

10 YEARS ON THE EDGE

As ZSL's EDGE of Existence conservation programme reaches its first decade of protecting the planet's most Evolutionarily Distinct and Globally Endangered animals, we celebrate 10 highlights from its extraordinary work

THE LONG-BEAKED ECHIDNA IS ONE OF THE WORLD'S MOST UNIQUE ANIMALS

1 Prioritising the weird and wonderful

From the very beginning, EDGE of Existence was a unique idea. It is the only conservation programme in the world to focus on animals that are both Evolutionarily Distinct (ED) and Globally Endangered (GE). Highly ED species have few or no close relatives on the tree of life; they represent millions of years of unique evolutionary history. Their GE status tells us how threatened they are. ZSL conservationists use a scientific framework to identify the animals that are both highly distinct and threatened. The resulting EDGE species are unique animals on the verge of extinction – the truly weird and wonderful.

'EDGE species are distinct in how they look, live and behave, and in their genetic make-up,' explains EDGE of Existence programme manager Nisha Owen. 'For example, the flagship species for EDGE are the three long-beaked echidnas. These curious mammals lay eggs like birds; have distinctive snouts and long tongues for poking into the ground to find ants; and grow spines for protection. If these extraordinary animals became extinct, a whole chunk of evolutionary history would disappear with them.'

Many such animals in need of urgent conservation action have previously been overlooked because they weren't as 'charismatic' as species such as elephants and tigers, or were poorly known. For 10 years, the EDGE programme has been putting these species on the map and working to guarantee their future. To date, EDGE lists have been created to highlight the most unique and threatened mammals, amphibians, corals and birds, with the latest addition, EDGE reptiles, launching this year, and the team has also mapped the world to reveal the regions with the greatest EDGE biodiversity.



To discover more about EDGE species and our projects and people all over the world, head to edgeofexistence.org

WORDS: DEBORAH WALD

2 Empowering new conservation leaders

Once you have identified the animals most in need of action, you need to find the right people to protect them. Developing conservationists' abilities in the countries where EDGE species exist is the most effective and sustainable way to ensure the long-term survival of these species. From tracking wildlife populations to measuring the impact of a social media awareness campaign, the skill set of today's conservation champions is wide-ranging. Every year, around 10 early-career conservationists are awarded one of ZSL's two-year EDGE Fellowships. With mentorship from ZSL experts, and a grant to set up their own project on an EDGE species, each Fellow gains a rigorous scientific grounding as well as practical experience. Each intake of Fellows begins with a four-week training course in essential conservation tools, delivered in priority EDGE regions such as Madagascar, Costa Rica, Nepal, Kenya and the Philippines. Fellows then head back to work with their chosen species, keeping in touch with tutors via Skype. Many Fellows are also juggling full-time work alongside their projects – but then, conservationists are a very committed species! Towards the end of their course, participants gather at ZSL London Zoo to hone their leadership skills and find ways to scale up their project, such as applying for new funding.

EDGE FELLOWS TAKING PART IN FIELD TRAINING IN MADAGASCAR



CALEB ON THE TRAIL OF THE TOGO SLIPPERY FROG



3 Making an impact in the field

Over the past decade, nearly 70 impassioned conservationists from all over the world have completed the EDGE Fellowship programme and made an impact in the countries where they live.

A key part of this has been getting local communities on board with conservation. Take Caleb Ofori-Boateng in Ghana, who enlisted the support of local people to help create a protected area for the Critically Endangered Togo slippery frog. Caleb used what he calls 'conservation evangelism' to educate communities about their precious local frog population, even setting up amphibian clubs in local schools.

And in the Bahamas, Nikita Shiel-Rolle's love of the sea and fascination with the towering pillar coral inspired her to set up marine monitoring programmes that have in turn enthused teams of young volunteers.

In Croatia, Dušan Jelić has revealed the secrets of the olm – a sightless, lungless, cave-dwelling salamander that can live without food for 10 years. Dušan helped develop a groundbreaking technique to detect the presence of the olm by checking for its DNA in water, and successfully secured further funding to continue his project.



4 Investing in the future

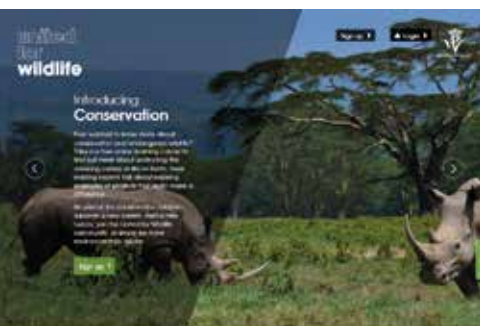
As well as focusing on essential work to protect wildlife in the field, raising wider awareness of conservation has always been a key EDGE goal. Since 2014, ZSL's EDGE team have been producing free courses on conservation for the United for Wildlife online learning platform. These courses are accessible to anyone around the world, at any age, and require no prior conservation knowledge. Learners can choose from a range of introductory topics, covering key conservation concepts, people's roles in conservation, and the use of technology; or explore specific areas, such as how we prioritise species and areas for conservation, or the illegal wildlife trade.

Participants can take these video-based courses at their own pace, with quizzes to test their knowledge and opportunities to earn badges for their hard work. There is also an online community forum to connect with fellow learners from around the world and discuss topical issues or share inspiring conservation stories.

So far, courses have been made available in English, Spanish, Mandarin, Vietnamese and Hindi, and more than 10,000 people in 196 countries have signed up to learn more about conservation.



Why not sign up for one of the inspirational, and completely free, online conservation courses developed by the EDGE team? Head to learn.unitedforwildlife.org



OLIVER WEARN, ZSL

Field notes from...

CUBA

The EDGE team recently led the first ZSL expedition to Cuba to investigate its unique wildlife and forge new partnerships, as Carolina Soto Navarro explains



'Cuba is home to some unique species, including the Cuban solenodon, a shrew-like mammal with a toxic bite, and the Cuban greater funnel-eared bat, a species known only from fossils until a living colony was found in a remote cave, Cueva La Barca, in 1992. Very little information exists on either, so we were keen to learn more. We also wanted to build relationships with Cuban partners, find potential EDGE Fellows and develop the skills of two early-career UK conservationists. The trip was made possible by the Erasmus Darwin Barlow Conservation Expedition fund for up-and-coming conservation leaders, dedicated to one of ZSL's founding Fellows.

'At the Cueva La Barca we mapped the foraging distribution of the greater funnel-eared bat through sound-recording devices, as well as using photogrammetry (photo mapping) to build up a 3D model of the cave. It's a crucial habitat for this species, providing the humid conditions it seems to favour for breeding. Entering the dark for the first time was mind-blowing, with thousands of bats of different species flying around us, and dozens of Cuban cockroaches, boas and giant crabs scuttling or slithering away into their burrows.

'We also travelled to the Pico Cristal National Park, hoping to discover the Cuban solenodon outside its known range by

surveying for signs such as burrows and droppings, and setting motion-triggered cameras, but we have yet to find this rare creature.

'On an expedition, you need a plan B if things don't quite go to plan. For example, we needed a 4x4 for our trip into Pico Cristal National Park, but renting an off-road car is easier said than done. We ended up climbing the steep roads in a tractor for four hours – an unforgettable experience!

'We are now aiming to return to Cuba next year to continue this work, to develop our partnerships with the country's capable and motivated conservationists and to explore the possibility of setting up other projects with EDGE species.'

THE CUBAN GREATER FUNNEL-EARED BAT WAS THE FOCUS OF A RECENT EDGE EXPEDITION



5 Looking for the world's most elusive animals

Exploring unknown territory, speaking with local communities, testing state-of-the-art technology in the field... It's all in a day's work for conservationists trying to confirm the existence (or extinction) of an EDGE species.

Until 2007, one of the three top EDGE mammals, Attenborough's long-beaked echidna (named after the famous broadcaster), was thought to be extinct. Then, 46 years since its last recorded sighting, an EDGE expedition discovered telltale 'nose pokes' – holes made by its beak while digging for worms – in Papua New Guinea. In Cuba, two more recently rediscovered mammals, the Cuban solenodon and greater funnel-eared bat, were focuses of a recent EDGE trip (see below).

Sometimes the search for one species has surprising results. In 2010, EDGE Fellow Grace Wambui was on the trail of the golden-rumped sengi in north-east Kenya. This small mammal can be recognised by the patch of gold fur on its rear – but this patch wasn't visible in an image of a sengi caught on camera by the team. ZSL scientists are finding out more about this sengi's distribution and ecology, to determine and classify this potentially new species.



IN SEARCH OF THE CUBAN SOLENOTODON IN THE PICO CRISTAL NATIONAL PARK

SEYCHELLES EDGE FELLOW DIANA RENAUD (RIGHT) IN THE FIELD



6 Supporting new protection for wildlife

EDGE research is not only yielding new data about the world's rarest animals – it is also providing vital evidence in the fight to defend them. In the Seychelles, the Critically Endangered sheath-tailed bat is now protected in law, an incredible achievement on the part of EDGE Fellow Diana Renaud, a conservation officer at the Seychellois Ministry of Environment and Energy. Her hard work was instrumental in securing the legislation, which makes it illegal to kill or disturb the species. The DNA of the sheath-tailed bats she studies can be traced back 38 million years, but there are thought to be fewer than 100 left in the wild. Encouragingly, Diana's research in the field shows that recent drastic declines in population are reversing, and juvenile bats have also been spotted.



The Seychelles sheath-tailed bat gets its name from a membrane between its hind legs that extends over its tail, and can be used to fine-tune its steering during flight.

EDGE IN NUMBERS...



68 EDGE Fellows have been supported and trained by ZSL over the past decade



36 countries have been the subject of EDGE conservation projects or expeditions



63 EDGE species have been the subject of field conservation projects



2/3 of EDGE species are currently receiving little or no conservation attention





Now you know

The pygmy three-toed sloth's outer fur is often covered in algae, giving it a green hue that helps camouflage it in its native mangrove forest.

WE NOW KNOW MORE ABOUT THE PYGMY THREE-TOED SLOTH, THANKS TO FIELDWORK BY DIORENE (ABOVE RIGHT)

7 Shedding light on the least-known species

EDGE research has added enormously to our understanding of the world's little-known species – and none more so than the pygmy three-toed sloth. Found only on the island of Escudo de Veraguas, which separated from Panama around 9,000 years ago, this sloth adapted rapidly (evolutionarily speaking) to its new home, shrinking in size compared to its mainland relatives. Very little was known about these sloths, thought to number fewer than 500, until EDGE Fellow Diorene Smith Cabellos began researching them. To understand their movements, she fitted animals with GPS trackers (which were road-tested by the sloths at ZSL London Zoo). Alongside her day job as a zoo curator and vet, Diorene continues to wade into the mangrove swamps to carry out twice-yearly sloth surveys. She is also raising awareness of the need to protect them with schools, fishermen and divers. Last year, Diorene was named a Disney Conservation Hero – an award from the entertainment giant and conservation funder for those going above and beyond for nature.



THE PEARL BUBBLE CORAL WAS THE FOCUS OF RESEARCH BY SYLVANNA (RIGHT)



8 Raising the profile of amphibians

The launch of the EDGE Amphibians list in 2008 highlighted that 85% of the world's 100 most unique amphibians are receiving little or no conservation attention. Mexico is home to nine of the top 20 EDGE amphibians. Taylor's salamander, for example, is one of the only amphibians in the world that is able to live in salt water, in the high-altitude volcanic crater of Lake Alchichica in eastern Mexico. It lives and breeds in its juvenile state without ever metamorphosing into an adult form, as many amphibians do. Like other EDGE salamanders in the country, such as the Lake Lerma and granular salamanders, it is under threat from pollution, falling water levels and disease, but EDGE Fellows have been fighting to save these species through a coordinated approach. Alejandro Calzada Arciniega is leading a nationwide effort to document the distribution and habitat of Mexico's salamander species, while Alfredo Hernández Díaz has engaged with local communities and officials to improve the management of Lake Alchichica. There has been good news, too: thanks to the work of EDGE alumnus Karla Pelz Serrano, the Lake Lerma salamander has been taken off the Critically Endangered list.



CAN YOU SPOT THE TAYLOR'S SALAMANDER?

9 Fighting to save coral reefs

Around a quarter of all marine species can be found living in coral reefs – despite the fact that reefs only occupy 0.1% of the marine environment. The launch of EDGE Corals in 2011 highlighted the astonishing diversity of coral species, as well as the array of other wildlife they are home to. However, with three-quarters of reefs already threatened due to overfishing and pollution, the added impact of climate change could easily wipe them out for good. In 2013, EDGE Fellow Sylvanna Antat went in search of the pearl bubble coral, a genetically distinctive and globally threatened species, off the inner islands of the Seychelles. Covered in fleshy, bubble-like protuberances by day, pearl bubble coral extends thick tentacles to catch passing food at night, and can form vast colonies. Sylvanna's research found that the pearl bubble coral was equally abundant in protected and unprotected areas of the ocean, but favoured clearer, cooler waters. Leading the first ever all-woman marine park survey team, Sylvanna's project bolstered the capacity of conservationists working across the Seychelles islands, and raised awareness of the region's important marine species.



10 Sounding the alarm for birdlife

The launch of the EDGE Birds list in 2014 revealed that the Philippines is particularly rich in unusual birdlife, with no less than 11 EDGE species. Shortly after the list launched, ZSL experts and local conservationists came together for a series of workshops in the Philippines to address the bleak future facing these birds, largely due to deforestation for agricultural development. Species under threat – all found nowhere else – include the Negros bleeding-heart, a red-chested forest pigeon; the brilliant white Philippine cockatoo; the Sulu hornbill (thought to number fewer than 30 in the wild); the Cebu flowerpecker, a multicoloured songbird believed extinct until rediscovered by birdwatchers in 1992; and the Philippine eagle, one of the largest and most powerful birds of prey, with a distinctive crest of neck feathers. Work is under way on action plans to protect these irreplaceable populations, which are not only vital to the Philippine ecosystem, but also hold so much evolutionary history between their wings. Recent successes include a survey of Mount Mangan in central Luzon by EDGE Fellow J. Kahlil Panopio that confirmed the presence of three Philippine eagles, spurring on local efforts to designate the area as a critical habitat.

Now you know Top of the 100 EDGE birds list is the giant ibis, the national bird of Cambodia, which is Critically Endangered due to human disturbance and hunting.



THE PHILIPPINE EAGLE IS ONE OF MANY UNUSUAL SPECIES OF BIRD FOUND IN THE PHILIPPINES

WHAT'S NEXT?

It's been an exciting 10 years for the EDGE programme – and there's more to look forward to:

• **REPTILES ON THE EDGE** With the top 100 EDGE Reptiles list launching this year, the world's most Evolutionarily Distinct and Globally Endangered reptile species will be in the spotlight – look out for more on this in upcoming issues of *Wild About*. Meanwhile, scientists are also working on EDGE lists for sharks and plants.

• **WEBSITE MAKEOVER** The EDGE website, edgeofexistence.org, is getting a makeover to mark the 10th anniversary of the project. Check it out for the latest project news, species information and regular blogs from Fellows working in the field. You can also find the ZSL EDGE of Existence team on Facebook or follow them on Twitter @EDGEofExistence.

• **REALLY WILD FASHION** This summer we are launching an exciting new collaboration with fashion favourite Oasis. Inspired by EDGE species and packed with beautiful animal prints, the store's Wildest Dream summer collection will help support our vital conservation work with wildlife. See right for more details!

WEAR IT FOR WILDLIFE!

High street fashion brand Oasis is working with ZSL on a clothing collection with a conservation message. We asked the store's design director, Clive Reeve, about the thinking behind the Wildest Dream range – and why he's excited to be working for wildlife



WA: Why did Oasis decide to team up with ZSL?

CR: It's really important to create more awareness of the endangered species in the world, and ZSL's work to protect wildlife is vital not just for us, but also future generations. Trendwise, lots of pretty animal prints such as leopards and snakes have been emerging on the catwalks. We thought it would be a wonderful opportunity to showcase ZSL's amazing conservation work, so we gave them a call!

WA: How did you create the range?

CR: After a research trip to ZSL London Zoo, our print designer, Jacqueline Colley, and the rest of the design team worked on recreating the wonderful animals we saw on our visit. It was important to us that the animals were as true to life as possible, and we worked closely with the ZSL team to ensure they were correctly portrayed.

WA: Do you have any favourite animals that are captured in the collection?

CR: Personally, I have a soft spot for bugs, so I love the cute, bug-striped T-shirt! We wanted to represent as many different species as possible – even the bugs and beetles. My favourite pieces also include the dragonfly knit, and the intricate vine print with cheetahs, monkeys and snakes.

WA: Do you think the collection will be a hit?

CR: Yes, I like to think the Oasis customer has a caring side, and loves animals. I hope the collection highlights the good work ZSL does – and that our customers enjoy wearing it as much as we enjoyed creating it!

Don't miss

Look out for the Wildest Dream collection at Oasis stores this summer – purchasing one of the beautiful pieces will support our conservation work with the world's most endangered species.

OASIS