

Cyanopsitta

The Loro Parque Fundación magazine

2019
114

EXCEPTIONAL AND SUCCESSFUL
INTRODUCTION OF SIX LEAR'S MACAW
INTO THE WILD

LORO PARQUE:
PRIZE TO BUSINESS EXCELLENCE

OVER 1000 CHICKS
WERE BORN AT LPF



INDEX:

A message from the President of Loro Parque Fundación	2
Prize for Business Excellence	3
Students from the Canary Islands researching the beach of the twenty-first century	3
Great success with the reintroduction of Lear's macaws in Brazil	4-5
The farmers of the Caatinga help the Lear's macaws	5
A triumphant return to the forest for red-masked parakeets	6
A record number of births at LPF	7
2018 successes of Loro Parque Fundación	8-9
Children's activities	10-11
An international coalition to monitor the welfare of dolphins	12
"CanBIO" At the forefront of science in the Canary Islands	13
Tourism saving lions	14
The military macaw protected by the people of Mexico	14
Sensational growing of the red-tailed amazon population in Brazil	15
Become a member of Loro Parque Fundación	15
Back cover	16

COVER:

Lear's Macaw (*Anodorhynchus leari*)
Photo: Joao Marcos Rosa

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LORO PARQUE FUNDACIÓN

WE CARE

Dear friends,

A new year is starting, and our hopes for nature are being renewed. New projects and new conservation challenges are driving us to protect species and their habitats.

The last year has seen a variety of different efforts which are bearing fruit. As a result, in this copy of Cyanopsitta, you can discover how 20 red-masked parakeets have been able to return to the wild in Ecuador. Birds seized from poachers by the local authorities are now flying free again.

In a project of even greater logistical complexity, six Lear's macaws which were born in our breeding centre in Tenerife have adapted to the original conditions of their species in Brazil over the last few months. There, they have learned how to feed themselves on the fruit of palm trees which they have to open in a similar time to the other members of their species which live in the area. They also successfully adapted to not drink water from one specific point like other animals do. They are displaying all of the adaptability typical of this species. A real challenge for these brave parrots which are proving that their genes enable them to look after themselves in their habitat.

2019 has also arrived packed full of novelties in LPF's projects dedicated to preserving marine biodiversity. The most significant one is the start of the CanBIO project, thanks to the commitment of Loro Parque and the Government of the Canary Islands who will each invest €1,000,000 over the next four years. This project will be a qualitative leap in the foundation's investment in conservation, which in 2019 will reach 1.7 million dollars, meaning that the resources dedicated to land and sea conservation will match each other. This project will also take the Fundación into a position of scientific leadership in research into the effects of climate change, ocean acidification and underwater noise on marine biodiversity.

And, staying in the aquatic environment, we are now celebrating a year of operation of Poema del Mar, which complements and broadens Loro Parque's role as an International Conservation Centre. In its first year, Poema del Mar has had great success with the critically endangered tequila fish, 163 examples of which have been bred, contrasting with the less than 50 thought to remain in the wild. Other uncommon species, such as the round stingray, have also reproduced in the few months since the aquarium opened, which augurs great success in the future.

Another important novelty is the collaboration with the Chicago Zoological Society on an international project to monitor the welfare of dolphins in zoos. In this project, Loro Parque Fundación will collaborate by tagging several of Loro Parque's dolphins with a device to measure their activity, as well as taking samples of hormones and recording their behaviour simultaneously. These data will allow greater accuracy when measuring the welfare of dolphins and other cetaceans.

As a result, everybody on the team at LPF is starting a new year with renewed enthusiasm and dedication to nature.

WE CARE

Christoph Kiessling,
President of Loro Parque Fundación



Prize for Business Excellence

Loro Parque, which in 2018 was recognised as the best zoo in the world for the second year running, received the Prize for Business Excellence from the Government of the Canary Islands in the "Medium-Large Business" category.

This award recognises the company's dedication to quality, innovation and excellence in all of its undertakings.

This accolade was awarded by the regional government in recognition of its commitment to stimulating and promoting the principles of quality, innovation and excellence in all areas and was presented to Wolfgang Kiessling, president of the company, in a ceremony held at the headquarters of the Technological Institute of the

Canary Islands (ITC) in Tenerife.

The ninth edition of these prestigious prizes was attended by Pedro Ortega, the Minister for the Economy, Industry, Trade and Knowledge of the Government of the Canary Islands; Justo Ariles, the Executive Director for Industry and Energy, and Cristina Hernández, the Executive Director for Economic Promotion.

This recognises a trajectory which has turned LPF into one of the most respected zoological institutions in the world, both for its exceptional beauty, and for the excellence of its facilities and its respect for nature where it always strives for good care of the animals, innovation and animal welfare. ■



Wolfgang Kiessling at the 2018 Business Excellence Awards Ceremony Photo: MP/LPF

Students from the Canary Islands researching the beach of the twenty-first century



Students from the Dr. Antonio González González secondary school during the sampling process

Photo: LPF

Loro Parque Fundación, through its Education Department, launched an educational project in January *to analyse plastic pollution on the Canary Islands' beaches.*

Students from various secondary schools on the islands, along with educators from the Foundation, will sample the sand of various beaches in the islands and study the differences between them.

The participants in this programme, which is called "The sand on our beaches", will have shared access to the data collected during the project through various platforms. The aim of this collaborative project is to investigate the



Waste on the tideline of Poris beach, Tenerife

Photo: LPF

frequency of different types of residue on the beaches, as well as the factors that influence their accumulation.

Four hundred students from schools on different islands will participate, collecting data from 24 different beaches. It will conclude in June, when the results from all of the schools will be presented and a joint map of the impact of plastic on the Canaries will be prepared. As well as revealing the extent of this problem in the islands, this innovative programme *will*

help foster scientific activity among the students, who will be the protagonists and will be in charge of carrying out the research.

This project is a continuation of other activities run by the Education Department of Loro Parque Fundación in the islands' schools in previous years, such as the Marine Conservation Week, thus strengthening the organization's commitment to this problem and to raising awareness in future generations. ■



A student analysing samples.

Photo: Eduardo J. Perera

Great success with the reintroduction of Lear's macaws in Brazil

The six individual hatched in LPF's facilities in Tenerife have successfully adapted to the tough conditions of their natural habitat, the Caatinga, in their country of origin.

This process *started* with an initial selection of the most suitable individuals *at the Fundación's facilities, where over 30 individuals have hatched*, descended from the two pairs entrusted to us by the Brazilian government in 2006. Since then, 15 specimens have been sent from Tenerife to Brazil and the last six will take part in a soft release into the wild programme.

There are still two isolated specimens in the chosen location which have been there for years, the last of a population ravaged in the 1990s by the pressure of the illegal trade in birds.

These birds will act as teachers for the others so that they can live in the distinctive environment of this biome.

The Brazilian field researchers designed and built a large aviary with the support of Brazilian organizations and the wind energy company Enel. Within the large aviary are Licuri palm trees, from which the macaws mainly feed. The aviary is equipped with a separating grid in case the birds need to be kept separate.

One of the major challenges was to get the macaws from



The pioneer individual flew in the wild first to act as a guide for the rest of the group

Photo: Joao Marcos Rosa

and also their ability to react to sounds from possible predators, thus increasing their chances of survival.

Another challenge, was for them to stop drinking water from a drinker. Interestingly, the researchers were surprised to find that as the water was gradually withdrawn, the birds seemed not to need it, and *so after just a few weeks they were only ingesting the water found in the*

fruit of the palm trees.

Licuri fruit with ripe flesh was offered at the same time that the water was gradually withdrawn from the drinkers. They were also simultaneously offered these fruit in an unripe state, which is when they contain water.

Erica Pacifico, the principal researcher in this process, told us with great excitement how the two wild specimens in the area soon started interacting vocally



The large soft-release aviary has palm trees in it.

Photo: Fernanda Riera



Three researchers from the project at the exciting moment of the arrival of the macaws from Tenerife

Photo: F. Riera

the Canary Islands used to eating the fruit of this palm tree as quickly as the wild macaws do. They had to learn to break the heart of the fruit, and after a few months they managed it! Their method for breaking this small fruit was already similar to that of the wild macaws.

It was also important to train them in flying, as they typically fly long distances. The field team trained them to increase their cardiorespiratory capacity



The two wild specimens near the aviary.
Photo: Joao Marcos Rosa

with the new residents who had arrived from the Canary Islands.

And the moment finally arrived: the flight of the group's first pioneer, which had been separated in one of the sections of the large aviary to start the first outings and inspect the area and so act as a scout for the others.

It was fitted with a tracker to record its movements and so it could be located if needed. Once it had worked out distances and was returning

confidently to the soft-release area, the hatch was opened for the rest of the group. First for two compatible individuals which had observed the first one moving in the surrounding area and *finally the other three, which flew very confidently, as though they already knew the habitat.* Large bunches of licuri fruits were put in nearby palm trees so they would not have to make major efforts to find food during their first experiences of freedom.

Also, two external feeders were built high-up close to the aviary. Licuri fruit are still put in them daily so they have a secure source of food in the area and can stay in the vicinity of the area where

they spent so many months.

This species, which, with the support of Loro Parque Fundación has managed to save itself from extinction, has, with this step, moved forward through one of the most important cycles. The successful integration of these six animals in nature will continue to be monitored by the Brazilian scientists, who in direct connection with Loro Parque Fundación, will continue to be attentive to the development of the process. ■



The individuals were weighed, marked with visual identifiers like rings and numbered tags and had GPS trackers fitted to analyse their movements.



One of the macaws in the wild eating licuri seeds.
Photo: Joao Marcos Rosa

If you want to see images of this project, you can access them with this code:



The farmers of the Caatinga help the Lear's macaws



Kilma Manso during the research and compensation for farmers

Photo: ECO

The significant recovery of Lear's macaws combined with a prolonged drought in the dry forest of the Caatinga has meant that these macaws are looking for food in the maize crops. This behaviour does not help them, *as farmers could think that this species is to blame for a fall in profits from their crops.*

It is vital to show them that this is not a problem and that in the long term they benefit the region. The key is research and compensation for potential

damage. Loro Parque Fundación collaborates with ECO (Environmental Conservation Organization) to compensate farmers for any damage caused by the Lear's macaws. *This project allows the people who grow maize to discover the macaws' real effect on their crops and at the same time receive compensation in the form of vouchers for buying maize seed.*

Loro Parque Fundación is giving this project ongoing support, so far totalling 377,000 dollars, to cover various actions so that Lear's macaw can carry on saving itself from extinction.

One of its basic cornerstones is working with local communities. Conservation projects have to have in depth knowledge of the species and the people who interact with it, to be able to help it. *And the people who live alongside the species every day are fundamental in the process.*

Once the real effects on maize crops of the action of the macaws have been

demonstrated, *the farmers receive this compensation which they can use to acquire more seeds and plant crops,* which will always be exposed to the severe droughts typical of the Caatinga. In fact, the meteorological phenomena in the area are typical of this distinctive habitat, which relate to the meaning of "Caatinga" in the language of the ancestral Tupi people: white forest. This is because of the colour the trunks of the trees acquire; to resist the heat of the sun, they lose their leaves and the tips of the branches turn white. ■



Lear's macaws looking for potential food sources.



Photo: Eco

A triumphant return to the forest for red-masked parakeets

A fascinating event has taken place in Ecuador; **20 red-masked parakeets (*Psittacara erythrogenys*) confiscated from illegal smugglers by the local authorities are now flying free again.**

With a total of 598,631 dollars over the years, Loro Parque Fundación has supported the project to conserve the orcas parakeet (*Pyrrhura orcesi*), which is endemic to this area in Ecuador, where thanks to the Fundación Jocotoco, there is a large reserve which has enabled many species to prosper and even for new ones to be discovered. The attractive red-masked parakeets are from this area. **As they are highly valued in pet markets, poachers have no hesitation in capturing them as adults**, a practice which, as well as being environmentally harmful, causes suffering for the animals as they struggle to adapt to small spaces which are poorly designed and often overcrowded.

The reintroduction process involved an important preliminary step: creating an aviary specifically for releasing them in an appropriate space in an environment with no lack of food and water. This release facility is integrated into the middle of the jungle so that the birds get used to the environment in which they will again be

Adult red-masked parakeet (*Psittacara erythrogenys*)

Photo: Doug Wechsler

flying and also to confronting the realities of nature, where predators, weather and the availability of food will shape each individual's life.

Unlike soft releases, which are done with individuals born in controlled environments, the parrots in these cases have the prior experience of being born

in the wild. Even so, **many of these parrots adapt quickly to the constant presence of food and drink in a cage**, and so need support after release until they are fully integrated.

The moment when the aviary was opened was an explosion of colours as the parakeets flew straight for the trees around the Buenaventura Reserve. Even more interesting, was seeing the behaviour of this large group, which as it already knew the place and was recognised by the area's fauna, very quickly found other members of the same species which came to the same trees where they had initially perched. All good signs of integration into the wild.

Release projects are very complex as they include exhaustive analyses of illnesses to prevent any problems being introduced into the natural environment. They also involve tagging each individual. In this case, microchips and rings for each specimen. All of this happens within a technical and bureaucratic process, including licences and permits in coordination with the relevant authorities.

The subsequent monitoring will be very important for analysing the success of the individuals in the wild. Therefore, the use of locator transmitters and a drone to view the individuals from a distance will enable us to know how successful this has been in the medium term. A very comprehensive range of fundamental biological data will be collected to understand the biology of this ecosystem where unique species live alongside each other. ■

If you want to see images of this project, you can access them with this code:



Collection of biometric data, blood samples to detect diseases and tagging with rings and microchips. Photo: F. Jocotoco



The birds of wild origin flew energetically towards the surrounding trees. Photo: F. Jocotoco



The field team next to the adaptive aviary.

Photo: F. Jocotoco



An educational project was also carried out to teach children about the project and the importance of protecting their environment. Photo: F. Jocotoco

A record number of births at LPF

Over 1000 chicks were born at Loro Parque Fundación in 2018

At Loro Parque Fundación, in the world's most comprehensive breeding station for Psittacidae, the most recent breeding season's results for various species have been excellent, exceeding the 1000-chick barrier.

Implementing different forms of handling according to the groups of species represented has made it possible for adult pairs to reproduce without apparent effort.

The team of curator Márcia Weinzettl worked hard to apply rigorous protocols, especially relating to diet and environmental enrichment. The control of the parameters affecting parrots has resulted in an increase in the number of embryos, which successfully hatch and the number of juveniles that successfully become independent. A significant contribution to conservation.

Some species stand out as being uncommon in aviculture. **This was a good season for palm cockatoos.** The Zanda genus bred successfully on several occasions and various chicks are currently growing towards achieving independence.

Similarly, **the various species of lorikeet bred well in general.**

This is the case of the well-known musk lorikeet (*Glossopsitta concinna*) and the Fergusson island lory (*Lorius hypoinochrous devittatus*), which with their numerous chicks, in addition to those from previous years, will make it possible for a number of European zoological centres to work with these species, which in the past were always rather scarce. The use of foster parents, both for incubation and for rearing the chicks that cannot thrive with their own parents, has again been crucial for raising chicks from important species, such as hyacinth macaws (*Anodorhynchus hyacinthinus*). One pair, although it incubated fairly well, did not react positively to caring



Marcia Weinzettl with Loro's macaw chicks

Photo: LPF

for its chicks and before falling back on hand rearing, the conservation team looked for alternatives. On this occasion, another pair of the same species successfully took charge of the process.

Chicks reared by their parents are always especially valuable and mean a step can be skipped in the raising of the juveniles as they do not need long periods of socialization with other species to develop all of their natural behaviour. In this example of fostering,

as the adoptive parents are of the same species, the benefits are even greater.

Among this year's births, the Loro's macaws again deserve to be mentioned, with a partial second generation birth of this species being achieved as one of the original progenitors which came from Brazil has bred with an example born in Loro Parque Fundación's facilities.

Exceeding 1000 chicks per year of the

most varied species,

Loro Parque Fundación has again positioned itself as a vital tool in ex-situ conservation. The volume of scientific information provided by these many births, along with the specific value of the genetic pool, which is visible because it is exposed to the public at Loro Parque, mean that the animals here are real ambassadors for the planet's threatened wildlife.

The combination of in-situ and ex-situ conservation is turning out to be the key to the real conservation of species. Thanks to the combination of knowledge in both fields, with the direct involvement of a front-line zoo, species are being saved from extinction and other new ones not yet known to science are appearing, thanks to the protection of ecosystems. ■



Chicks of different ages raised by LPF parents.

Photo: LPF

An adult hyacinth macaw (*Anodorhynchus hyacinthinus*)

Foto: LPF

Impact assessment in favour of Neotropical parrots

In cooperation with the Pablo de Olavide University and researchers from the Spanish National Research Council (CSIC), it has been possible to carry out exhaustive censuses in Peru and Costa Rica of parrots in the wild and under human care. The resulting figures will give an accurate and scientific overview for developing appropriate conservation strategies with the species that need it most. ■

First satellite tagging of a hammerhead shark in the Canary Islands

Thanks to the support of Loro Parque Fundación, the NGO Elasmocán has been able to carry out the first known experience in the Canary Islands of tagging a hammerhead shark with a satellite device. The preliminary data give an idea of how this species moves easily through the waters of the archipelago. Problems with recovering all of the data owing to bad weather conditions meant the researchers postponed the second marking until 2019 when they will have land-based data reception stations which are much more reliable. ■

Release of macaws in Ecuador

There are now eight specimens of this species which have been born in controlled environments and successfully introduced into their natural habitat. The installation of a soft-release enclosure in the Ayampe reserve continues to give good results thanks to the close contact between the Fundación Jocotoco and Loro Parque Fundación. In 2019 the same task will continue, adding more specimens to the project and including protection of the lilac crowned amazon, another threatened jewel of nature which also inhabits this territory of large macaws. ■

Conserving blue throated macaws in Bolivia

Loro Parque Fundación has played a leading role in the ongoing research work of the census of this species along with the University of Manchester. Through the organization Aves Bolivianas, an advanced strategy based around participation by local communities and the Bolivian scientific authorities was developed to keep this species safe from risk of extinction. ■

An opportunity for the yellow-naped amazon on an island

During the last season, an intensive project to raise awareness in the population was carried out to ensure that one of the parrots with the greatest ability to imitate the human voice stops being one of the most persecuted and threatened ones. Loro Parque Fundación has boosted its protection on the volcanic island of Ometepe in Nicaragua with various strategies. Hand in hand with Flora y Fauna Internacional and the local organization LOCO (Parrot Specialists Observing Conserving Ometepe) a great protection effort is being carried out. ■

Unique nests save Cuban macaws

The Cuban parakeet and the white-fronted amazon are the two species which, thanks to the cooperation between the Instituto de Ecología y Sistemática de Havana and Loro Parque Fundación, are reaching a good conservation status as a result of reforestation, community education, the installation of ingenious mud nests for the parakeets and ecological study of their habitats. The intensive work in these areas has been vital in protecting these species which are sensitive because of their island ecosystems where any significant change can quickly affect parrot populations. ■

Reforestation for Philippine cockatoos

Recorded numbers of Philippine cockatoos have increased, thanks to our ongoing support as the main funder helping the Katala Foundation keep this species safe from extinction. The numbers of nests and of specimens in natural roosts have increased significantly. As has reforestation using 14,597 seeds planted to repopulate a strategic space on the island of Dumaran to protect this species. ■

Helping scarlet macaws in the Maya Biosphere Reserve in Guatemala

Periodical monitoring of nests and chicks is helping increase numbers of the Central American subspecies: *Ara macao cyanoptera*. The collaboration with the Wildlife Conservation Society (WCS) in Guatemala has enabled a project to increase survival rates for the chicks of these macaws to be implemented. This project also prevents the action of smugglers through monitoring which saves small chicks so they can be reared by hand by experts for return to their wild environment. ■





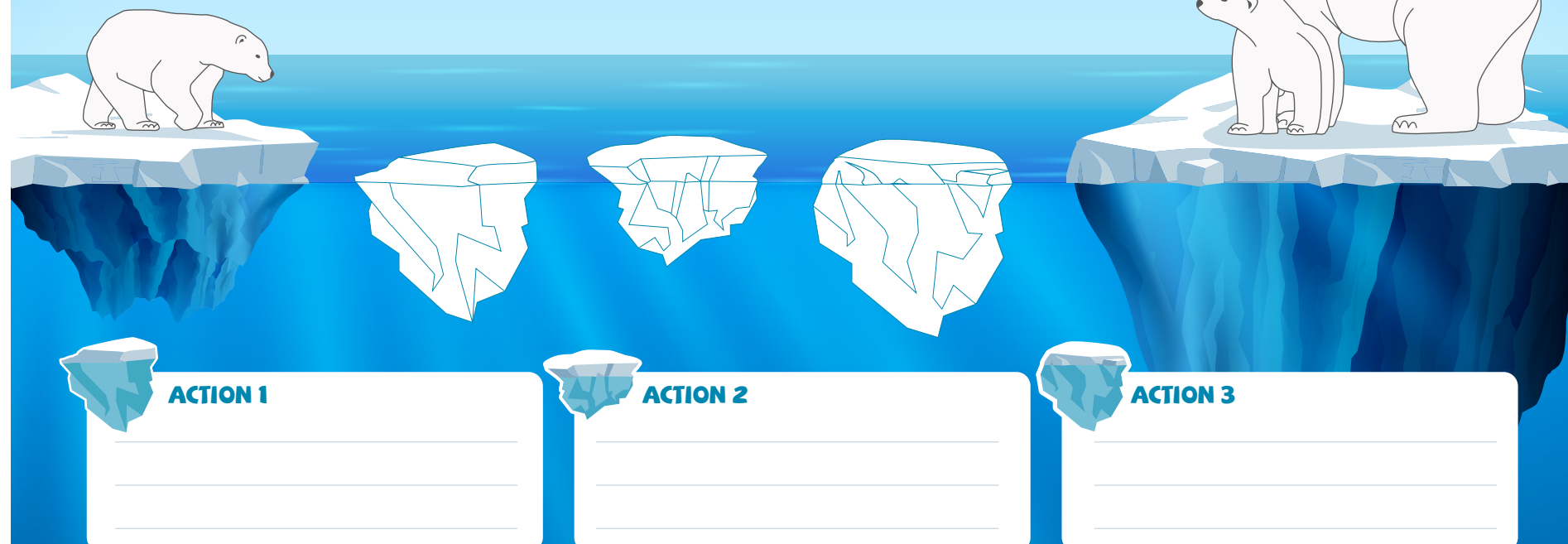
WHAT IS CLIMATE CHANGE?

Climate change is a process which makes the Earth get hotter and hotter. It is happening because of pollution from cars and factories, environmental contamination and deforestation and other things. And all of this causes serious changes in the planet, like big storms, floods, melting ice caps...

It doesn't just affect plants and animals, which might lose their homes, but also human beings. Will you help slow down climate change?

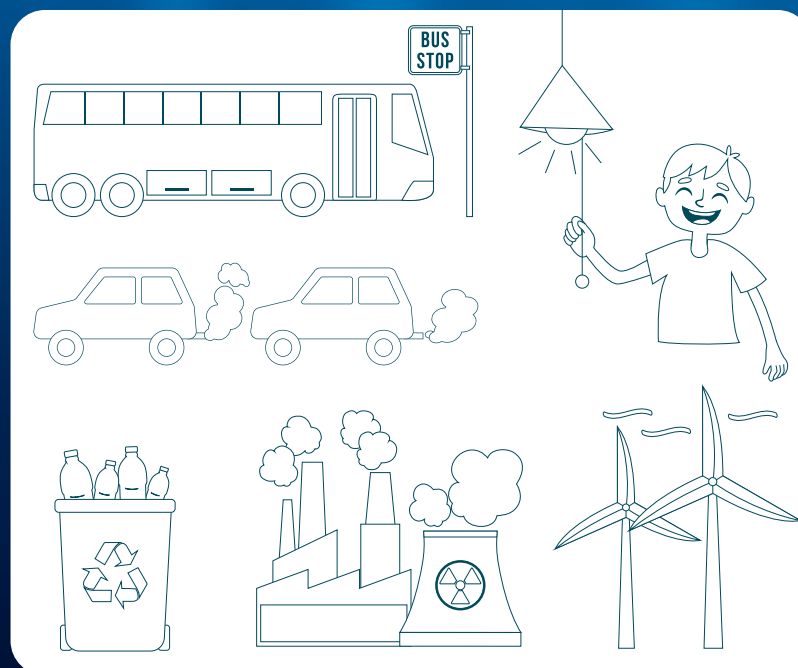
COLOURING IN

Can you help this polar bear cub get back to its mum and its brother? Colour in the chunks of ice on the route, and for each chunk you colour in, write down an action you think might help fight climate change.



MARK AND COLOUR IN

Cross out the activities you think cause climate change and colour in the ones you think help avoid it.



RECYCLE!

Have fun recycling! Get an empty toilet roll tube and follow these steps.

Materials needed: toilet roll tube, 2 blank sheets of paper, scissors, glue, black pencil, coloured pencils.

1. Wrap a sheet of paper around the roll and stick it on with glue.



2. On another sheet, draw the paws and two ears.



3. Cut out the paws and ears and stick them to the roll.



4. Use a black pencil to draw the eyes, nose and mouth.



YOUR OWN POLAR BEAR!



LEAR'S MACAW

FIND THE PATH

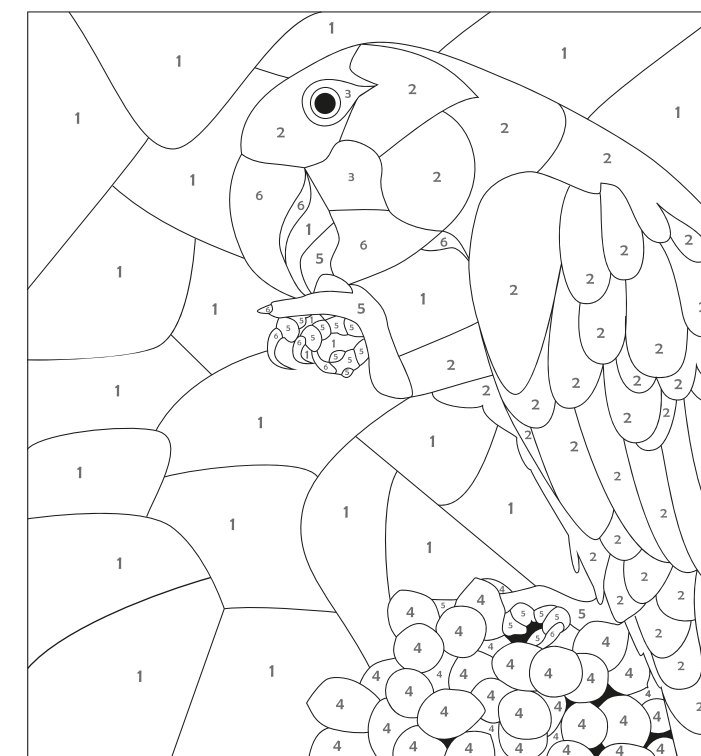
The main food of Lear's macaw is the fruit of the licuri palm tree. Help find the fruit so it can eat! Remember, it can only fly from one palm tree to another and can move in all directions.



COLOURING IN

Colour in the figure according to the numbers of the colours and discover the hidden Lear's macaw.

Red 1 Blue 2 Yellow 3 Green 4 Brown 5 Black 6



It has a big yellow patch at the base of its beak.

It lives in Brazil.

Its feathers are cobalt blue above and black underneath.

It is at risk of extinction. In 2001 there were 245 individuals left. Thanks to Loro Parque Fundación, in 2018 there were 1300!

WHO'S WHO?

Look closely at these blue and yellow macaws. Can you tell them apart? Follow the clues and write down the right name for each one.

CLUES:

HYACINTH MACAW

This looks a lot like Lear's macaw but the patch under its beak is very small.

BLUE AND YELLOW MACAW

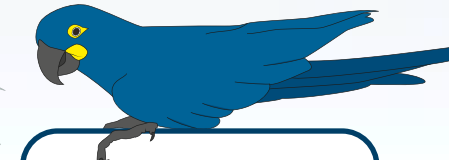
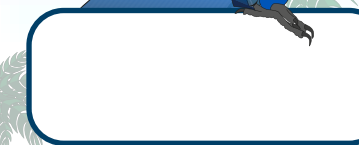
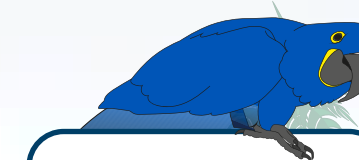
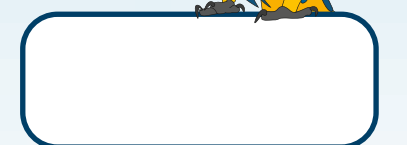
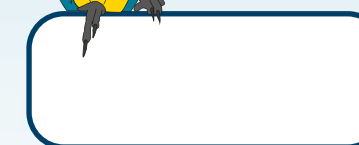
This has a white face with black lines.

BLUE-THROATED MACAW

This has a big blue patch under its beak.

LEAR'S MACAW

This has a big yellow patch at the base of its beak.



An international coalition to monitor the welfare of dolphins

"Animal welfare", a concept which is sometimes misunderstood, covers all aspects relating to the physical health, emotional state and behaviour of an animal. It can be measured and evaluated with physical signs (state of health, stress hormones, etc.), behavioural signs and even environmental ones. For a modern zoo, like Loro Parque, guaranteeing the highest welfare standards is a priority on ethical, educational and conservation grounds.

However, this is not always an easy task. In fact, for many species – such as cetaceans – the normal figures for these parameters are still not known, which makes it more difficult to measure their welfare objectively.

Therefore, *Loro Parque Fundación has launched a collaboration with the Chicago Zoological Society, which is carrying out a research project to improve our knowledge about the welfare of cetaceans in zoos and aquariums.*

The project brings together an unprecedented international consortium of zoos and aquariums, of which Loro Parque is the only European member. This is the

best proof of the role of zoos as international science and conservation centres, which collaborate in an organized way to improve the accuracy and reliability of the results. At the same time, it makes it very clear that the population of cetaceans in zoos, handled in a coordinated way, is a scientific resource of the greatest value.

Collecting all this information is a complex process which requires a high level of knowledge of and communication with the animals as the results could otherwise be affected by stress. Therefore, this type of study is especially difficult with animals in the wild, as they are not used to any sort of handling. The

project, in which 45 accredited international institutions are participating, has two components. On the one hand, different data were measured from the dolphins and voluntary biological samples were taken (blood, faeces, gastric juices, blow hole, etc.). This will enable scientists to establish reference ranges of hormones as indicators of stress. On the other hand, the animals were marked and observed, using a device which attaches to the animal's back with suckers and it causes no harm, as well as allow it complete freedom of movement.

This device records the dolphin's everyday activity, which combined with the data obtained from the biological part of the study, allows scientists to understand how physical space, environmental enrichment or training affect its welfare.

The results obtained in the study can be used to evaluate the welfare levels of dolphins in human care and create preventive veterinary protocols for them, and will also be useful as a planning tool, for example, for planning changes in facilities or in the handling of the animals and seeing the effects of these changes on the examples studied. ■



Bottlenose dolphin with movement recording device

Photo: LPF

"CanBIO" At the forefront of science in the Canary Islands



Photo of the group after the ceremony to sign the CanBIO agreements with the lead researchers of the projects

Photo: MP/LPF

Our planet's nature has been suffering from habitat loss for centuries as a result of the incessant expansion of *the world's population, which in a few months will exceed 7.7 billion people.* Our species' voracity for territory and natural resources has cornered thousands of plant and animal species, driving them out of their habitats. The best evidence of this pressure is that 27% of the species evaluated by the IUCN suffer some degree of threat and are on its Red List.

If this situation was not worrying enough, a new global threat has appeared: climate change. In recent years, models and prediction for how this global change will affect our economy, cities and the future of society have been developed. However, *we know less about the effects the increase in temperature will have on ecosystems, and much less still on marine biodiversity.*

Our planet's oceans work like an enormous machine distributing heat from the equator to the poles, through a complex network of surface and deep sea currents. Changes to the Earth's temperature will have effects on this circulation, which will also affect the atmosphere, changing rain patterns, prevailing winds or the frequency of extreme atmospheric phenomena. However, there are other phenomena that are less well known, but no less worrying about it. As the concentration of CO2 in the Earth's atmosphere increases, it is absorbed by the oceans. Although this carbon dioxide is initially absorbed in a gaseous state, some of it dissolves and through a chemical balance turns into carbonic acid, reducing the sea's pH in a phenomenon known as acidification.

This increase in acidity could dissolve corals and the shells of mollusks or even alter the

balance of phytoplankton, the base of the whole oceanic food chain.

To be able to predict how the acidity and temperature of the oceans will vary in the coming years and model how this might affect corals, whales, dolphins and sea turtles, a series of temperature data from different sea regions are necessary. Unfortunately, sources of data about coastal areas are scarce, making it harder to predict and prepare for climate change.

The CanBIO project, which Loro Parque and the Canary Islands Government will jointly fund over the next four years with a million euros each, will make it possible to set up measuring networks, which will more effectively protect cetaceans and all of the marine biodiversity of Macaronesia and at the same time provide information to improve global climate change models.

The CanBIO project plans to install two measuring buoys with various instruments, one in Gran Canaria and the other Tenerife, and to use commercial ships as available platforms which will collect data during their *voyages through the Canary Islands and also around all of Macaronesia. These data will be complemented by autonomous vehicles (underwater gliders), the latest technology in oceanography,* which can cover great distances and take samples at a much lower cost than an oceanographic boat. Various campaigns are envisaged, covering the whole area of Macaronesia from the Azores to Cape Verde, including the Canaries and Madeira. These autonomous vehicles will also be fitted with systems for detecting acoustic tags, which will make it possible to discover the movements of threatened fauna like angel sharks or spiny butterfly rays. From the

point of view of biodiversity, other subprojects will focus on detecting potential breeding grounds for sea turtles on the island of Fuerteventura, somewhere which could in future be a potential location for reintroducing sea turtles bred in the facilities of Poema del Mar. Another subproject will analyse the

communicate stand to lose a lot. This is why another subproject will adapt the recording systems developed for studying orcas by Orca Ocean and introduce them in the buoys and autonomous vehicles to obtain data from all of Macaronesia, making it possible to obtain information about the current impact of noise pollution



One of the vessels used as an available platform where some of the project's sensors will be fitted

Photo: LPF

potential cold water refuges in the islands, places where the flora and fauna of the archipelago will have to take refuge during global warming, and which must be specially protected to preserve the communities of marine animals and plants for future generations.

Finally, the CanBIO project will consider the problem of underwater noise, a little-known type of pollution, which is destroying what Jacques Cousteau called the kingdom of silence. The depths of the sea are no longer a place of peace and quiet. Noise pollution caused by shipping, oil exploration, even offshore wind turbines, is increasingly contaminating the environment. And cetaceans, species which depend on sound to feed and

in the region and also acting as detection systems for cetaceans. This will improve knowledge of the distribution of cetaceans in Macaronesia, their migrations, their critical habitat, etc., at the same time as monitoring the evolution of one of their biggest threats, underwater noise.

The CanBIO project launched in January with the official presentation, attended by representatives of the project's funders: Loro Parque and the Government of the Canary Islands. The researchers from the University of La Laguna, the University of Las Palmas de Gran Canaria, the Observatorio Ambiental de Granadilla, Elasmocan and AVANFUER who will deliver each of the subprogrammes over the next four years were also present. ■

Tourism saving lions

In the last three decades, the number of lions has fallen from 200,000 individuals to around 25,000. This trend is continuing owing to loss of territory, the difficulty of finding prey and indiscriminate hunting.

In collaboration with the sustainability initiative of the German travel agents' association FUTOURIS, Loro Parque Fundación is cooperating with the Panthera organization to protect nature conservation in the KAZA region (which covers a cross-border area of Angola, Botswana, Namibia, Zambia and Zimbabwe) where tourists are learning about the reality of everyday coexistence with the local fauna which must be protected. LPF started its connection with this project, to which over USD \$256,600 have been allocated, when the areas lions inhabit were researched with the help of camera traps and tagging of some individuals, so that conflicts between animals and humans could be avoided.

In 2018, LPF, through the Panthera organisation, helped with the activities



The patrol finds a metal snare to trap local fauna, which is removed and included in location references to measure the impact of these actions on the habitat and implement appropriate solutions. Photo: Panthera

of the Scorpion Anti-Poaching Unit (APU) in the National Park (Zimbabwe) which is home to a population of approximately 500 lions and the largest elephant population of any protected area in the world. This unit has monitored approximately 56,000



Young lions KAZA project (*Panthera leo*)

Photo: P. Funston/Panthera

hectares looking for traps and other illegal hunting methods. With the support of LPF, Panthera has trained the patrol and improved its equipment to increase and improve its effectiveness.

Also, through the "Children in the Wilderness" programme, the education of local communities on the importance of preserving wildlife has been boosted. ■

The military macaw protected by the people of Mexico

In Zicuirán Infiernillo, Mexico, Loro Parque Fundación and the University of Michoacán based in Morelia, have carried out a phenological study of the plants. *The fruiting of the trees and the macaw's relationship with the state of ripeness of the seeds makes it possible to find out what seasonal movements these birds might make in a semi-arid tropical forest climate.* Censuses of examples, reforestation with seeds of the plants the macaws eat and social awareness raising have been the foundations of this project. ■



The semi-arid landscape suffers from the felling of larger trees. These are the ones that provide food for the macaws. Photo: U. Michoacán



Thanks to this family from the area, it has been possible to find the species. Photo: U. Michoacán



Nurseries exclusively for the plants the macaws eat.

Photo: U. Michoacán

Sensational growing of the red-tailed amazon population in Brazil

This species has been saved from extinction by the Loro Parque Fundación thanks to many years of intensive work. *In 2018, field monitoring and counting of the red-tailed amazon continued in order to assess the health of the wild population, which now numbers over 9,000 specimens.*

The last census carried out by volunteers revealed 9,112 specimens in their settlements. Thereof 7,366 in Panama and 1,746 in São Paulo. Thanks to our support, the Society for Research on Wildlife and Environmental Education (SPVS) also monitored the nesting sites of this species and counted 106 chicks in the state of Paraná. In addition, long-term conservation strategies for this species are being developed through an environmental education program for students and teachers. After all, the following generations are to preserve their valuable natural heritage. ■



The Red-tailed Amazon was able to raise more than 100 chicks last season.

Photo: SPVS



Young people committed to the protection of the species acquire knowledge about ecology and habitat protection.

Photo: SPVS

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For €120 a year, become a member and enjoy the special bonus of being part of an organization which fights to preserve our planet's biodiversity. With your Loro Parque Fundación membership card, you can visit two international nature conservation centres: Loro Parque and Poema del Mar. You will also receive our Cyanopsitta newsteller for a year.



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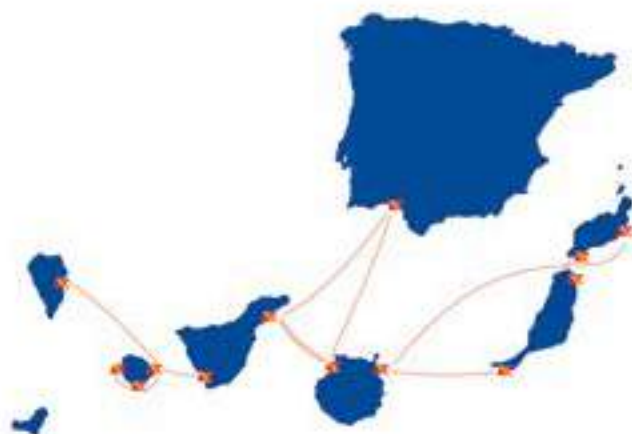
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