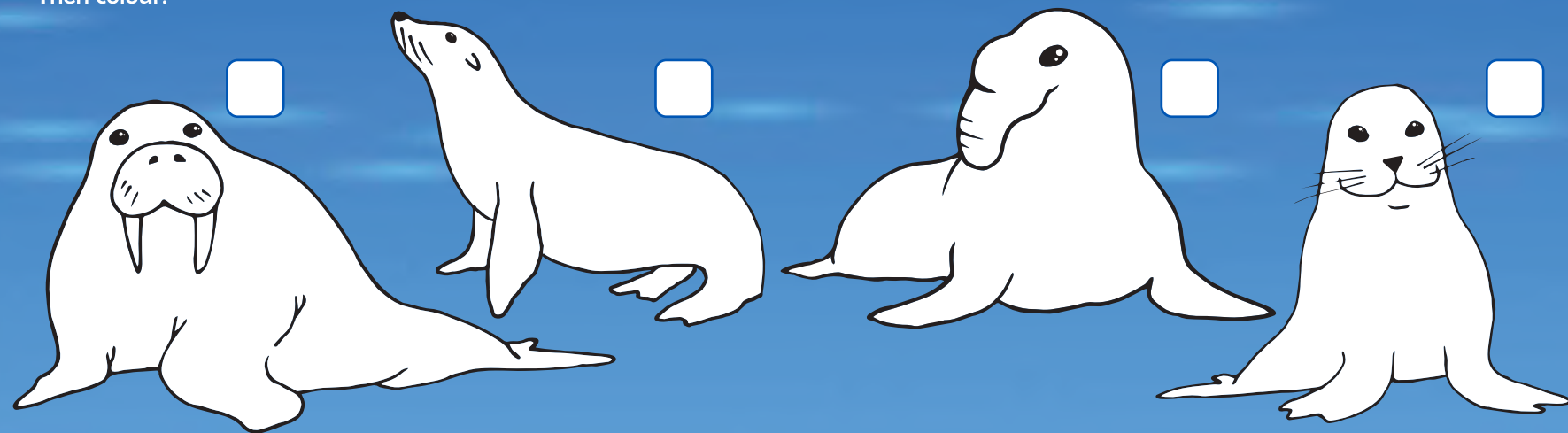
# THE MEDITERRANEAN MONK SEAL

Do you know which animal is the Mediterranean monk seal? Link the dots in order and discover how our protagonist looks like! Then colour it in.

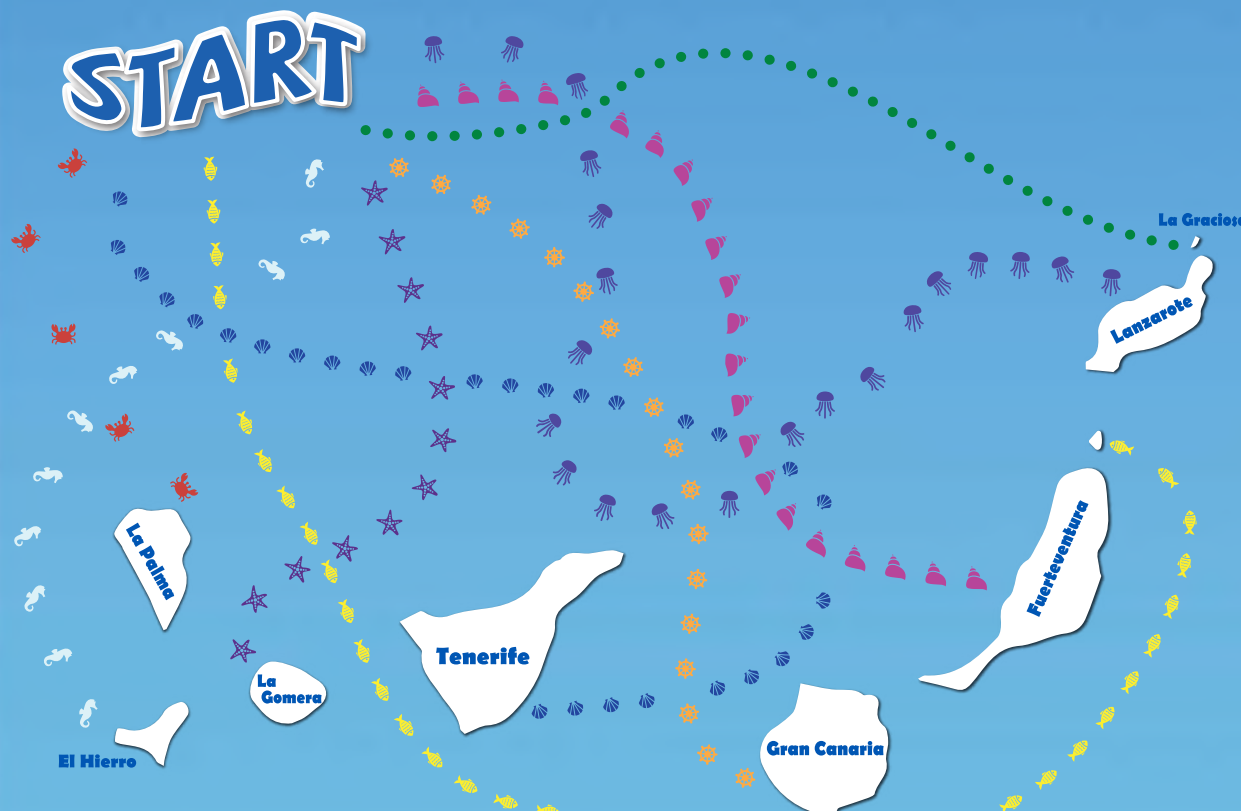
## INDICATE

**Pinnipeds** are a family of animals adapted to aquatic life, including seals, sea lions, elephant seals, walruses, etc. Although different, seals are often confused with other animals of the same family.

Take a good look at the following images and mark the seal in **green** and the rest of the pinnipeds in **red**. Then colour!



## START



## DISCOVER

Although the monk seal is now endangered, in ancient times it lived all over the Mediterranean and in the eastern part of the Atlantic, and even lived in the Canary Islands! **Follow the path indicated by the fish to find out exactly where.**

The name of this islet is "**Isla de Lobos**" and it owes its name to the presence of 'sea lions' which were not really sea lions but **monk seals**.



# seeds in motion

Plants are incapable of moving, or at least moving as we do; so...  
**how do seeds get to new places?**

Flying, floating and more!  
**Do you want to know more?**

**Use arrows to complete the sentences and relate each one to its image.**

Dandelion seeds have feathery hairs for

Some seeds are covered by rich fruits for

Some seeds have hooks or are sticky for

Some seeds, such as coconut, are hollow for

holding on the fur of animals.

floating and being transported by water.

flying swept away by the wind.

attracting and being eaten by animals.



## COLOUR

Parrots are one of the most important seed dispersers in the jungle: when they eat the fruits, they transport the seeds to faraway places.

**Would you help these parrots to reach the fruits?**

Use a color to trace the right path, then colour the image.



## DECODE

Help the investigator to decode the Macaw's message using the code:

  
 a b c d e f g h i j k l m n o p q r s t u v w x y z



Because of deforestation we are

\_\_\_\_\_ macaws so we cannot help the

dispersion of \_\_\_\_\_ making the survival of

\_\_\_\_\_ even more difficult!



# Hope for world's most endangered seal



Female monk seal on the coast of the Ilhas Desertas (Desertas Islands).

Photo: IFCN Madeira

The Mediterranean monk seal (*Monachus monachus*) has the dubious honour of being Europe's most threatened marine mammal. A few centuries ago it could be found all over the coastlines of the Mediterranean and in the waters around the Atlantic from Portugal to Mauritania, including several of the archipelagos of Macaronesia. Its abundant presence in historical times is recorded in some place names, such as *Isle de Lobos* (Wolf

Islet, between Fuerteventura and Lanzarote), which they disappeared from many decades ago without leaving a trace.

Unfortunately, the sandy beaches that are the ideal place for them to give birth and care for their pups until they become independent are the same beaches that since the 1950s have become the busiest tourist destinations. **Due to the increasing human presence**

**in their breeding grounds to exploit their skin and fat, their populations were exterminated and only managed to survive in increasingly remote and inaccessible places, such as marine caves.**

The European Union has dedicated several LIFE projects to the conservation of this species in Mauritania and in Greece and Madeira, thanks to which its population is slowly growing. This year, Loro Parque Fundación will collaborate by jointly funding the LIFE13 NAT/ES/00974 project "Conservation of the monk seal in Madeira and development of a monitoring system for its conservation status" through the CBD Habitat Foundation, which has spent two decades working to conserve threatened species. This project is an opportunity to collaborate on the conservation of a highly threatened marine mammal which has found one of its last strongholds in Macaronesia. Furthermore, although the current situation is a little more promising thanks to the recovery of the population in recent years, we should not forget that fifteen years ago a red

tide algal bloom wiped out over half of the seal population in Mauritania. To reduce the risk from red tides or other unpredictable phenomena such as viruses or oil slicks, it is essential to boost the conservation of other colonies, and so the 25 individuals from the Desertas Islands are of great importance for the species.

Therefore, **the Fundación will collaborate with the project to tag the seals with GPS receivers.** This will make it possible to monitor individuals and establish the critical habitat areas and **will enable the authorities in Madeira to implement more effective protection measures.** This monitoring system will also be useful for establishing whether the individuals travel away from the Desertas Islands and if there is the possibility of any type of genetic connection with the population from Mauritania or with future populations of reintroduced or transferred individuals. Owing to human pressure on its favoured habitat, the Mediterranean monk seal lives sheltered in caves with stony beaches and rugged coastlines which are hard to access. This type of habitat creates serious problems for conservation and for maintenance of the GPS tags, causing constant challenges for the field team. Another aspect of the project is the monitoring of caves using camera traps to establish which ones the seals use for breeding and so set up protective measures. These caves are also subjected to extreme pressure conditions owing to waves, which along splashing with salt water, creates new challenges for camera trap technology.

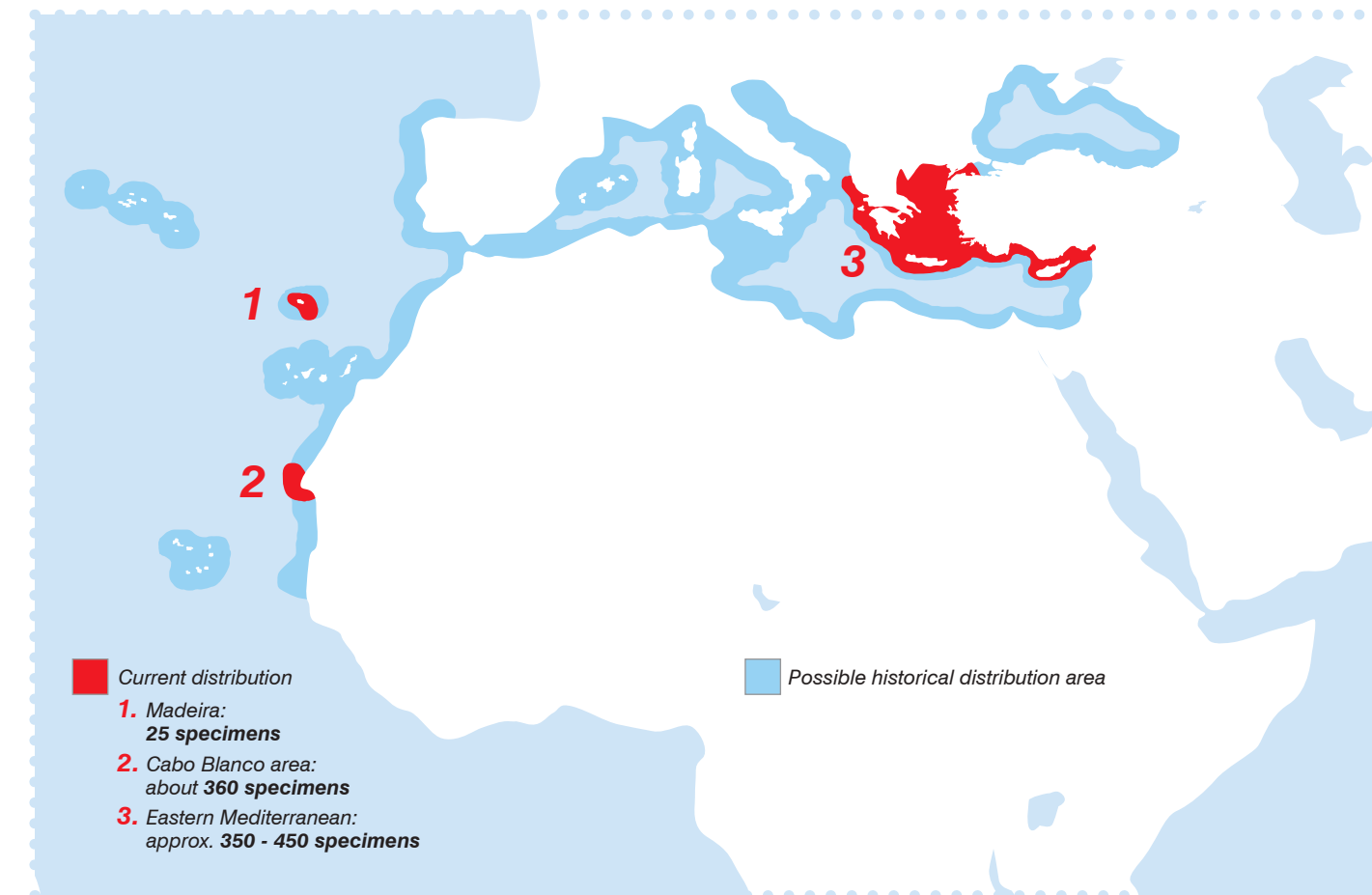
Both CBD-Habitat and the Institute of Forests and Nature Conservation of Madeira are working tirelessly and with great enthusiasm to overcome all of these challenges and increase knowledge of the conservation status of the monk seal in Madeira. For our part, all of the Loro Parque Fundación team has welcomed with much excitement this collaboration to conserve this charismatic marine mammal, and we hope our contribution will make it possible to improve the status of the population in the Desertas Islands and lay the foundations for a future spread of the monk seal in the Mediterranean and Macaronesia. ■



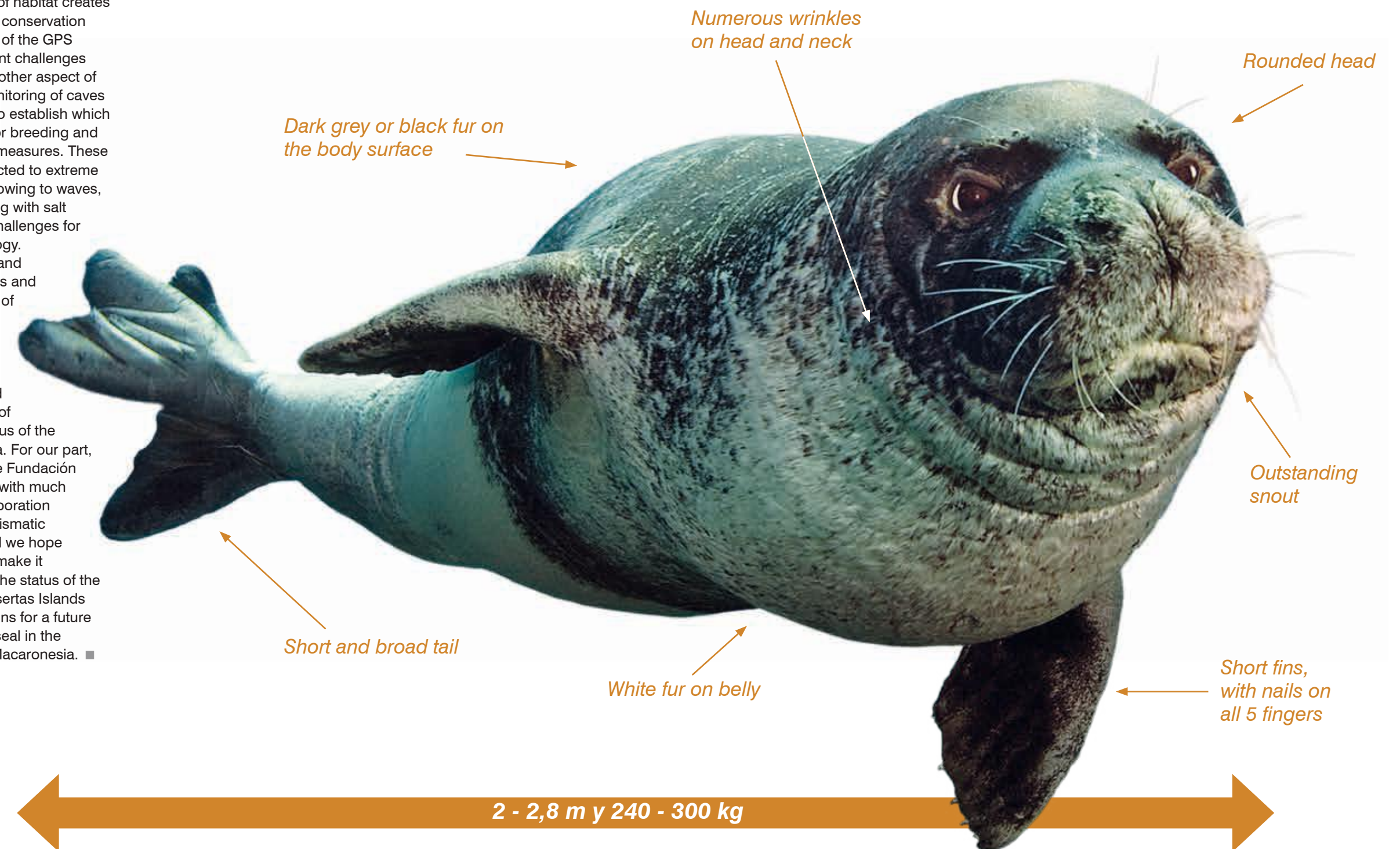
Monk seals in the waters of Madeira.

Photo: IFCN Madeira

**Population.** It is currently limited to 600-700 individuals in 3-4 fragmented subpopulations:



**Threats**





# Vatican's firm support for zoos

Yellow-eared parrots (*O.icterotis*)

Photo: F. Vida Silvestre

The Vatican has clearly entered a new era, in which it is demonstrating a great concern for the preservation of the environment, as was evident with the publication in 2015 of the encyclical Laudato Si. In that

document *the Catholic Church deplores the environmental degradation of the planet and climate change*, criticizes consumerism and irresponsible

development, and calls for global action to save the Planet. This decisive gesture for the conservation of biodiversity is now completed with an international meeting organized by the Pontifical Academy of Sciences in which participated biodiversity experts, zoological associations (Eaza and Waza), and other relevant figures in world conservation. In the conclusions of the congress, *the Vatican recognizes the importance of zoos and aquariums* in providing opportunities to admire the beauty of animals and learn to respect them. But it especially *highlights 'The unique capacity of zoos and aquariums to save small animal populations from extinction'*

and recommends that this capacity be strengthened by society and politicians to ensure the sustainability of

these species and their ecological functions. At Loro Parque Fundación we were already aware of the Vatican's interest and collaboration in conservation, as evidenced by the yellow-eared parrot project in Colombia. But undoubtedly this positioning goes much further and reflects how the importance of zoos in conservation is recognized in all spheres. We hope that this role will be increasingly recognized and that the critical voices against zoos will be silenced in order to mitigate the effects of the sixth extinction. ■



The children were taught to identify the different species of palm trees in their region.  
Photo: Fundación ProAves

# A Pioneer Aquarium in Spain

*The Loro Parque group aquarium team has managed to persuade a type of plankton to reproduce and has established protocols for*

*handling it.* Zooplankton and phytoplankton are the tiny living particles found in our planet's aquatic environments and they are vitally important for completing the life cycle of many species that feed on both in the natural environment. They are not

just the first link in many food chains, but are also the only living food source suitable for many species in their larval stage. The more we know about the nutritional needs, biological requirements and the life cycle in general of any of the species that comprise it, the more knowledge will be available to apply to the global conservation of the ecosystems of the natural populations being studied. At the Loro Parque aquarium, 3 species of living zooplankton and one of phytoplankton are being bred stably and continuously, with the aim of providing food of a suitable size for the mouth of each aquatic organism so that they can use them as sustenance, especially in the early stages of the life of some of the species.

In this case, the species of shrimp being bred is *Neomysis integer*, which is under 1.3 cm long, meaning it can enrich and support very demanding species such as sea horses, providing a high nutritional content. In fact, at Loro Parque, there is one species of sea horse that has its own distribution in Macaronesia, *Hippocampus hippocampus*, which like other species is kept here so that we can better understand its biology and apply this understanding to the conservation of wild populations of this species.

Working with the IEO (Spanish Oceanography Institute), the CSIC (Spain's Higher Council for Scientific Research), universities and national outreach and research centres, it has been possible to establish that this species of zooplankton is only bred at Loro Parque, and so continuing to do this in a stable and structured way, paves the way for opportunities to continue with breeding in controlled environments of many species that need this type of macro zooplankton. ■



The specialist Andrea Martino in the breeding room.

Photos: A. Azcárate / LPF

# Testing enrichment games for parrots

Animals under human care often have a lot of free time as they do not have to worry about finding food and water, defending their territory or avoiding predators. If there is extra free time, parrots need new challenging and entertaining activities. Enrichment is, therefore, an important part of caring for animals in controlled environments and it is essential for their well-being. *The aim of environmental enrichment is to increase their physical and mental activity, eliminate potential stressful situations and encourage them to participate in behaviour typical of their species.*

At the Max Planck Institute's comparative cognition station, based at Loro Parque, the animals take part in a wide range of studies



New elements allow the parrots to work with different textures.  
Photo: Laura Ziegenbalg

to test their problem-solving and cooperation skills, often relating to their natural feeding strategies or social interactions. These activities, in themselves, provide an exceptional programme of enrichment that increases their perceived control of their environment by introducing novel stimuli into their daily routine. Apart from the experimental tasks, the

parrots in this scientific station also enjoy the best possible enrichment.

*The toys, which are changed regularly, not only provide new stimuli, but are also essential to care for the parrots' beaks naturally as the beaks of psittacine birds grow constantly and in the*



*wild they wear down as they work on wood.*

Loro Parque Fundación's focus on enrichment is based on elements that are always present but change and offer stimulus depending on the season. This is the case with the plants inside and outside the aviaries. This vegetation offers camouflage protection, which allows the parrots to feel calm and it also provides fruit and flowers in season, as well as woody material for them to bite and gnaw. Therefore, the enclosures' gardeners are their own inhabitants.

The swinging perches, logs and fresh pine branches, which are replaced periodically, act like toys for children who react enthusiastically to unexpected changes and novelties but lose interest in things that are always present and readily available. By understanding this concept, we can maximise the parrots' welfare. ■

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