



Annual Report 2018
Zoological Society of Ireland



PAST PRESIDENTS OF THE ZOOLOGICAL SOCIETY OF IRELAND

Presidents of the Zoological Society of Ireland*, 1833 to 1837, and 1994 to date;
and the Royal Zoological Society of Ireland, 1838-1993.

Sir Philip Crampton*	1833	Sir Robert H. Woods	1922-26
The Duke of Leinster*	1834	Prof. A. Francis Dixon	1927-31
Captain Portlock*	1835-36	Sir William Taylor	1932-33
Sir Philip Crampton	1837-38	Lord Holmpatrick	1934-42
The Archbishop of Dublin	1839-40	Dr. R. Lloyd Praeger	1942-43
Sir Philip Crampton	1841-42	Capt. Alan Gordon	1944-50
The Archbishop of Dublin	1843-44	Prof. John McGrath	1951-53
Sir Philip Crampton	1845-46	Dinnen B. Gilmore	1954-58
The Duke of Leinster	1847-48	G.F. Mitchell	1959-61
Sir Philip Crampton	1849-50	N.H. Lambert	1962-64
The Marquis of Kildare	1851-52	G. Shackleton	1965-67
Sir Philip Crampton	1853-54	Prof. P.N. Meenan	1968-70
Lord Talbot of Malahide	1855-56	Prof. J. Carroll	1971-73
Sir Philip Crampton	1857-58	A.E.J. Went	1974-76
Doctor D.J. Corrigan	1859-63	Victor Craigie	1977-80
Viscount Powerscourt	1864-69	Alex G. Mason	1981-83
The Earl of Mayo	1870-71	Aidan Brady	1984-86
Earl Spencer	1872-74	John D. Cooke	1987-89
J.W. Murland	1875-78	Padraig O Nuallain	1990-91
Sir John Lentaigne C.P.	1879-84	Prof. David J. McConnell	1992-93
Rev. Dr. Haughton F.R.S.	1885-89	Prof. David J. McConnell	1994-95*
Sir Robert Ball F.R.S.	1890-92	Joe McCullough	1996-98*
Dr. Samuel Gordon	1893-97	Sean Cromien	1998-2001*
Field Marshal Earl Roberts	1898-1902	Michael O'Grady	2001-04*
Prof. D.J. Cunningham F.R.S.	1903	Barry Murphy	2004*
Earl of Dudley	1904-05	Michael MacNulty	2005-08*
Rt. Hon. Jonathon Hogg D.L.P.C.	1906-10	Derek McCleane	2008-11*
Sir Charles Ball	1911-15	Margaret Sinanan	2011-14*
W.E. Peebles	1916	Tom Dunphy	2014-17*
Sir Frederick Moore	1917-21	Michael Daly	2017*

LETTER FROM THE PRESIDENT

Dear Member,

The Council of the Zoological Society of Ireland presents the twenty-fifth annual report, together with the consolidated audited financial results of Dublin Zoo and Fota Wildlife Park for the year ended 31 December 2018.

I am delighted to report that both Dublin and Fota have once again achieved outstanding visitor attendances of 1,230,145 and 424,889 respectively.

Our financial results benefited from this great support from our visitors, resulting in income of €20,759,000 and an operating surplus of €765,000.

These successful results have once again allowed us to re-invest in our animals, our habitats, our visitor and staff facilities, and our conservation programmes.

In Dublin Zoo, President of Ireland Michael D. Higgins and his wife, Sabina, opened a brand-new, state-of-the-art Discovery and Learning facility. We are now one of Ireland's leading environmental education providers; in fact, more than 85,000 young people participated in our programmes in 2018. That means that over 85,000 young minds have been informed about biodiversity, about ecology, about zoology and, above all, about wildlife conservation. The information will resonate with them and make them more informed about this fascinating world in which we live. Throughout the course of the year, numerous delegations travelled to see and understand the various ground-breaking initiatives that are ongoing at Dublin Zoo. Dublin is now recognised as one of the world's most progressive zoos.

In Fota Wildlife Park, a Giraffe Viewing and Visitor Interactive Sheltered Viewing Pod was opened. This allows panoramic views of the giraffe habitat, while the interior affords visitors views of the animals in the African Plains from the comfort and shelter of the Giraffe Pod. The interior of the pod has extensive educational graphics that display information on giraffe husbandry as well as conservation and educational material. A new monkey house was also completed. It will house drills, one of Africa's most endangered primates.

A total of €5,407,000 was invested in habitat and facilities expansion and improvement during the course of 2018. The Council of the Zoological Society is committed to the continued enhancement of the Dublin Zoo and Fota Wildlife experience by the prudent and measured reinvestment of financial surpluses achieved.

As President of the Society, I would like to acknowledge with thanks the team in Dublin Zoo and Fota Wildlife Park; the volunteers; the director of Dublin Zoo, Leo Oosterweghel; and the director of Fota Wildlife Park, Sean McKeown, for their outstanding contribution throughout 2018. I would also like to thank the members of the Council and the Governors for their dedication and commitment, and our members and visitors for your support throughout the year.

I look forward to the continued success of both Dublin Zoo and Fota Wildlife Park.

Michael Daly
President
The Zoological Society of Ireland

NOTICE OF ANNUAL GENERAL MEETING

NOTICE is given that the annual general meeting of The Zoological Society of Ireland will be held at Haughton House, Dublin Zoo, Dublin 8 on 19 September 2019 at 18:00 for the following purposes:

Ordinary Business:

1. To approve the minutes of the previous annual general meeting
2. To receive and consider the statutory financial statements for the financial year ended 31 December 2018 and the report of the directors and the report of the statutory auditors on those statements and that report
3. To review the affairs of the Company
4. To elect Andy Beer as a director of the Company
5. To elect Tom Cassin as a director of the Company
6. To re-appoint the statutory auditor of the Company
7. To authorise the directors to approve the remuneration of the statutory auditor

Special Business:

8. To consider and, if thought fit, to pass the following as special resolutions:

“The Constitution in the form attached and marked “A” be and is hereby adopted as the Constitution of the Company in substitution for, and to the exclusion of, the existing Constitution of the Company.”

BY ORDER OF THE BOARD

John Sweeney
Secretary

Registered Office

The Zoological Society of Ireland
Dublin Zoo
The Phoenix Park
Dublin



DUBLIN ZOO: DIRECTOR'S REPORT

The year 2018 finished with 1,019,910 day visitors. This figure was achieved despite the severe winter, a very hot summer and the closure of the Zoo from 25 to 27 August due to the visit of Pope Francis to the Phoenix Park. Prior to the closure, confusion about access to the Zoo during that week, which is traditionally very busy, further depressed figures. Wild Lights generated an additional 210,235 visitors, so the grand total for 2018 was 1,230,145.

The major event of the year was the opening of the Discovery and Learning Centre. The brand-new building and plaza fulfil a longstanding wish to provide the Discovery and Learning Team with high-quality facilities to deliver their extensive education programmes. These include two spacious classrooms, a state-of-the-art lecture theatre, office space for the team and an innovative Discovery Centre where the large Dublin Zoo collection of biofacts is displayed, including some living invertebrates.



(Above) Michael Daly, President Michael D.Higgins, Sabina Higgins, Aileen Tennant and Leo Oosterweghel
(Right) Young visitor interacting with biofacts

The new facilities are near the site of the original aquarium, which was built in 1869, and elements of its facade were incorporated into the design of the Discovery and Learning Centre. Jones & Jones Architects and Landscape Architects of Seattle, USA, worked with the Dublin Zoo team, including the Discovery and Learning Department, to design the centre to meet the needs of their learners. John J. Casey & Company, quantity surveyors, produced the tender documents, Hayes Higgins Partnership were the project managers and T. Connolly and Sons were the building contractors.

Highlights of the Discovery Centre, which is open to all visitors, include the skeleton of a giraffe and a life-size model of a southern white rhinoceros. Existing biofacts in the Dublin Zoo collection were repaired and cleaned; models of Irish wildlife, including a red squirrel, grey squirrel and pine marten, were acquired; and museum-quality biofacts representing many other species were sourced in the Netherlands to complement the collection.



(Far right) Young visitor looking at the life-sized giraffe skeleton





The southern white rhinoceros, which was sourced in Belgium, was prepared by Dutch taxidermist and artist Cees van Dashorst. Easy Tiger Creative assisted with the design and interpretation of the tactile learning space, and London-based company Work Haus manufactured and installed the high-quality display cases. Easy Tiger Creative and Work Haus had both previously worked with the team on fitting out Zoorrassic World, so the house style that has proved very successful is being carried on.

The Discovery Centre was officially opened by President Michael D. Higgins on 20 August and in his speech he highlighted the important role Dublin Zoo plays in educating young people about our fragile planet.





In the Kaziranga Forest Trail, Asian elephant Anak gave birth to a healthy male calf in February. There are now 12 elephants at Dublin Zoo. Meanwhile, bull elephant Upali is being kept separate to prevent more pregnancies. Dublin Zoo received an EAZA recommendation to transfer him to Le Pal Zoo in France. Operations Manager Gerry Creighton visited Le Pal Zoo to discuss the intended transfer. In accordance with best practice for moving elephants, a large transport box was connected to Upali's house in June and he was box trained to facilitate a calm move. France demands a TB test for their import permit, which can be done only through a bronchoalveolar lavage. Upali was trained to present his hind leg to take blood and to receive an injection so that this 5,000 kilogram animal could be sedated to undergo the medical procedure. An experienced veterinary team of three was flown in from Berlin and stayed overnight in Dublin. The procedure took place in October and was executed flawlessly as the Animal Care Team had spent months training Upali for the process. All of his pre-shipment tests proved negative and the move is planned for February 2019.

In September, two-year-old female elephant calf Zinda showed symptoms indicative of the elephant endotheliotropic herpesviruses (EEHV). She was treated with the anti-herpes viral drug famciclovir and, although the drug is not known for its efficiency, Zinda pulled through. It was interesting to note that Zinda never lost energy or looked depressed and she continued to be playful. As part of Dublin Zoo's continuing training programme, elephant expert Alan Roocroft visited Dublin Zoo in March. He assessed herd behaviour and worked with the team to develop current animal management techniques.

Following a recommendation from the western lowland gorilla studbook keeper, an eight-year-old black-backed male became available at La Palmyre Zoo in France. Paul O'Donoghue, Assistant to the Director (Animals and Grounds), visited La Palmyre and carefully assessed the animal for his potential as the future leader of the western lowland gorilla troop in Dublin Zoo. As a result, 'Bangui' arrived from La Palmyre Zoo in April and quickly integrated, mating with three of the Dublin Zoo females. In October, Kafi tested positive for pregnancy. Sadly, a major loss was the 36-year-old western lowland gorilla Lena. She had been ill for a number of weeks and, despite expert care, she died in August. Lena had arrived in Dublin Zoo in 1988 and gave birth seven times since then.

The Chilean flamingo colony is thriving with the vegetation in the Flamingo Lagoon maturing and providing more privacy. During the summer, the colony produced 10 viable chicks, which is an all-time record. By not pinioning or feather clipping the wings, the matings are more balanced. The great flight aviary protects the colony from predators such as magpies and gulls, ensuring that more eggs and chicks survive. At a recent count, the colony consisted of 98 birds, which is one of the largest of any zoo. The number of birds also ensures more partner choice and an increased sense of security.

Other births during the year included a male and a female Rothschild giraffe born in February; both births took place surrounded by the other giraffes, generating fascinating herd behaviours. In April, two red-ruffed lemurs were born. In June, one male and two female California sea lions were born within a span of just over a week; all three were healthy and grew quickly. In October, the Amur tiger gave

birth to three cubs; two cubs survived and are now thriving despite having an inexperienced mother. A Sulawesi crested macaque was born in November. In addition, the Family Farm welcomed numerous litters of healthy Tamworth piglets throughout the year.



Arrivals included a female orangutan, 'Sari', in April who was slowly introduced to the group; orangutan Leonie, a long-term resident, took time to accept Sari. In May, the introduction of a male okapi to the female okapi as per studbook recommendation went according to plan; mating took place and pregnancy was confirmed in November. In autumn, a genetically important siamang gibbon was acquired from DierenPark Amersfoort in the Netherlands to be paired with the Dublin Zoo female; the introduction went very well. In December, a male bongo arrived from Port Lympne Zoo in England to become part of a breeding programme in Dublin Zoo.

Departures included a male eastern bongo transferred to Knowsley Safari Park, England, in April. A young male

(Above) Amur tiger cubs

white-naped mangabey was moved to Cordoba Zoo in Spain following a breeding recommendation. In December, nine aging Mauritius fruit bats were successfully transferred to Athens Zoo. Also in December, three African wild dogs were sent to Port Lympne Zoo.

Losses included an aging female eastern bongo, a three-year-old white-naped mangabey and, in June, the older male okapi. The okapi sustained a fracture to his left front femur after unexpectedly collapsing. A thorough post-mortem revealed an oblique humeral fracture of the left front leg that appeared old. Still, the post-mortem left some questions unanswered. An elderly wolf had to be euthanised for veterinary reasons. In autumn, an aging Humboldt penguin died; post-mortem results showed a variety of health problems relating to advanced age.

In autumn, aging southern white rhinoceros Sam experienced respiratory problems. Despite intense veterinary care, he was euthanized on 3 January 2019, at the very respectable age of 42 years. Born at Whipsnade Zoo in 1976, he was transferred to Dublin in 1977. He produced one offspring 'Dorothy' in 1993. The post-mortem, performed at UCD, showed age-related issues.

During the autumn, the Dublin Zoo wolf pack was relocated elsewhere in the Zoo to allow the contractors to start the demolition of the building and fences in the former wolf habitat. This activity was in preparation for the creation of the new Wolves in the Woods habitat.

A major initiative in 2018 was the review of biosecurity in case of an outbreak of bird flu. The entire avian collection can now be placed in quarantine on short notice.

Departure of Paul O'Donoghue, Assistant to the Director (Animals and Grounds)

When Paul O'Donoghue joined the Dublin Zoo team in 2004, he brought with him extensive experience of working with animals in the wild and in zoos, and introduced a new level of expertise to the work of the Dublin Zoo Animal Care Team. His knowledge of animal behaviour was invaluable to the design of new animal habitats. This knowledge, combined with his ability to assess the character of an animal, helped in the establishment of breeding groups of numerous species in Dublin Zoo. During his 14 years with the Zoo, Paul contributed significantly to the high international standing in which animal care practises in Dublin Zoo are now held.

Dublin Zoo wishes Paul well in his new position.



(Above) Paul O'Donoghue

Retirement of John Bainbridge, veterinarian

John Bainbridge was appointed veterinary surgeon to Dublin Zoo in 1994. When he commenced, the veterinary clinic was one room with very little equipment. He developed an international network of zoo veterinarians and was able to draw on expertise and advice from colleagues around the world. John worked closely with the Animal Care Team and, over the years, the standard of in-house veterinary skills and expertise in Dublin Zoo has developed significantly. In 2011, John helped design the high-quality veterinary and quarantine facilities that were built with the aid of government funding.

Dublin Zoo wishes him well on his retirement.



(Above) John Bainbridge with a Brazilian tapir
(Far right) West African crocodile



DUBLIN ZOO 10-YEAR PHYSICAL MASTER PLAN, 2018 - 2028

In January, the Dublin Zoo 10-Year Physical Master Plan, 2018 – 2028 was accepted by the council. The plan is a guideline for the future and lays out a structure for the Zoo's visions and goals. At the heart of the master plan is the intention to set a new standard of care for the animals, and to become a leader in wildlife conservation. Dublin Zoo's philosophy, which underpins the master plan, was derived from the words of Sir Philip Crampton, the founder of the Zoological Society of Ireland, who said in 1830, 'To cultivate a kindly disposition towards animals, it is only necessary to know them'. In 2018, the Dublin Zoo philosophy permeates the new master plan:

Utmost respect for the living planet is at the core of the Dublin Zoo design philosophy. This commitment is affirmed by creating natural habitats for zoo animals, respecting the land, and engaging both aesthetic and intellectual sensibilities. ... Dublin Zoo is first and foremost an experience of the animal's world, not of the human world. The designer's challenge is therefore to create opportunities with the exhibit environment [and] for human guests to enjoy themselves in the context of the natural world around them.

The plan arranges Dublin Zoo into 10 unique ecoregions representing ecologically and geographically defined regions of the world and a broad diversity of wildlife. The regions will be linked by a Zoo Promenade and immersive paths for visitors. The features, textures and landscapes of the animals' original habitats will be replicated as far as possible to provide enrichment, health and well being for the animals, and an educational experience for the visitors. The plan was developed by the Dublin Zoo team in collaboration with Jones & Jones during an extensive consultative and planning process in 2017.

As part of the implementation, some existing habitats will be relocated and others expanded or improved. The Ireland ecoregion is a proposed new development on the east side of the southern lake and will include woodlands, boglands and grasslands; it will be reached by the Botanical Promenade, a visitor path off the main Zoo Promenade. The Ireland ecoregion will provide visitors with the opportunity to learn more about the diverse landscape characteristics of Ireland.

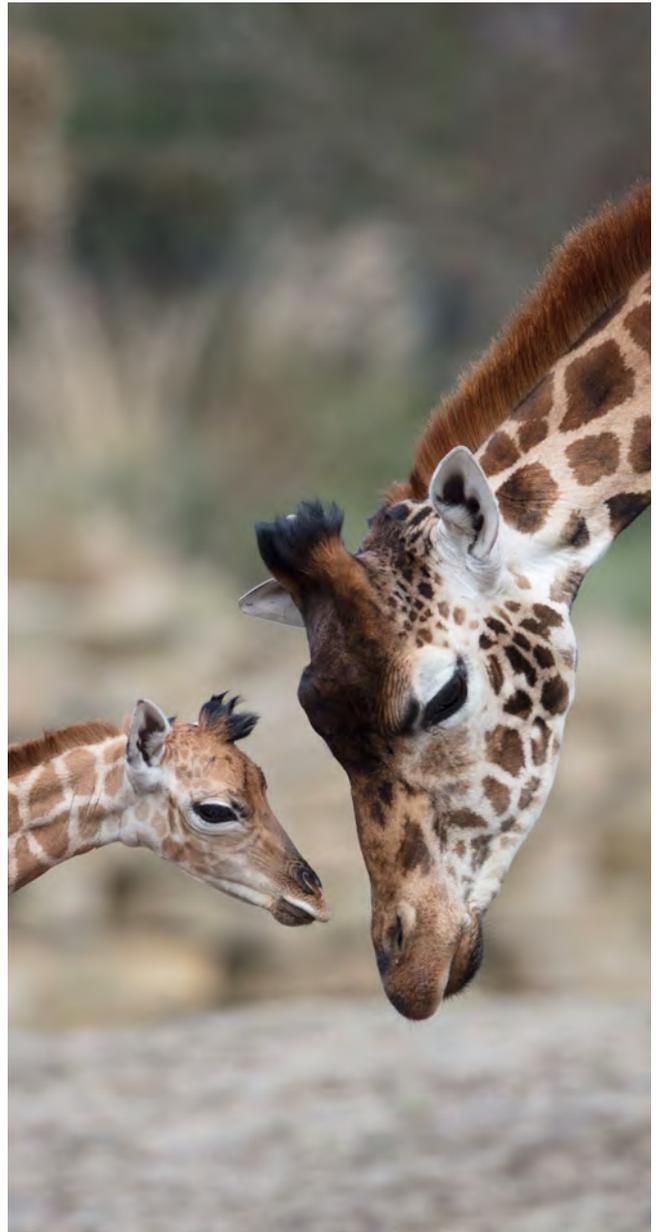


RETAIL AND VISITORS' SERVICES

The highlight of the year for Retail and Visitors' Services was the opening of the new entrance for groups, visitors with prepaid tickets and annual pass holders, which the team was involved in designing. The new building successfully addressed a number of issues and safety concerns. It provides spacious and comfortable working conditions for the staff with air conditioning and heating, visibility of the whole queue, an intercom call system, up to eight ticket desks and a single queuing system. It also radiates quality and efficiency for the thousands of visitors who will use it. The opening took place on 31 May by Retail and Visitors' Services Manager Mark Bowes. The new entrance is functioning very well and there are no queues even on busy holiday weekends. Meanwhile, planning has commenced on the new Entry Plaza, which is scheduled to open in 2019. Again, the Retail and Visitors' Services team are working with the designers and planners.

Sales in the gift shop were good in 2018 and sales of books continued to grow, especially around Christmas time. When the Zoo was closed in August due to the papal visit to the Phoenix Park, the Retail and Visitors' Services team visited Fota Wildlife Park where they were welcomed by the Fota management and staff.

Wild Lights was another positive experience for the front gate team staff, who were scanning up to 3,000 people in an hour during very busy evenings. There was a good atmosphere at the gate and it was well stewarded. The market stall on the lawn had good sales and the glow lights sold by retail staff on the decking by the entrance were very popular with children.





DEVELOPMENT AND MAINTENANCE

The largest project in 2018 was the construction of the Discovery and Learning Centre. Adverse weather conditions in February and a delay with the production of the windows caused the schedule to slip by several weeks. The front elevation of the new building was slightly changed to increase the roof height to accommodate a full-size skeleton of a giraffe. The plaza outside the centre was paved. With the transfer of the Discovery and Learning Team to their new facility, the ground floor of Society House was emptied and cleaned. When time and budget allow, this historical building from 1868 will be refurbished.

The new entrance for groups, members and visitors with prepaid tickets was completed by May, on time and within budget. It replaced the old 1960s building, which

was demolished. Hayes Higgins Partnership were project managers, and Jones & Jones of Seattle assisted the Zoo Team with the design. Plans to restore the Cottage Ornée, the original entrance built in 1833, took another step forward. A conservation architect has been giving Dublin Zoo expert advice.

During the summer, the water level of the lakes dropped dramatically during the prolonged draught. The water level around the Chimpanzee Island was especially of concern; but, with the help of Connolly and Sons, major dredging around the island over a five-day period meant there was little disruption to the chimpanzees' lives.

Landscape architect/architect Mario Campos of Jones & Jones spent a week in May working with the Dublin



Zoo team on schematic designs for upcoming projects, including Wolves in the Woods and the Entry Plaza. He visited again in October and addressed snags with the Discovery and Learning Centre, suggested adjustments to the filtration in the Sea Lion Cove, and carried out further detailed design work on current projects and schematic designs for future projects.

Work on Wolves in the Woods commenced in October and the completion is scheduled for the end of the season 2019. Contractors Connolly and Sons were engaged. A major challenge of the new habitat for the grey wolf is the modification of the gradient of the current slope so that the animals are easier to observe by visitors yet ensuring the wolves have more space and increased stimulation. By the end of the year, the project had progressed well with work on the holding area and house completed.

Facilities Manager Michael Shaughnessy and Operations Manager Gerry Creighton worked on a maintenance plan for the four animal sections. Priority is given to projects relating to animal wellness, and health and safety. The dismantling of Wild Lights in January demanded much involvement of the Facilities Team, who provided support to the Marketing Team in the implementation and decommissioning of the Wild Lights project.

Health and safety

Due to extreme weather conditions, Dublin Zoo was closed for five days, from 28 February to 4 March. Most of the Animal Care Team managed to get to work and perform the necessary tasks, so there was no adverse impact on the wellness of the animals.

A safety audit known as the Willis Report took place in September 2018. It follows on from the Willis Reports of 2013 and 2016. The reports give a reasonably accurate view of how the safety management systems have been trending since 2013. The report is based on a numerical scoring system, which assigns a specific number of points from a maximum available. The main elements measured are Policy, Organisation, Planning and Implementation, Monitoring Performance, and Audit and Review. The Willis Report of 2018 demonstrated improvements across the board. The Health and Safety Council subcommittee was briefed by Health and Safety consultant John Munro about the progress.

Meanwhile, work continues on an electronic Health and Safety database, which is starting to demonstrate its added value, particularly in the relationship between Risk Assessments, Near Misses and Risk Assessment reviews. Dublin Zoo's new risk assessments now have a risk value, which can be used to prioritise areas of risk or to implement simple and safe systems of work to effectively reduce the risk. These risk values are known as Hazard Risk Numbers (HRN) which, when averaged across Dublin Zoo, are displayed as a 'safety index' on the Administration Reception monitor. Training of the Animal Care Team and the Horticulture Team along with representatives from the Marketing, Retail and Visitors' Services, Facilities, Human Resources and the Accounts departments commenced on the use of the new electronic system.

HORTICULTURE

2018 was an atrocious year for plants in Dublin Zoo. The long, cold, wet winter lasted well into spring and reurfing the lawn areas after Wild Lights was delayed until May. Then, within a week of laying the new turf, a drought started with many plants suffering. The bamboo, in particular, was badly hit, needing water at this crucial time for rapid growth. Some trees were struggling, as much from competition with a larger neighbour as with the lack of rain. Grass areas, especially after turfing, needed regular watering. To conserve town water, the Horticulture Team used lake water, which was transferred into tankers. The drought in summer caused the lake levels to drop between 30 and 40cm.

In May, the annual EAZA/BIAZA Zoo Horticulture Conference was held in Dublin Zoo and horticulturalists from all over Europe attended a three-day celebration of what plants can do for zoos. There was a presentation to Curator of Horticulture Stephen Butler to thank him for his many years of contributing to the advancement of zoo horticulture and, especially, for writing the horticulture chapter for the Diploma in Management of Zoo and Aquarium Animals, run by Sparsholt College in Britain. Work on the group entrance prompted a much-needed new sluice system. The old Victorian pen-stop, water-regulating sluice was checked and found to be perfect, but it needed an automatic overflow that would



accommodate a greater flow at certain times. Changes in the Phoenix Park, the new car park at the Polo Grounds, new drains along the Lord's Walk and Dublin Zoo's own drainage means there is much quicker inflow during heavy rain. A simple one-metre-square box overflow was installed, which allows much more water out when needed while still maintaining a minimum.

The area around the new group entrance was extensively planted. There was no particular theme, so a mix of good plants-most not used elsewhere in Dublin Zoo-

was planted in these areas. Around the new Discovery and Learning Centre, several large *Acer campestre* were the main planting, framing the centre. As with Zoorassic World, urban soil was used under the paving to allow root growth.

The Horticulture Team worked with the Discovery and Learning Team to create The Wild Space, an immersive woodland that was opened in May 2018 in a secluded part of the African Plains.

Retirement of Stephen Butler, Curator of Horticulture

Stephen Butler trained at Kew Gardens and joined Dublin Zoo in 1981. In the early days, his team's work was dominated by cleaning the Zoo of litter after busy weekends, maintaining the rose beds, flower gardens and the lawns. Over time, he began to put his own mark on the Zoo landscape; ornamental beds and patches of lawn were swapped for plants, shrubs and grasses that presented a more natural appearance in the Zoo. In the 1990s, he became directly involved in the planning process for animal habitats, a role that escalated in the new century when the immersive habitat design approach was introduced.

Stephen has played a critical role in the development of Dublin Zoo's habitat-based design strategy and the creation of zoo habitats that are inspired by the animals' natural habitats. His research on what plants to use in habitats has contributed to the development of

international zoo horticulture. His knowledge and vision greatly contributed to the high standard of presentation Dublin Zoo is now known for.

Dublin Zoo wishes him well on his retirement.



(Right) Stephen Butler

DISCOVERY AND LEARNING

The Discovery and Learning Team had a very big year with the opening of the purpose-built Discovery and Learning Centre on 21 August 2018, and the creation of an important outdoor immersive learning space, The Wild Space. The team was closely involved in the design of both projects. The new Discovery and Learning Centre allows the talented teaching team and volunteers to fulfil their potential and operate under best practice as an innovative environmental and conservation education provider. The centre hosts state-of-the-art classrooms, a theatre and cloakroom facilities for learners who are attending taught programmes.

Teachers and students responded very well to the new Discovery and Learning Centre. The Discovery Centre, which is run by our conservation ambassadors, the Dublin Zoo Volunteers, celebrates biological diversity using biofacts that represent many of the animals in our care at Dublin Zoo. These biofacts range from the tiny eggs

of native birds to the skeleton of a fully-grown giraffe. In the autumn, Discovery and Learning Manager Aileen Tennant liaised with the National Council for the Blind and Irish Braille Signs to make the Discovery Centre more accessible for visitors who are visually impaired.



In 2018, overall bookings of 63,635 were down by 9% on the 2017 figure due to forced closure from the papal visit as well as cancellation of classes for 10 days due to storms and high winds. However the numbers attending taught programmes in the department were up by 5% to 27,384; this was a good result given the forced cancellations. The extra classrooms and employment of two contract ecology staff during term time have allowed this growth to occur. A new system of gathering written feedback from teachers proved successful with 214 responses coming in from 147 participating schools. Results showed all schools scored four or five out of a score of five for content, facilitator engagement and delivery, and their overall satisfaction with their trip to Dublin Zoo. Two new education brochures were written, designed and printed. One is directed towards early years and primary schools, and the other towards secondary schools and further education.

There was a significant increase in engaging the youngest participants, the pre-school students. In 2018, 1,228 students attended a taught programme, which is a 102% growth on the previous year. A new pre-school programme, 'Dinosaur Explorer', was designed to allow young children to become little palaeontologists and learn more about dinosaurs. In April, Dublin Zoo hosted a stand at the Early Childhood Ireland Conference in Croke Park and received a lot of interest, including the attention of Minister for Children and Youth Affairs Catherine Zappone. Outreach officer Enya Cody, appointed in January, visited schools in Dublin, Louth, Wexford and Kildare; this led to a 125% increase in the number of students who engaged in an outreach programme last year.

For the annual primary school influx in spring of mostly self-guided tours, new and updated support materials were sent out to primary teachers for all programmes, including 'African Adventure', 'Rainforest Ranger', 'Dinosaur Detectives', 'Earth Alive' and 'Food from the Farm'. Volunteers were located in strategic spaces throughout the Zoo for educational engagement in order to further the conservation message to the primary school students. Follow-up activity sheets were also sent to participating schools this year.

Dublin Zoo continues to provide curriculum-focussed modules to secondary students with 12,790 attending a taught class this year. Ecology fieldwork classes for Junior Cycle and Leaving Certificate continue to be the most booked programme, followed by Zooadship, which is linked to the CPSE curriculum at Junior Cycle. In September, access to the ecology sites was improved for schools and staff with the addition of the Discovery and



(Right) Students in Zoorassic World

Learning Plaza, allowing teachers to brief students in all weather conditions. Direct access to the ecology sites via the side pedestrian gate has streamlined the experience. In January 2018, the Discovery and Learning team once again facilitated a stand at the BT Young Scientist and Technology Exhibition (BTYSTE). The stand was packed each day and provided a fantastic platform to connect with primary and secondary teachers. The new second-level programmes 'Evolution' and 'Sustainability' were launched at BTYSTE and many follow-up bookings came in. Two contract ecology facilitators were employed from September until December, allowing the remaining teaching staff to deliver the more recent programmes 'Evolution' and 'Sustainability' from the new facilities in Zoorassic World and the Discovery and Learning Centre.

Early in the year, a level six animal science programme was developed with Carlow Institute of Further Education. This is a positive development for the department and will bring similar level six courses to Dublin Zoo from other education institutions.

In 2018, 3,339 people joined Dublin Zoo's informal education programmes. The Parent and Toddler course continued to sell out, although it did not run in June in order to prioritise the primary school programmes. 'Dinosaur Discovery' and a new initiative called 'Dinosaur Discovery Families' attracted 274 participants. The five-week-long summer camps continued to prove the most popular of the informal programmes, with 380 participants ages six to 12 attending. The theme of this year's camps was 'Exploring the Wild' and the new outdoor immersive classroom, The Wild Space, brought a new dimension to the camp schedule. External facilitators

included teachers from Agri Aware, National Parks and Wildlife Services and Soar Drama School. A new day-long workshop for teens 'Zoology, what's it all about?' booked out rapidly with the number of participants increased to 24 places to accommodate interest. Ten children signed up to the fifth spring Dublin Zoo Kids Club with fantastic feedback. The afterschool programme continued in 2018 with 'Step by Step Child and Family Project' in Smithfield joining Aósóg, Solas Project, An Síol and Willow Grove.

The overall figure for group bookings that engaged with Discovery and Learning for support materials, a tour or bespoke volunteer-led activities was down this year. The weather, which was extremely cold in winter and hot in summer, influenced this decline, as did the Pope's visit in late August; the last weekend of the school summer holidays is traditionally one of the biggest weekends for these group bookings.

In April, posters of the female giraffe calf were featured in INTO Intouch magazine and distributed to 37,000 primary teachers around Ireland to promote visits to Dublin Zoo. In September, a full-page article appeared in the Irish Independent and a free class trip for secondary schools was offered in the same edition. A promotion ran throughout the week to win a family pass to see the new Discovery Centre.

In July, the annual Teacher's Continuous Professional Development Course for 60 primary school teachers was fully booked. The evaluation and feedback on the organisation, content and delivery of the week-long course was of a high standard.



The Wild Space

In February, Discovery and Learning Manager, Aileen Tennant, was the successful recipient of top-tier funding of €12,900 from the World Association of Zoos and Aquaria and the Disney Conservation Fund. This was a great achievement in a highly competitive, international field. The funding was to be used for a programme designed to connect urban families to nature. With the support of Facilities and Horticulture, and design input from Jones & Jones, an immersive teaching space was created in a secluded forested area of the Zoo at the back of the giraffe house. Called 'The Wild Space', it allows the Discovery and Learning team to deliver programmes that immerse learners in green space; it is especially useful when the Zoo is very busy.

'Families Connecting with Nature', the programme that was specifically designed for delivery in The Wild Space, was launched in April with the first of five workshops on biodiversity themes facilitated by Dublin Zoo teachers and external experts Leif Barry (OPW), Catherine McGuinness (Freelance facilitator) and Niall Hatch (Birdwatch Ireland). Using the Dublin Zoo outreach network, 13 urban-based families from disadvantaged backgrounds were selected to participate in this programme. The initiative provided the families with the skills, knowledge and confidence to visit wild spaces and learn more about nature around them.

Family Farm

In March, events were organized in Family Farm as part of Farm Safety weekend. Children took part in farm trails and tours and numerous craft activities in the Farmhouse. Agri Aware educator Johnny Gleeson delivered the farm-based pre-school and primary school modules throughout the spring term to 1,455 learners.

Open Farm weekends on Family Farm commenced in June with coordinated activities, including beekeeping activities, hurley making, sustainable farming and farm tours. Two UCD students, Thomas Treacy and Niall Diffley, supported Johnny in facilitating these events. The Open Farm weekends continued in July with farm tours, farm trails and 'Meet the Farmer' as well as workshops delivered by specialists on butter making, honey production and pottery making. Each Wednesday during July and August, Johnny facilitated workshops for Dublin Zoo camps.

On 24 September, the Farmhouse was once more a hive of activity for the Harvest Festival with visitors taking part in a wide range of activities to suit all ages. Brian O'Toole from Leinster Honey spoke to visitors about beekeeping and the importance of biodiversity. The volunteers delivered harvest-based activities on Family Farm, in the Farmhouse and the garden.



Volunteers

Throughout the year, the volunteers continued participating in 'out and about' visitor engagement, touch tables, informal visitor educational events, animal studies, tours, and zoo kids clubs as well as assisting birthday parties and supporting the Discovery and Learning Department. They also made great use of Zoorassic World, which is an excellent facility to host indoor informal education opportunities, especially during inclement weather.

Themed days and weekends in 2018 included a celebration of the African wild dogs for Chinese New Year of the dog in February, St Patrick's Day and Discover Dinosaurs weekend in March, South America weekend in April and African Adventure weekend in May. In June, the volunteers organised sustainability activities and games on the Great Lawn for the SSE Airtricity Protect Our Planet weekend, and coordinated a dinosaur pop-up event in Zoorassic World; in July, they coordinated Wild about Gorillas weekend. In September, the volunteers gave very popular historical tours and set up 'meet and greet' tables for the Senior Safari as well as participating in the Big Cat weekend and Rhino Day. In October, they ran Halloween

activities and, in November, they assisted with the celebration of Bornean Orangutan Sibú's fortieth birthday. In December, volunteers supported HR and Retail to arrange Christmas activities in the Meerkat Restaurant for the visit of Santa with the children of the Dublin Zoo team. They also participated in the fundraising coffee morning in aid of Focus Ireland organised by keeper Rachel Creighton and the Dublin Zoo choir, and the Discovery and Learning Department Christmas fundraising bake-off.

The volunteers led many 'Pop up' interactive activities and touch tables during the summer months to engage with visitors. The focus of these mini events is to share information and explore issues such as habitat loss and species protection with an aim to inspiring visitors to make connections to their lives and how we might all live more sustainably. Habitats in which tables were set up at different times included the Orangutan Forest, the Gorilla Rainforest, the African Savanna and the Sea Lion Cove.

The volunteer programme continues to attract highly motivated people. With 150 applications submitted to the programme, Volunteer Coordinator Noreen Fitzsimons and Discovery and Learning Manager Aileen Tennant conducted a thorough recruitment process, including a Volunteer Open Day in February for the shortlisted applicants. Interviews took place over six days and 28 volunteers commenced the rigorous training programme. On 24 March, 26 new volunteers graduated. A second recruitment drive in May resulted in the enlistment of additional short-term volunteers whose role was specifically to assist with the very popular Zoo Summer Camps in July and August.

(Above) Noreen Fitzsimons, Leo Oosterweghel and Aileen Tennant with volunteers

MARKETING

The Marketing Team worked closely with public relations advisors Teneo PSG on their public relations strategy throughout the year. Regular press releases celebrated births and new arrivals, including those of a giraffe calf, an elephant calf, a scimitar horned oryx, Chilean flamingo chicks and California sea lion pups. The team also arranged regular keeper interviews in print, broadcast and online outlets; these included a press association interview with the director at the end of the year. Extreme weather conditions with snow in the winter and a heat wave in the summer also featured in the media. In August, when the Zoo was closed to the public during the papal visit, the team managed communications of its closure to visitors.

The eighth series of 'The Zoo' TV Series made its highly anticipated return to RTÉ One on 8 April. The eight episodes in this hugely popular TV series were broadcast on Sundays at 7.30pm, a perfect time for family viewing. In this series, zookeepers once again ventured outside the Phoenix Park to visit conservation projects supported by Dublin Zoo; this time, the projects included the Orangutan Foundation in Borneo, Selamatkan Yaki's 'Save the Sulawesi crested macaque' in Indonesia, and the nesting site of barn owls in Kerry. Ahead of the launch of The Zoo, Dublin Zoo teamed up with RTÉ One to do two Facebook live streams from the Kaziranga Forest Trail. Together these live streams garnered 30,000 views. The viewing figures for 'The Zoo' in 2018 averaged at 230,000 per episode with market share of 22%.

The sustainability partnership with SSE Airtricity developed very well during 2018. They hosted numerous events, including two 'Protect our planet' weekend events,

several exclusive 'Wake up' morning events, and a media morning with well-known personality Baz Ashmawy. They also supported two sustainability pages in Zoo Matters and ran a full campaign using outdoor, direct mail, radio and digital media. SSE Airtricity's Eco Explorer Trail at the Zoo continues to prove very popular with visitors.

In 2018, Dublin Zoo's online presence continued to grow; Facebook 'likes' grew by 5,000 to bring the overall figure to 289,691 and Twitter grew by 3,000 followers, bringing the total number to 32,000 by the end of the year. The Zoo's Instagram page saw an increase of 73% from 25,900 to 45,000 followers, making it the Zoo's fastest-growing social media channel in 2018. In January, Google Street View, which had visited in November 2017, went live; footage of areas within the Zoo can now be viewed on Google Street maps. In March, a Dublin Zoo video of the penguins venturing out in the snow during the weather phenomenon named 'Beast from the East' went viral, gathering 3.5 million views; it was shared by online media such as ABC News and TheIndependent.ie. The story was also picked up by print media. The estimated total reach was 15 million people worldwide.



Wild Lights

In 2018, Wild Lights was another resounding success with attendance from the start of November until the end of December totalling 210,235. A major advertising campaign in September announced the return of Wild Lights and received extensive exposure. Media partners were 98fm and the Irish Independent. Once again, the Marketing Team managed the process, including looking after the team of 32 artists from China who arrived in September. The themes this year included 'Ocean of Light' with giant silk lanterns of whales, jellyfish, seahorses and a diversity of aquatic life; 'Winter Wonderland' with polar bears and penguins; and 'The North Pole', which had a dazzling 16-metre-high silk Christmas tree on the lawn. The team supervised the build, and managed the advertising, promotions, ticket office and customer service.



*(Above) Young visitors visiting Wild Lights
(Right) Emma Kiernan (middle) and PR representatives accepting award for Wild Lights*

The team were delighted to win numerous industry awards for Wild Lights 2017 against very strong opposition. In March at the Media Awards, the team won gold for 'Best Cross-Media Collaboration' and bronze for 'Best Media Idea under €250,000'. In June, Dublin Zoo won the award for 'Best PR for an Event' at the Public Relations Consultants Association awards. And in July, the Zoo won two awards at the Event Industry Awards 2018, including 'Best Live Event' and overall 'Best Event'.

Events

2018 was another busy year with events including Date Mornings, St Patrick's Day, Discover Dinosaurs weekend, Easter activities, African Adventure weekend, Wild about Gorillas weekend, Big Cats of Dublin Zoo weekend, Senior Safari, Spooktacular Boo at Dublin Zoo and Santa's Grotto. Haughton House at Dublin Zoo remained a popular choice for all kinds of events from weddings, meetings and corporate family days to team building and family celebrations. A special preview screening of 'Jurassic World: Fallen Kingdom' was held in partnership with Universal Pictures with a guided tour of Zoorassic World led by keeper Brendan Walsh.



CONSERVATION

Early in the year, Dublin Zoo organised a donation of second-hand uniforms for the West African Primate Conservation Action (WAPCA). Dublin Zoo has been supporting WAPCA since they were established in 2001. WAPCA is a non-governmental organisation working in Ghana and the Ivory Coast to preserve and protect the endangered primates of West-African Upper Guinean Rainforest through community empowerment and education. WAPCA members do this in two main ways: community-led conservation of wild primates (white-naped mangabeys, rolaway monkeys and Waldron's colobus, in particular) and their habitats; and through breeding in their Endangered Primate Breeding Centre. They take in rescued and injured primates, which are either rehabilitated and released back into the wild or used for breeding. This has led to wild animals being introduced into the European breeding programme (Dublin Zoo is involved in successfully breeding the white-naped mangabey) and to zoo-bred animals being brought back to Ghana from Europe. In 2017, WAPCA put out a call for second-hand zoo uniforms as their own rangers often wear their own clothes, which can become damaged when working in the field. Keeper Susan O'Brien gathered old uniforms, selected the best, had them laundered and sorted, and sent boxes of trousers, short and long-sleeved T-shirts, fleeces, body warmers and jackets to Ghana. In July, WAPCA sent photos of their keepers and rangers wearing Dublin Zoo uniforms, which were posted on Facebook, attracting great attention for WAPCA and their work, and spreading the message about recycling and sustainability.





International conservation projects supported by Dublin Zoo 2018

- Conservation planning for Asian elephants in Assam, India – Asian Nature Conservation Foundation.
- Conservation Planning Specialist Group, (formerly Conservation Breeding Specialist Group), worldwide.
- EAZA Campaign: Silent Forest – Asian Songbird Crisis, Asia.
- Frozen Ark Project, worldwide.
- Golden Lion Tamarin Association - Lion Tamarins of Brazil Fund. (Supporting since 2000.)
- Lamandau Wildlife Reserve and Camp JL - Orangutan Foundation, Indonesia.
- Lowland Tapir Conservation Initiative, Brazil.
- Lowveld Rhino Trust – Save the Rhino. Zimbabwe. (Supporting since 2009.)
- Mbeli Bai Study (Western lowland Gorillas)– Wildlife Conservation Society, Democratic Republic of Congo.
- Mountain Bongo Surveillance Project, Kenya. (Supporting since 2010.)
- Okapi Conservation Project, Democratic Republic of Congo.
- Painted Dog Conservation – Children Bush Camp, Zimbabwe.
- Red Panda Forest Guardian Programme, Nepal – Red Panda Network.
- Red-ruffed lemur translocation and reintroduction feasibility project on Madagascar - GERP (Groupe d’Etude et de Recherche sur les Primates de Madagascar). (Supporting since 2014.)
- Rothschild’s Giraffe Project, Kenya – Giraffe Research and Conservation Trust.
- Scimitar-horned oryx – reintroduction programme, Tunisia.
- Securing a future for Amur leopards and tigers in Russia (Phoenix Fund) – WildCats Conservation Alliance. (Supporting since 2017).
- Selamatkan Yaki - EARS (Education and Awareness Raising Strategy) to save the Sulawesi crested macaques, Sulawesi, Indonesia
- Snow Leopard Trust (various Asian range countries).
- Sphenisco, (Humboldt penguins), Peru and Chile.
- Tacugama Chimpanzee Sanctuary – Community Outreach Programme, Sierra Leone. (Supporting since 2014.)
- Thailand Hornbill Project – Hornbill Research Foundation (includes conservation of great hornbills).
- WAPCA – West African Primate Conservation Action (includes conservation of white-naped mangabeys), Ghana. (Supporting since 2001.)

Irish conservation projects supported by Dublin Zoo

- Breeder wader management strategies – Irish Grey Partridge Conservation Trust.
- Irish Peatlands Conservation Council.
- Little Tern conservation at Baltray – Louth Nature Trust.
- Raptor (owls and kestrel) monitoring and research project – BirdWatch Ireland.

RESEARCH AND PUBLICATIONS

Dublin Zoo team, individual research

- Keeper Louise McDermott studied the breeding ecology of the flock of Chilean flamingos in Dublin Zoo. This research has been taking place each year the flamingos have bred since 2003.
- Registrar/Research and Conservation Coordinator Sandra Molloy continued collecting samples from the Rothamsted moth trap.

- Registrar/Research and Conservation Coordinator Sandra Molloy continued monitoring nest boxes in Dublin Zoo and submitted the data to the British Trust for Ornithology Nest Records Scheme.
- Registrar/Research and Conservation Coordinator Sandra Molloy is assisting the Parrot TAG with the collection of genetic data and biometric information from *Cacatua sulphurea* in EAZA to aid the research in identifying different subspecies and investigating the relatedness of founders in the citron-crested cockatoo EEP.

Student research

- Biodegradation activity test of hemicellulosic and lignocellulosic feedstock, using industrial sludge and animal manure (PhD) – National University of Galway.
- Behavioural and social impacts on a western lowland gorilla (*Gorilla gorilla gorilla*) troop following the introduction of a sub-adult male at Dublin Zoo (master's level) – Bishop Burton College, UK.

Multi-zoo research including Dublin Zoo

Many research projects require data collection from more than one zoo. Where possible, Dublin Zoo is happy to assist, especially if the project is endorsed by an EAZA breeding programme. In 2018, the Dublin Zoo team assisted with the projects listed below.

- The significance of the social welfare of zoo Asian elephants (PhD) – University of Liverpool and Chester Zoo. Dublin Zoo elephant keepers collected observation data and faecal samples from the elephants.

- Impacts of castration in the GEEP (PhD) – Strausberg University. Dublin Zoo has been providing funding for this research, which is endorsed by the Gorilla EEP.
- Establishment of a multiplex PCR for detection of traces with canine origin in forensic case analysis (MSc) – ForGen-Forensische Genetik und Rechtsmedizin am Institut für Hämatopathologie Hamburg, Germany and Uppsala University, Sweden. Zoo veterinarian Frank O'Sullivan collected blood, hair and buccal swabs from the grey wolves when they were being moved into a different zoo habitat as their current one is being redeveloped.
- Annual variations in salivary and faecal cortisol levels in zoo Californian sea lions (MRes) – University of Glasgow. The sea lion keepers collected weekly saliva samples for a year to assist with this research.
- Application of personality assessment to inform the management of zoo primate populations (MRes) – University of Plymouth/ZSL. Endorsed by Siamang and Sulawesi crested macaque EEPs and BIAZA. Keepers Aisleen Greene, Anthony McClure and Alan Duffy completed personality questionnaires on our siamang and some of our Sulawesi crested macaques.
- Neoplasia in painted dogs – Montpellier Zoo and supported by Painted Dog EEP. Sandra Molloy, Registrar/Research and Conservation Coordinator, and zoo veterinarian Estelle Rousselet completed a questionnaire and provided historical data.
- An investigation into keepers' perspective of captive great ape diet with an emphasis on cultivated fruit and feeding methods in use within collections in the British Isles (BSc) – University Centre Sparsholt. Team Leader Helen Clarke and keepers Pamela O'Brien and Aisleen Greene completed questionnaires.

- Investigating cause of death in the white-naped mangabey EEP – TAG vet and supported by White-Naped Mangabey EEP. Sandra Molloy, Registrar/ Research and Conservation Coordinator, provided post-mortem reports.
- UVB Provision in Callitrichid Enclosures – Bristol Zoo and endorsed by Callitrichid TAG. A questionnaire was completed by a keeper, Susan O'Brien.
- Gibbon health survey – Gibbon TAG. Sandra Molloy, Registrar/Research and Conservation Coordinator, and zoo veterinarian Estelle Rousselet completed a questionnaire.
- Abyssinian and Southern Ground Hornbill husbandry survey – Attica Zoo and Hornbill TAG. A questionnaire was completed by Helen Clarke, Team Leader; and Sandra Molloy, Registrar/Research and Conservation Coordinator.

Other

- Forensic analysis of mammalian hair from a variety of species – Forensic Science Ireland.
- Provided funding for research into wild giraffe social networks being completed by Zoe Muller of the Rothschild's Giraffe Project in Kenya.
- Provided funding for study of Elephant Endotheliotropic Herpesviruses, which is supported by the Elephant TAG.

Publications supported by Dublin Zoo

Lee, A. M., Schoenning, J., Cassidy, J., Bainbridge, J., Brady, J., Peters, S., Rousselet, E. and Jahns, H. (2018) **Fatal Leptospirosis in Two Bolivian Squirrel Monkeys (*Saimiri boliviensis boliviensis*)**. Poster at the British Veterinary Zoological Society conference in London in November 2018

Molloy, S. and Bruslund, S. (2018) **Guidelines for breeding *Cacatua* spp.** Available on www.eaza.net

Molloy, S. (2018) **Citron-crested cockatoo (*Cacatua sulphurea citrinocristata*) – EEP Annual Report 2017.** Available on www.eaza.net

Molloy, S. (2018) **Moluccan cockatoo (*Cacatua moluccensis*) – EEP Annual Report 2017.** Available on www.eaza.net

Molloy, S. (2018) **European studbook for the period 01/01/2016 until 31/12/2017 and historical studbook – Current until 1 March 2018.** Published August 2018. Available on www.eaza.net

Muller, Z. (2018) **Population structure of giraffes is affected by management in the Great Rift Valley, Kenya. PLoS ONE 13(1): e0189678. [https:// doi.org/10.1371/ journal.pone.0189678](https://doi.org/10.1371/journal.pone.0189678).** Funding provided from Dublin Zoo for this research.

Muller, Z., Cuthill, I. C., Harris, S. (2018) **Group sizes of giraffes in Kenya: the influence of habitat, predation and the age and sex of individuals. Journal of Zoology. Vol 3 (2), pp. 77 – 87.** Funding provided from Dublin Zoo to support this research.

Muller, Z., Cantor M., Innes C., Cuthill, I.C. and Harris, S. Giraffe social preferences are context dependent. **Animal Behaviour 146 (2018) 37e49.** Funding provided from Dublin Zoo to support this research.

O'Brien S. (2018) **Goeldi's monkey (*Callimico goeldii*) – EEP Annual Report 2017.** Available on www.eaza.net

Schiffmann, C., Clauss, M., Fernando, P., Pastorini, J., Wendler P., Ertl N., Hoby, S., and Hatt, J-M. **Body condition scores of European zoo elephants (*Elephas maximus* and *Loxodonta africana*): Status quo and influencing factors.** *JZAR* 6 (3).

Schoening, JM., Sargent, E., Foley, M., Bainbridge, J., and Cassidy, J. (2018) **Fatal peripartum haemorrhage in a white-naped mangabey associated with placenta previa.** *Veterinary Records Case Reports* 2016:6 doi:10.1136/vetreccr-2018-000637.

Tighe, A.J., Gandola, R., Fulanda, B., Thurman, K., Overby, S., Byrne, J. and Carlsson, J. (2018) **Testing PCR amplification from elephant dung using silica-dried swabs.** *Pachyderm* 59(59):56

CONFERENCES, TRAINING AND PRESENTATIONS

January

On 24 January, Kate Ford from Save the Rhino gave a presentation in Dublin Zoo's Haughton House to the Zoo Team on the status of rhinos worldwide. She also provided an update on the Lowveld Rhino Trust, which Dublin Zoo has been supporting since 2009.

On 29 January, Dublin Zoo hosted a meeting of the British and Irish Association of Zoos and Aquaria (BIAZA) for the Irish members, of which representatives from five institutions attended. The director of BIAZA, Kirsten Pullen, flew in for the day to chair the meeting. Representatives of the National Parks and Wildlife Service also attended.

Operations Manager Gerry Creighton gave 36 volunteers an update on the animals in Dublin Zoo.

February

The Discovery and Learning Team explored Dublin Zoo with the Curator of Horticulture, Stephen Butler, on 12 and 19 February to capture Stephen's extensive knowledge of the plants. Notes taken by the teachers were compiled for use as a teaching resource.

April

On 25 April, Dave Fagan from the Coyler Institute in the USA came to Dublin Zoo. Dave is a specialist on animal dental and tusk work in the USA, working with Alan Roodcroft, Dublin Zoo's elephant advisor. He gave a presentation on elephant dental care to the Dublin Zoo team.

From 25-26 April, Team Leader Helen Clarke attended the Great Ape TAG midyear meeting.

From 30 April to 4 May, Sandra Molloy, Registrar/Research and Conservation Coordinator, and Susan O'Brien, keeper and EEP coordinator, attended the Joint TAG Chairs meeting in Budapest hosted by WAZA and the TAG midyear meetings hosted by EAZA. Sandra Molloy co-chaired a session on global parrot conservation in her role as Parrot TAG vice-chair.

May

The EAZA and BIAZA joint Plant Working Group Conference was held at Dublin Zoo, 8 to 11 May. Approximately 35 people participated from as far away as Australia. The Dublin Zoo design philosophy of creating

zoo habitats inspired by wild places was shared and discussed.

Dublin Zoo hosted the joint horticultural conference for the BIAZA Plant Group and EAZA EZG European Zoohorticulture Group; 28 people attended.

On 17 May, Orla Doherty, a veterinarian specialising in animal behaviour, gave a presentation about the behaviour of Asian elephant Bernhardine, the matriarch of the elephant herd.

Members of the Professional Gardeners Guild (20 members) visited Dublin Zoo on 25 May for a guided tour with the Curator of Horticulture, Stephen Butler.

June

Thirty Dublin Zoo volunteers had a tour of Dublin Zoo horticulture with Stephen Butler, Curator of Horticulture. They presented him with a gift thanking him for all his support over the years in educating volunteers on horticulture activities.

The Discovery and Learning Department hosted the National Discovery Centre Network Meeting with 50 participants from discovery centres throughout Ireland attending. Lectures were delivered by the organisers, SFI (Science Foundation Ireland) and Dr. Eoin Gill from CALMAST (Centre for the Advancement in Learning of Maths, Science and Technology). The Discovery and Learning team then led maths- and science-based activities. The educational event provided inspiration to many of the centres regarding development of facilities and best practice in maths and science education for

visiting primary schools.

Keeper Pamela O'Brien attended a conference on animal enrichment in Chester Zoo.

Forty members of the Plantentuin Esveld, a large nursery in the Netherlands, had a tour with the Dublin Zoo Horticulture Team. They visited many gardens over five days in Ireland.

The Irish branch of the Alpine Garden Society (15 members) had a tour with the Curator of Horticulture.

Irish Garden Plant Society (35 members) had a tour of the Zoo with the Curator of Horticulture.

July

On 18 July, Dublin Zoo hosted a Conservation Symposium with speakers from organisations including the Irish Wildlife Trust, Irish Grey Partridge Conservation Trust, Louth Nature Trust and Bird Watch Ireland.

September

Registrar/Research and Conservation Coordinator Sandra Molloy and keepers Susan O'Brien and Brendan Walsh attended the EAZA Annual Conference in Athens. Sandra Molloy co-chaired the Parrot TAG meeting and Brendan Walsh gave a presentation on how elephants sleep at Dublin Zoo.

October

From 9 – 11 October, Dublin Zoo hosted the BIAZA Mammal Working Group Annual Conference. During the conference, presentations were given by four members

of the Dublin Zoo team: Operations Manager Gerry Creighton, Team Leader Helen Clarke, Keeper Alan Duffy and Registrar/Research and Conservation Coordinator Sandra Molloy.

Jonny Hanson, a snow leopard researcher, visited Dublin Zoo and gave a presentation to the team.

November

Alison Lee from the Veterinary Hospital in UCD attended the British Veterinary Zoological Society and presented a poster based on a veterinary case in Dublin Zoo titled, 'Leptospirosis in two squirrel monkeys'.

December

In December, to mark International Volunteers Day, Gerry Creighton brought 32 volunteers on a special behind-the-scenes visit to meet bull Asian elephant Upali; the event was much appreciated and the morning finished with a buffet lunch at the theatre in the Discovery and Learning Centre.

Notable visitors and visiting

January

On 12 January, the Irish Ambassador to Sierra Leone, Catherine O'Connell, paid Dublin Zoo a visit. While recently visiting Tacugama Chimpanzee Sanctuary in Sierra Leone, Catherine learnt that Dublin Zoo was a supporter of this organisation and wanted to make contact with Dublin Zoo to learn more about this support. Catherine met Sandra Molloy, Registrar/Research and Conservation Coordinator, who provided an overview of Dublin Zoo's relationship with Tacugama Chimpanzee

Sanctuary which began in 2009. Catherine was then introduced to Helen Clarke, team leader of the African Plains, who spoke about the chimpanzees cared for by Dublin Zoo, including the elderly Betty who came from Sierra Leone in 1964.

February

On 8 February, Dublin Zoo welcomed a senior management delegation from Belfast Zoo and the City Council of Belfast. The question that was tabled was 'What made Dublin Zoo the success it is today?' Most of the day was spent discussing topics like marketing and marketing research, habitat design, animal wellness and visitor experience, public relations, ethics, retail and horticulture. The Belfast delegation then explored Dublin Zoo under the guidance of Paul O'Donoghue, Assistant to the Director (Animals and Grounds).

March

The Tree Council of Ireland visited to plant a specimen of Irish Oak *Quercus petraea* to mark Stephen Butler's retirement as Curator of Horticulture after 37 years at Dublin Zoo. About 15 people attended.

Matt Ford, vice-chair of the EAZA Gibbon TAG, visited Dublin Zoo on 9 March. Matt met with Sandra Molloy, Registrar/Research and Conservation Coordinator, and Ciaran McMahan, team leader with responsibility for the gibbons in Dublin Zoo, to discuss gibbon husbandry and conservation.

A delegation of lecturers from Teagasc visited Dublin Zoo on 12 March and met Operations Manager Gerry Creighton and team leaders Helen Clark, Eddie O'Brien

and Ciaran McMahon. The lecturers teach a course on moving animals and came to Dublin Zoo to learn about best practise when moving non-domestic animals.

April

On 13 April, UCD Horticulture lecturer Mary Forrest visited with 10 landscape students from China.

May

Dublin Zoo was visited by author Anthony Sheridan, who interviewed the director and Paul O'Donoghue, Assistant to the Director (Animals and Grounds), for his book about European Zoos.

Bjorn Clausius, Head Gardener from Wuppertal Zoo, joined us for a week under the European Erasmus scheme of exchanging staff.

Paul Flynn, Irish author and documentary maker, visited Dublin Zoo. Paul Flynn wrote 'King Bruno' about the first chimpanzee to be rescued by Bala Amarasekaren, founder of the Tacugama Chimpanzee Sanctuary. Dublin Zoo has been supporting the Tacugama Chimpanzee Sanctuary since 2014 and Paul is also a regular supporter and visitor of the sanctuary.

July

On 24 July, the Netherlands Ambassador to Ireland, His Excellency Mr. Peter Kok, and his economic officer visited Dublin Zoo to discuss the involvement of Dublin Zoo in the Dutch Foundation for the Conservation of Irish Bogs. On 28 July, the director attended a number of lectures at the Bog of Allen Nature Centre. The highlight was a lecture by Prof. Dr. Mathijs Schouten, founder of the

foundation for the Conservation of Irish Bogs. Dublin Zoo has been financially supporting bog conservation for some time.

Lucy Trulson, team leader of the elephant care team in Melbourne Zoo, Australia, spent three days at Dublin Zoo to familiarise herself with the care of elephants at Dublin Zoo. Melbourne Zoo is moving from free contact to protected contact, and needs assistance with this major change. Lucy Trulson's visit coincided with a visit to Dublin Zoo by Alan Roodcroft, who has advised Dublin Zoo over many years.

On 19 July, Juliette Shears from the Bongo Surveillance Project visited Dublin Zoo and met with Sandra Molloy, Registrar/Research and Conservation Coordinator. Dublin Zoo has been supporting the Bongo Surveillance Project since 2010.

August

On 21 August, the president of the Independent Zoo Enthusiasts Society, Tim Brown, visited Dublin Zoo. Tim is an international expert on zoos and produces the magazine, 'Zoo Grapevine'.

On 30 August, a delegation of eight board members and managers from Chester Zoo paid Dublin Zoo a visit to learn about recent developments at Dublin Zoo and to meet their counterparts.

During the visit of the Pope to the Phoenix Park, the Retail and Visitors' Services team visited Fota Wildlife Park where they were very warmly welcomed.

September

Dr. Sukumar, who is involved in research on elephants at the Kaziranga National Park in Assam, India, paid Dublin Zoo a visit. This is a project that Dublin Zoo financially supports.

The CEO of Knoxville Zoo, Lisa New, paid Dublin Zoo a visit to familiarise herself with the Dublin Zoo elephant management program and habitat design.

Twenty-four volunteers and three staff members went to Edinburgh Zoo where they were warmly welcomed by the Head of Discovery and Learning, Suzanne Scott, and by Edinburgh Zoo's volunteers.

October

On 15 October, Dr Charlotte McDonald, Director of Conservation and Living Collections, Edinburgh Zoo, paid Dublin Zoo a visit to familiarise herself with developments at Dublin Zoo, the 10-year forward plan and the Dublin Zoo design philosophy.

Peter Bloom, consultant on the care of California sea lions, paid Dublin Zoo a visit, 17 – 19 October.

On 29 October, the Ambassador Extraordinary and Plenipotentiary of Peoples Republic of China to Ireland, Dr. Yue Xiaoyong, and the First Secretary (Culture), Olga Wang, witnessed the switching on of the giant silk Christmas tree on the Great Lawn and the start of Wild Lights.

On 31 October, the Curator of Elephants and Ungulates in Sydney Zoo, Steve Blanchard, visited Dublin Zoo to

familiarise himself with the care of elephants at Dublin Zoo and meet the Elephant Care Team.

November

On 17 November, Mr. Caspar van Baal, project development manager of the Royal Artis Zoo in Amsterdam, visited Dublin Zoo. Caspar was interested in the design of the Kaziranga Forest Trail and how the elephants are cared for.

On 29 November, Lyn Whitnall, CEO of Paradise Wildlife Park in Broxbourne, UK, paid Dublin Zoo a visit.

December

Taoiseach Leo Varadkar and his family visited Dublin Zoo and were brought around the Zoo by Operations Manager Gerry Creighton.



CENSUS OF ANIMALS IN DUBLIN ZOO DURING 2018

Summary of Census of Animals in Dublin Zoo on 1st January 2019

Taxon	Total Species	Total Specimens
Mammals	39	210
Birds	14	176
Reptiles	20	64
Total vertebrates	73	450
Invertebrates	5	56

Summary of Births and Hatchings of Animals in Dublin Zoo during 2018

Taxon	Total Species	Total Specimens
Mammals	10	51
Birds	3	30
Reptiles	1	3
Total vertebrates	14	84
Invertebrates	5	1388

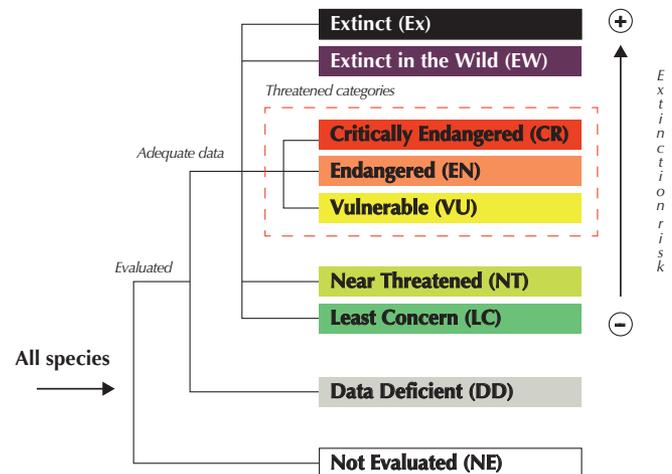
Summary of European Endangered species Programmes & European Studbooks which Dublin Zoo participated in throughout 2018

Number of European Endangered species Programmes (EEP)	32
Number of European studbooks (ESB)	7

Summary of Animal Taxa on the IUCN Red List of Threatened Species in Dublin Zoo during 2018

IUCN status	Number of species/subspecies
Extinct in the wild – EW	1
Critically endangered – CR	9
Endangered – EN	14
Vulnerable – VU	13
Near threatened – NT	5
Least Concern – LC	25
Not Evaluated – NE	11

Source: IUCN 2019. *The IUCN Red List of Threatened Species*.
Version 2019-1 Available at: <http://www.iucnredlist.org>



Key to Census Tables Opposite



Part of a European Endangered Species Programme (EEP)

ESB

Recorded in a European studbook

Column 1: The number of animals in the collection at 1st January 2018

Column 2: The number of animals received in 2018 through donation, loan or exchange.

Column 3: The number of animals born or hatched during 2018.

Column 4: The number of animals dying within 30 days of birth or hatching, in 2018.

Column 5: The number of animals dying having survived more than 30 days, in 2018.

Column 6: The number of animals leaving the collection through donation, loan, exchange theft etc. during 2018.

Column 7: The number of animals in the collection at 1st January 2019.

The first figure indicates the male numbers; the second female numbers and the third unsexed numbers e.g. 1.2.4 reads 1 male, 2 females and 4 unsexed specimens.

Male	Female	Unknown
A male symbol consisting of a circle with an arrow pointing diagonally up and to the right.	A female symbol consisting of a circle with a vertical line and a horizontal crossbar at the bottom.	A large, bold question mark.

This census does not include animals which have been sent on deposit to other collections, nor does it include wild animals living within the zoo e.g. many native bird species.

1. 8. 0	CITES	IUCN Status	SPECIES		Total at 01.01.18	Arrivals	Births	Dead within 30 Days	Dead	Departed	Total at 01.01.19
			VERTEBRATES	VERTEBRATA							
			CLASS:MAMMALS	MAMMALIA							
			BATS	CHIROPTERA							
	II/A	EN	Rodrigues flying fox	<i>Pteropus rodricensis</i>	2. 10. 0				1. 0. 0	1. 8. 0	0. 2. 0
			PRIMATES	PRIMATES							
	I/A	EN	Ring-tailed lemur	<i>Lemur catta</i>	5. 3. 0				0. 1. 0		5. 2. 0
	I/A	CR	Red ruffed lemur	<i>Varecia rubra</i>	5. 2. 0		1. 1. 0			1. 0. 0	5. 3. 0
	I/A	VU	Goeldi's monkey	<i>Callimico goeldii</i>	2. 3. 0				0. 1. 0		2. 2. 0
	II/B	LC	Eastern pygmy marmosets	<i>Cebuella pygmaea niveiventris</i>	1. 1. 0				0. 1. 0		1. 0. 0
	I/A	EN	Golden lion tamarin	<i>Leontopithecus rosalia</i>	1. 1. 0						1. 1. 0
	II/B	LC	Bolivian squirrel monkey	<i>Saimiri boliviensis boliviensis</i>	4. 0. 0						4. 0. 0
	II/B	LC	White-faced saki	<i>Pithecia pithecia</i>	3. 1. 0						3. 1. 0
	II/B	EN	White-naped mangabey	<i>Cercocebus atys lunulatus</i>	3. 4. 0		1. 1. 0	1. 0. 0	0. 1. 0		3. 4. 0
ESB	II/B	VU	Red-capped mangabey	<i>Cercocebus torquatus</i>	4. 0. 0						4. 0. 0
	II/B	CR	Sulawesi crested macaque	<i>Macaca nigra</i>	13. 8. 0		2. 0. 2				15. 8. 3
	I/A	EN	Siamang	<i>Symphalangus syndactylus</i>	0. 1. 0	1. 0. 0					1. 1. 0
	I/A	CR	Western lowland gorilla	<i>Gorilla gorilla gorilla</i>	1. 4. 0	1. 0. 0			0. 1. 0		2. 3. 0
	I/A	EN	Chimpanzee	<i>Pan troglodytes</i>	2. 1. 0						2. 1. 0
	I/A	CR	Western chimpanzee	<i>Pan troglodytes verus</i>	1. 3. 0						1. 3. 0
	I/A	CR	Bornean orangutan	<i>Pongo pygmaeus pygmaeus</i>	1. 4. 0						1. 4. 0
			XENARTHANS	XENARTHRA							
ESB	NL	LC	Linne's two-toed sloth	<i>Choloepus didactylus</i>	1. 1. 0						1. 1. 0
			CARNIVORES	CARNIVORA							
	II/A	LC	Grey wolf	<i>Canis lupus</i>	9. 2. 0				2. 1. 0		7. 1. 0
	NL	EN	Painted dogs	<i>Lycaon pictus</i>	5. 6. 0					2. 3. 0	3. 3. 0
	I/A	EN	Red panda	<i>Ailurus fulgens fulgens</i>	0. 1. 0	1. 0. 0					1. 1. 0
	NL	LC	Slender-tailed meerkat	<i>Suricata suricatta</i>	9. 6. 0				2. 1. 0		7. 5. 0

	CITES	IUCN Status	SPECIES		Total at 01.01.18	Arrivals	Births	Dead within 30 Days	Dead	Departed	Total at 01.01.19
	I/A	EN	Asiatic lion	<i>Panthera leo persica</i>	1. 4. 0						1. 4. 0
	I/A	EN	Amur tiger	<i>Panthera tigris altaica</i>	1. 2. 0		0. 2. 1	0. 0. 1			1. 4. 0
	I/A	VU	Snow leopard	<i>Panthera uncia</i>	1. 1. 0						1. 1. 0
ESB	NL	LC	California sealion	<i>Zalophus californianus</i>	1. 3. 0		1. 2. 0				2. 5. 0
			ELEPHANTS	PROBOSCIDAE							
	I/A	EN	Asiatic elephant	<i>Elephas maximus</i>	4. 7. 0		1. 0. 0				5. 7. 0
			ODD-TOED UNGULATES	PERISSODACTYLA							
	NL	NT	Common/Grant's zebra	<i>Equus quagga boehmi</i>	2. 5. 0						2. 5. 0
	II/B	VU	South American tapir	<i>Tapirus terrestris</i>	1. 2. 0						1. 2. 0
	I/A	NT	Southern white rhinoceros	<i>Ceratotherium simum simum</i>	4. 4. 0						4. 4. 0
			EVEN-TOED UNGULATES	ARTIODACTYLA							
	NL	LC	Red river hog	<i>Potamochoerus porcus</i>	4. 1. 0						4. 1. 0
ESB	II/B	VU	Hippopotamus	<i>Hippopotamus amphibius</i>	0. 1. 0						0. 1. 0
	NL	VU	Giraffe	<i>Giraffa camelopardalis</i>	2. 1. 0						2. 1. 0
	NL	NT	Baringo/Rothschild giraffe	<i>Giraffa camelopardalis rothschildi</i>	2. 2. 0		1. 1. 0				3. 3. 0
	NL	EN	Okapi	<i>Okapia johnstoni</i>	2. 1. 0				1. 0. 0		1. 1. 0
	III/C	LC	Blackbuck	<i>Antilope cervicapra</i>	1. 3. 0						1. 3. 0
	NL	CR	Eastern bongo	<i>Tragelaphus eurycerus isaaci</i>	2. 3. 0		1. 0. 0		1. 1. 0	1. 0. 0	1. 2. 0
	I/A	EW	Scimitar-horned oryx	<i>Oryx dammah</i>	3. 4. 0		2. 1. 0		1. 0. 0		4. 5. 0
			DOMESTIC								
			Domestic Rabbit	<i>Oryctolagus cuniculus domestic</i>	2. 3. 0					1. 1. 0	1. 2. 0
			Tamworth pig	<i>Sus scrofa scrofa tamworth</i>	5. 4. 0	1. 3. 0	9. 20. 2	1. 0. 2	1. 0. 0	12. 26. 0	1. 1. 0
			Friesian cow	<i>Bos taurus taurus friesian</i>	0. 2. 0		0. 1. 0			0. 2. 0	0. 1. 0
			Kerry cow	<i>Bos taurus taurus kerry</i>	0. 0. 0	0. 1. 0	0. 1. 0			0. 2. 0	0. 0. 0
			Small East African goat	<i>Capra hircus domestic small_east_african</i>	0. 5. 0				0. 1. 0		0. 4. 0
			Galway sheep	<i>Ovis aries aries galway</i>	0. 0. 0	0. 2. 0				0. 2. 0	0. 0. 0
			Lleyn sheep	<i>Ovis aries aries lleyn</i>	0. 1. 0					0. 1. 0	0. 0. 0
			Shropshire sheep	<i>Ovis aries aries shropshire</i>	0. 1. 0		1. 0. 0			1. 1. 0	0. 0. 0
			Suffolk sheep	<i>Ovis aries aries suffolk</i>	0. 0. 0	0. 2. 0				0. 2. 0	0. 0. 0
			Labrador dog	<i>Canis lupus familiaris labrador</i>	0. 1. 0					0. 1. 0	0. 0. 0

	CITES	IUCN Status	SPECIES		Total at 01.01.18	Arrivals	Births	Dead within 30 Days	Dead	Departed	Total at 01.01.19
			CLASS: BIRDS	AVES							
			OSTRICHES	STRUTHIONIFORMES							
	NL	LC	Ostrich	<i>Struthio camelus</i>	1. 5. 0				0. 1. 0		1. 4. 0
			PENGUINS	SPHENISCIFORMES							
	I/A	VU	Humboldt penguin	<i>Spheniscus humboldti</i>	8. 7. 0				0. 1. 0		8. 6. 0
			HERONS/STORKS	CICONIIFORMES							
	/A	LC	Little egret	<i>Egretta garzetta</i>	2. 0. 0				1. 0. 0		1. 0. 0
	I/A	EN	Waldrapp ibis	<i>Geronticus eremita</i>	12. 10. 5						12. 10. 5
			FLAMINGOS	PHOENICOPTERIDAE							
	II/B	NT	Chilean flamingo	<i>Phoenicopterus chilensis</i>	40. 30. 16		1. 2. 17	1. 1. 6	1. 1. 0		39. 30. 27
			GALLINACEOUS BIRDS	GALLIFORMES							
	NL	LC	Helmeted guinea fowl	<i>Numida meleagris</i>	1. 1. 0				1. 0. 0	0. 1. 0	0. 0. 0
	III/C	LC	Common peafowl	<i>Pavo cristatus</i>	2. 4. 0		1. 0. 11	0. 0. 4	0. 1. 3	0. 0. 4	3. 3. 0
	NL	NT	Crested wood partridge	<i>Rollulus rouloul</i>	2. 1. 0				0. 1. 0		2. 0. 0
			DUCKS/GEESE/SWANS	ANSERIFORMES							
	NL	LC	White-cheeked pintails	<i>Anas bahamensis</i>	3. 3. 0		0. 0. 18	0. 0. 18	0. 0. 1		0. 0. 5
			PARROTS	PSITTACIFORMES							
ESB	I/A	VU	Mexican military macaw	<i>Ara militaris mexicana</i>	1. 1. 0						1. 1. 0
	I/A	CR	Citron-crested cockatoo	<i>Cacatua sulphurea citrinocristata</i>	1. 3. 0	1. 0. 0					2. 3. 0
			HORNBILLS ETC.	CORACIIFORMES							
	I/A	VU	Great hornbill	<i>Buceros bicornis</i>	1. 1. 0						1. 1. 0
ESB	NL	VU	Abyssinian ground hornbill	<i>Bucorvus abyssinicus</i>	1. 1. 0						1. 1. 0
			DOMESTIC FOWL								
			Australorp chicken	<i>Gallus gallus domestic australorp</i>	3. 4. 0				1. 1. 0		2. 3. 0
			Sussex chicken (light)	<i>Gallus gallus domestic sussex light</i>	1. 1. 0				1. 0. 0		0. 1. 0
			Brahma bantem	<i>Gallus gallus domestic brahma</i>	0. 2. 0				0. 1. 0		0. 1. 0
			Rhode Island red chicken	<i>Gallus gallus domestic rhode_island_red</i>	0. 2. 0				0. 2. 0		0. 0. 0
			Indian runner duck	<i>Anas platyrhynchos domestic indian_runner</i>	1. 1. 0	1. 1. 0			1. 1. 0		1. 1. 0

CITES	IUCN Status	SPECIES		Total at 01.01.18	Arrivals	Births	Dead within 30 Days	Dead	Departed	Total at 01.01.19
		CLASS: REPTILES	REPTILIA							
		CHELONES	TESTUDINES							
II/B	CR	Annam pond turtle	<i>Mauremys annamensis</i>	2. 2. 0						2. 2. 0
III/C	EN	Chinese stripe-necked turtle	<i>Mauremys sinensis</i>	1. 0. 0						1. 0. 0
NL	NE	Central America wood turtle	<i>Rhinoclemmys pulcherrima manni</i>	0. 2. 0						0. 2. 0
NL	LC	Yellow-bellied slider	<i>Trachemys scripta scripta</i>	1. 3. 0						1. 3. 0
NL	LC	Red-eared slider	<i>Trachemys scripta elegans</i>	2. 1. 0						2. 1. 0
II/B	NE	Red-footed tortoise	<i>Chelonoidis carbonaria</i>	1. 3. 0						1. 3. 0
II/B	VU	Star tortoise	<i>Geochelone elegans</i>	1. 2. 4						1. 2. 4
II/B	VU	African spurred tortoise	<i>Centrochelys sulcata</i>	1. 1. 0						1. 1. 0
		CROCODILES	CROCODILIA							
I/A	LC	West African Crocodile	<i>Crocodylus niloticus suchus</i>	1. 1. 0						1. 1. 0
		LIZARDS	SAURIA							
NL	NE	Green crested lizards	<i>Bronchocela cristatella</i>	14. 7. 0		0. 0. 3	0. 0. 1	2. 4. 2		12. 3. 0
NL	LC	Forest dragon	<i>Hypsilurus magnus</i>	1. 0. 0						1. 0. 0
II/B	LC	Panther chameleon	<i>Furcifer pardalis</i>	1. 1. 0						1. 1. 0
ESB	I/A	Turquoise dwarf gecko	<i>Lygodactylus williamsi</i>	1. 1. 0						1. 1. 0
NL	LC	Leopard gecko	<i>Eublepharis macularius</i>	0. 2. 0						0. 2. 0
NL	NE	Tokay gecko	<i>Gekko gekko</i>	1. 0. 0					1. 0. 0	0. 0. 0
II/B	LC	Mangrove monitor	<i>Varanus indicus</i>	0. 1. 0						0. 1. 0
		SNAKES	SERPENTES							
II/B	LC	Green tree python	<i>Morelia viridis</i>	2. 1. 0						2. 1. 0
II/B	VU	Burmese python	<i>Python bivittatus</i>	2. 0. 0						2. 0. 0
II/B	LC	Royal python	<i>Python regius</i>	0. 0. 3					0. 0. 1	0. 0. 2
/D	NE	King ratsnake	<i>Elaphe carinata</i>	1. 1. 0						1. 1. 0
NL	LC	Cornsnake	<i>Pantherophis guttatus</i>	2. 1. 0				1. 0. 0		1. 1. 0
NL	LC	Common gartersnake	<i>Thamnophis sirtalis</i>	1. 0. 0						1. 0. 0

CITES	IUCN Status	SPECIES		Total at 01.01.18	Arrivals	Births	Dead within 30 Days	Dead	Departed	Total at 01.01.19
		INVERTEBRATES	INVERTEBRATA							
		CLASS: ARACHNIDS	ARACHNIDA							
		SPIDERS	ARANEAE							
NL	NE	Chilean rose tarantula	<i>Grammostola rosea</i>	0. 2. 0					0. 1. 0	0. 1. 0
		CLASS: INSECTS	INSECTA							
		STICK INSECTS	PHASMATOPTERA							
NL	NE	Spiny/Thorny stick insect	<i>Trachyaretaon brueckneri</i>	2. 0. 0				2. 0. 0		0. 0. 0
NL	NE	Indian green stick insects	<i>Carausius morosus</i>	0. 9. 0		0.854.0*	0. 818.0*	0. 15. 0		0. 30. 0
NL	NE	Macleays spectre	<i>Extatosoma tiaratum</i>	0. 15. 0		0. 168. 0*	0. 155. 0*	0. 24. 0		0. 4. 0
NL	NE	Black beauty stick insect	<i>Peruphasma schultei</i>	0. 0. 24			0. 0. 3	1. 1. 16		2. 1. 0
NL	NE	Zompro's/Thai stick insect	<i>Parapachymorpha zomproi</i>	0. 11. 0		0. 366. 0*	0. 338. 0*	0. 21. 0		0. 18. 0

* approximate numbers

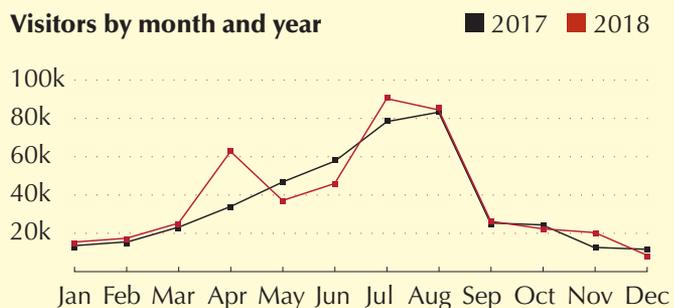
FOTA WILDLIFE PARK : DIRECTOR'S REPORT

Fota Wildlife Park had another prosperous year during 2018 with the fifth-highest attendance figures since opening in 1983 despite the challenging climatic conditions that occurred in 2018. Storm 'Emma' made her presence felt on 29 February with accumulations of half a metre of snow in the East Cork area.

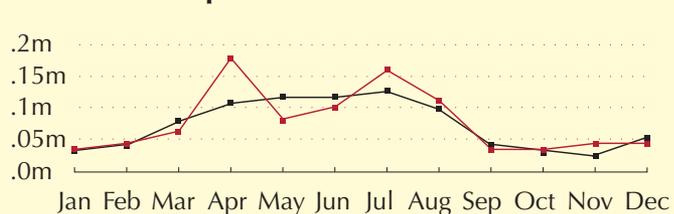


This weather situation returned in mid-March but was less severe than on the previous occasion; yet, the Wildlife Park was closed for a further two days. The cold, wet weather conditions continued through April with ground soil temperatures during April registering as the coldest on record for County Cork.

Visitors by month and year



Total membership income



Storm 'Ali' hit Ireland on the 18th September, which not only caused the closure of Fota for the day but also the cancellation of the second day of the National Ploughing Championships in Scraggan, Co Offaly.

In between these spring and autumn storms, Fota experienced the hottest summer on record with temperatures exceeding 23 degrees on numerous days in June and July. This extreme hot weather provided ideal conditions for visiting the beaches of Ireland but had a negative effect on our attendances during the summer months.

Another noticeable factor in the decline in visitor numbers was the decrease in member visits to the Wildlife Park over the summer months of July and August, which is a continuing trend from last year. This is due to the end of the recession and more of the member families going on summer vacations to warmer climates such as France, Spain and Portugal.

Summary Comparison of the results for the year 2018 with 2017

- Total visitor numbers as of 31st December 2018 were 424,889 compared to 455,559 at the same period in 2017. The 2018 visitor numbers were down 30,670, or 7%, on 2017 levels.
- Full-rate visitor admissions as of 31st December 2018 were down 5.3% (13,635) compared to 2017 levels.
- Membership visits as of 31st December 2018 were down 12.4% (17,285) compared to the same period in 2017. However, the number of memberships sold was down only 5.2% on 2017 levels.
- Gift Shop retail income was down 3% as of 31st December 2018 compared to the same period in 2017.

Animal Husbandry

Fota Wildlife Park is deeply saddened to announce the death of its 17-year-old male Rothschild giraffe, 'Tadgh', in early January 2018 from heart and kidney issues. Tadgh was born in 2001 at Hamburg Zoo, Germany, and arrived at Fota Wildlife Park in May 2004. He contributed greatly to the European Endangered Species Breeding Programmes (EEP) by siring 23 offspring, including Fada, Aoife, Blaitín and Noinín, who was born in April 2017. His progeny also includes 17 'grandchildren'. Recent genetic analysis indicates that there are four species of giraffe, and Rothschild giraffes are the most endangered subspecies of the Northern giraffe. Rothschild giraffes are also the tallest of the giraffe subspecies. In 2016, there were only an estimated 1,600 Rothschild giraffes left in the wild in Kenya and Uganda with a further 500 in wildlife parks and zoos.

Other deaths included a male mountain chicken; a male ring-tailed lemur, 'Percy'; and a female Humboldt penguin, 'Antek', that died in March. The death rate for the total animal collection was 5.7%, which is below the norm despite the difficult weather conditions experienced during 2018.



Two female rolaway monkeys, *Cercopithecus rolaway*, arrived in early February 2018 from Mulhouse Zoo, France, and Duisburg Zoo, Germany. They settled into their new habitat at Fota very quickly and are always active exploring their island habitat. Rolaway monkeys are currently considered as 'Endangered' in the wild but will most likely be upgraded to 'Critically Endangered' in the next few years. There are only 45 animals in captivity and the species is listed in the 25 most endangered primate species in the world. The expansion of the captive breeding programme is therefore a very important aspect in the continued survival of this species.



Notable fish hatchings included 25 red rainbowfish *Glossolepis incises*, 50 Boeseman's rainbowfish *Melanotaenia boesemani* and 30 Goyder River rainbowfish *Melanotaenia trifasciata*.

The Boeseman's rainbowfish, which are endangered in the wild, are endemic to the Ayamaru Lakes and their tributaries in a mountainous region of the Bird's Head Peninsula, West Papua, Indonesia. The other two species are, like many other rainbowfish, under threat in the wild and considered Vulnerable (VU) by the IUCN.

Other births in the Wildlife Park included three barnacle geese, three eider ducks, one blue-and-gold macaw, one



black-and-white ruffed lemur (DNS), one lion-tailed macaque, one agile gibbon, six Northern cheetah, three European bison

and four scimitar-horned oryx. The four cheetah cubs born in mid-November were the fifth litter born to female 'Gimpy'. Introduced to the public just after Christmas, they featured in numerous press articles and received extensive coverage in the Examiner, The Irish Times, The Independent, RTE News, Virgin 1 TV and various radio programmes. This coverage of the cheetah cubs along with the favourable dry and mild weather gave a boost to visitor numbers at the end of December.

Capital Developments

Five-Year Capital Development Plan 2018-2022:

During 2017, a five-year plan for 2018-2022 was developed that seeks to secure and enhance the progress that Fota Wildlife Park has achieved during the previous seven years (2011 to 2017). This period witnessed the development of a New Entrance Complex, Phases 1 to 3 of the Asian Sanctuary and an increase of more than 100,000 visitors to Fota Wildlife Park. In addition, there was the redevelopment of a new Staff Canteen, South American Habitat and Food Stalls in the Asian Sanctuary.

Over the next five years, there will be four elements to the capital investment strategy within the Wildlife Park, as follows:

1. **Continued redevelopment of the older exhibits and facilities within the Park.** The year 2018 saw the development of a new primate house and display for drill monkeys, which will be a new large monkey species in Fota. The adjoining island habitat will also be upgraded for the drills in early 2019.
2. **The development of three to four Visitor Interactive Areas that will provide shelter, entertainment and education to the visiting public.** In 2018, Fota Wildlife Park developed a new indoor and outdoor viewing area for the giraffe paddock along with the Sea Wall Bird Hide near the seal and eagle exhibits.
3. **Complete the development of the Asian Sanctuary to include the Bear and Takin Habitats.** Detailed plans have been developed for an Asian bear species (giant panda or sun bears) which, hopefully, will commence in 2020.
4. **Develop a large, multipurpose area along the lines of the 'Origins' project, subject to Fáilte Ireland funding.** Fota Wildlife Park, along with Cork County Council, has made a joint grant application to the Department of Housing, Planning and Local Government for €12m to fund the development of the ORIGINS COMPLEX, which includes the Origins project and the Asian Bear Habitat.





Fota Wildlife Park 2018-2022 5-year Plan

Development of Multi-purpose Visitor Interactive units and Sheltered Animal Viewing Points.

Refurbishment of Animal Habitats and Visitor facilities in the old Park Area

Completion of the remaining phases of the Asian Sanctuary Bear Species (Panda) Takin

ORIGINS, the Story of Ireland's Ancient Nature and it's Ancient Nature and its people.
New Resturant and Toilets

Capital Projects Completed in 2018

The first phase of the five-year development plan, which proposed completion in 2018, includes the following items:

Giraffe Viewing Area:

The Giraffe Viewing Area opened to the public at the end of July with people walking over the raised walkway of the Giraffe Viewing Pod and experiencing panoramic views

of the giraffe enclosure. The interior of the Giraffe Viewing Pod affords the public views of the animals in the African Plains from the comfort and shelter of the Giraffe Pod. The interior of the pod has extensive educational graphics along the walls and a TV monitor that displays information on giraffe husbandry as well as conservation and educational material. The wildflowers enclosed within the wildflower garden gave a fantastic bloom of colour as well as lots of food for the insect life, including bees, bumblebees, hoverflies, butterflies and their caterpillars that can be seen amongst the plants.



The construction of new Monkey House 6 was delayed due to issues with the ground conditions at the original site which forced the Drill House to be moved north of its original position by 35m. The building was completed at the end of December and all that remains to be completed are the internal mesh pens. Drills, *Mandrillus leucophaeus*, will inhabit this building and the adjacent

(Above) Asian Bear or Panda Habitat with Cave Housing

(Top right) Giraffe Viewing Walkway and Interior Viewing Pod
(Bottom right) Monkey House 6 or Drill House



large monkey island, and are due to arrive in Fota in early 2019. Drills are among Africa's most endangered mammals and are listed by the IUCN as the highest conservation priority of all African primates. Drill numbers have been declining in

all known habitat areas for decades as a result of illegal hunting, habitat destruction, and human development. Fewer than 3,000 drills remain in the wild.

Sea Wall Bird Viewing Hide

The construction of a bird hide and raised walkway was completed in early December 2018. The interpretive material will be installed in early 2019, with the opening later in the year.



This development enables visitors to look over the harbour from a sheltered hide with interpretation of the waterfowl and waders in the area. The construction of both this bird hide and the above-mentioned monkey house was delayed by planning conditions set by Cork County Council. The photo opposite is a view of the harbour and railway line from one of the windows of the Sea Wall Bird Hide as the sun sets in the background.

Television Documentary Series on Fota Wildlife Park

Filming for a television documentary series on the animal life within the Wildlife Park began in early 2018. This series is due to air in the autumn of 2019 and is expected to be in the format of four, one-hour-long programmes. It will be shown on the following television channels: Virgin 1, 2 and 3.

Each of the four programmes will feature part of the conservation work that Fota Wildlife Park undertakes or funds in the wild.

Conservation projects visited in 2018 as part of the Virgin Media television series:



The 2 female European bison born in Fota and released into Carpathian Mountains in 2014 are thriving. The initial population of 14 animals has grown to 49 animals.



The Critically Endangered Madagascar pochard have double their wild population with the release of 24 captive bred ducks



Fota release 1200 natterjack toads back to the wild in 2018 bringing the total released back to the wild to over 2300 toad-lets during he past 3 years.

Fota support a PhD study on the B&W Ruffed lemur in the wild in 2012. This species numbers are decreasing at an alarming rate and immediate action is required to conserve this species or it will be extinct in the wild within 10 years.



RESEARCH AND CONSERVATION

The research and conservation projects undertaken by Fota Wildlife Park are reported in the attached Reports and Financial Statements for the year ending 31st December 2018.

EDUCATION

Fota's education department hosted a CPD workshop for secondary school science teachers in February in conjunction with the Department of Education & Skills. A total of 39 teachers attended the workshop titled 'Biodiversity and its role in environmental sustainability'. Feedback was positive and the education team are due to host additional CPD workshops in 2019.

In May, the park's education department was inspected by a representative from the Sandford Trust in the UK with the objective of renewing its Sandford Award. The Sandford Award is a kitemark of excellence for heritage education in both Ireland and the UK. The award was formally presented to Fota Wildlife Park at a ceremony in the Tower of London in December and will be retained by the park until 2023.

Education attendance figures for 2018 highlighted an increase of 13% on the previous year with a total of 16,621 students participating in formal education modules. This increase was largely attributable to the establishment of a new biodiversity conservation module for Junior Certificate science. The module was developed with the aim of providing students with an understanding of and an ability to evaluate how humans can successfully conserve ecological biodiversity and contribute to global food production while appreciating the benefits obtained from ecosystems' services.

Fota 2018 Animal Inventory

	IUCN Status	SPECIES		Beginning	Births	Acquisitions	Dead	Dispositions	Ending
		INVERTEBRATA	INVERTEBRATES						
		CLASS: SCYPHOZA	CLASS: JELLYFISH						
		<i>Aurelia aurita</i> *	Moon jellyfish	0.0.4	0.0.0	0.0.2	0.0.6	0.0.0	0.0.0
		CLASS: INSECTA	CLASS: INSECTS						
		<i>Papilionoidea</i> *	Butterflies	0.0.140	0.0.0	0.0.0	0.0.0	0.0.0	0.0.140
		VERTEBRATA	VERTEBRATES						
		CLASS: PISCES	CLASS: FISH						
NT		<i>Chiloscyllium punctatum</i>	Brownbanded bamboo shark	0.1.0	0.0.0	0.0.0	0.0.0	0.0.0	0.1.0
		<i>Gymnomuraena zebra</i> *	Zebra moray	0.0.2	0.0.0	0.0.0	0.0.1	0.0.0	0.0.1
		<i>Sahyadria denisonii</i> *	Denison's barb	0.0.10	0.0.0	0.0.0	0.0.0	0.0.0	0.0.10
		<i>Chromobotia macracanthus</i> *	Clown loach	0.0.1	0.0.0	0.0.2	0.0.0	0.0.0	0.0.3
		<i>Hyphessobrycon anisitsi</i> *	Buenos Aires tetra	0.0.10	0.0.25	0.0.0	0.0.1	0.0.0	0.0.34
		<i>Panaque nigrolineatus</i> *	Royal plecostomus	0.0.1	0.0.0	0.0.0	0.0.0	0.0.0	0.0.1
NT		<i>Bedotia madagascariensis</i> *	Madagascar rainbowfish	0.0.1	0.0.0	0.0.4	0.0.0	0.0.0	0.0.5
VN		<i>Glossolepis incisus</i> *	Red rainbowfish	0.0.3	0.0.25	0.0.0	0.0.0	0.0.0	0.0.28
EN		<i>Melanotaenia boesemani</i> *	Boeseman's rainbowfish	0.0.4	0.0.50	0.0.3	0.0.0	0.0.0	0.0.57
		<i>Melanotaenia trifasciata</i> *	Goyder River rainbowfish	0.0.5	0.0.30	0.0.0	0.0.1	0.0.0	0.0.34
EW		<i>Ameca splendens</i> *	Butterfly splitfin	0.0.110	0.0.0	0.0.0	0.0.0	0.0.0	0.0.110
EW		<i>Skiffia francesae</i> *	Golden sawfin	0.0.100	0.0.0	0.0.0	0.0.0	0.0.0	0.0.100
		<i>Cephalopholis miniata</i>	Vermilion grouper	0.0.0	0.0.0	0.0.1	0.0.0	0.0.0	0.0.1
		<i>Toxotes jaculatrix</i> *	Banded archerfish	0.0.7	0.0.0	0.0.0	0.0.0	0.0.0	0.0.7
		<i>Monodactylus argenteus</i>	Diamond fish	0.0.10	0.0.0	0.0.0	0.0.0	0.0.0	0.0.10
		<i>Monodactylus sebae</i> *	African silverfish	0.0.1	0.0.0	0.0.0	0.0.0	0.0.0	0.0.1
		<i>Amphiprion ocellaris</i> *	Peacock clownfish	0.0.5	0.0.0	0.0.0	0.0.0	0.0.0	0.0.5
		<i>Chromis viridis</i> *	Bluegreen chromis	0.0.4	0.0.0	0.0.0	0.0.0	0.0.0	0.0.4
		<i>Chrysiptera cyanea</i> *	Sapphire damselfish	0.0.4	0.0.0	0.0.0	0.0.0	0.0.0	0.0.4
		<i>Chrysiptera parasema</i> *	Goldtail damselfish	0.0.4	0.0.0	0.0.0	0.0.0	0.0.0	0.0.4
		<i>Stigmatogobius sadanundio</i> *	Fandancer goby	0.0.1	0.0.0	0.0.0	0.0.1	0.0.0	0.0.0
		<i>Scatophagus argus</i> *	Spotted scat	0.0.1	0.0.0	0.0.0	0.0.0	0.0.0	0.0.1
		<i>Siganus vulpinus</i> *	Foxface rabbitfish	0.0.2	0.0.0	0.0.0	0.0.0	0.0.0	0.0.2

	IUCN Status	SPECIES		Beginning	Births	Acquisitions	Dead	Dispositions	Ending
		<i>Acanthurus fowleri</i> *	Fowler's surgeon	0.0.1	0.0.0	0.0.0	0.0.0	0.0.0	0.0.1
		<i>Zebrasoma desjardini</i> *	Red Sea sailfin tang	0.0.1	0.0.0	0.0.0	0.0.0	0.0.0	0.0.1
		<i>Zebrasoma flavescens</i> *	Yellow tang	0.0.2	0.0.0	0.0.0	0.0.0	0.0.0	0.0.2
		<i>Acreichthys tomentosus</i>	Bristletail filefish	0.0.1	0.0.0	0.0.0	0.0.1	0.0.0	0.0.0
		CLASS: AMPHIBIA	CLASS: AMPHIBIANS						
	CR	<i>Ambystoma mexicanum</i> *	Axolotl	1.0.2	0.0.0	0.0.0	0.0.0	0.0.0	1.0.2
	CR	<i>Neurergus kaiseri</i> *	Emperor spotted newt	0.0.24	0.0.0	0.0.0	0.0.1	0.0.0	0.0.23
	EN	<i>Epipedobates tricolor</i> *	Phantasmal poison dart frog	0.0.14	0.0.0	0.0.0	0.0.0	0.0.0	0.0.14
	LC	<i>Trachycephalus venulosus</i> *	Veined tree frog	0.0.1	0.0.0	0.0.0	0.0.1	0.0.0	0.0.0
	LC	<i>Agalychnis callidryas</i> *	Red-eyed tree frog	0.0.1	0.0.0	0.0.4	0.0.4	0.0.0	0.0.1
	CR	<i>Agalychnis moreletii</i>	Morelet's tree frog	0.0.1	0.0.0	0.0.0	0.0.1	0.0.0	0.0.0
ESB	CR	<i>Leptodactylus fallax</i>	Mountain chicken frog	1.1.0	0.0.0	0.0.0	1.0.0	0.0.0	0.1.0
	CR	<i>Mantella aurantiaca</i> *	Golden mantella	0.0.8	0.0.0	0.0.0	0.0.4	0.0.0	0.0.4
	EN	<i>Mantella viridis</i> *	Green mantella	0.0.14	0.0.0	0.0.0	0.0.0	0.0.0	0.0.14
	LC	<i>Polypedates otitophus</i> *	Bornean eared frog	0.0.2	0.0.0	0.0.0	0.0.0	0.0.0	0.0.2
		<i>Theloderma corticale</i>	Tonkin bug-eyed frog	2.0.8	0.0.0	0.0.0	1.0.0	0.0.0	1.0.8
		CLASS: REPTILIA	CLASS: REPTILES						
		<i>Chelonoidis carbonaria</i>	Red-footed tortoise	1.0.0	0.0.0	0.0.0	0.0.0	0.0.0	1.0.0
	EN	<i>Indotestudo elongata</i>	Elongated tortoise	1.3.2	0.0.0	0.0.0	0.0.2	0.0.0	1.3.0
	LC	<i>Chamaeleo calypttratus</i>	Veiled chameleon	2.0.0	0.0.0	0.0.0	0.0.0	0.0.0	2.0.0
		<i>Iguana iguana</i>	Green iguana	1.0.0	0.0.0	0.0.0	0.0.0	0.0.0	1.0.0
		<i>Phelsuma madagascariensis</i>	Madagascar giant day gecko	1.0.0	0.0.0	0.2.0	0.0.0	0.0.0	1.2.0
		<i>Python regius</i>	Royal/ball python	2.2.0	0.0.0	0.0.0	0.0.0	0.1.0	2.2.0
		<i>Acrantophis dumerili</i>	Dumeril's ground boa	3.0.0	0.0.0	0.0.0	0.0.0	0.0.0	3.0.0
EEP	VU	<i>Epicrates subflavus</i>	Jamaican boa	0.0.3	0.0.0	0.0.0	0.0.0	0.0.0	0.0.3
		CLASS: AVES	CLASS: BIRDS						
	LC	<i>Struthio camelus</i>	Common ostrich	2.4.0	0.0.0	0.0.0	0.1.0	1.0.0	1.3.0
	LC	<i>Numida meleagris</i>	Helmeted guineafowl	10.6.26	0.0.0	0.0.0	1.0.2	0.0.0	9.6.24
	LC	<i>Pavo cristatus</i>	Common peafowl	4.8.1	0.0.0	0.0.0	0.0.0	0.0.0	4.8.1

	IUCN Status	SPECIES		Beginning	Births	Acquisitions	Dead	Dispositions	Ending
	LC	<i>Dendrocygna autumnalis</i>	Black-bellied whistling duck	0.1.0	0.0.0	0.0.0	0.0.0	0.0.0	0.1.0
	LC	<i>Anser anser</i>	Greylag goose	11.8.12	0.0.0	0.0.0	0.0.0	0.0.0	11.8.12
	LC	<i>Anser brachyrhynchus</i>	Pink-footed goose	1.1.0	0.0.0	0.0.0	1.0.0	0.0.0	0.1.0
	LC	<i>Anser caerulescens</i>	Snow goose	3.4.0	0.0.0	0.0.0	0.1.0	0.0.0	3.3.0
	NT	<i>Anser canagicus</i>	Emperor goose	2.2.0	0.0.0	0.0.0	0.0.0	0.0.0	2.2.0
	VU	<i>Anser cygnoides</i>	Swan goose	0.1.0	0.0.0	0.0.0	0.0.0	0.0.0	0.1.0
	LC	<i>Anser indicus</i>	Bar-headed goose	9.7.5	0.0.0	0.0.0	0.1.0	0.0.0	9.6.5
	LC	<i>Branta leucopsis</i>	Barnacle goose	13.7.10	0.0.3	0.0.0	0.1.1	0.0.0	13.6.9
	VU	<i>Branta sandvicensis</i>	Ne-ne	3.0.0	0.0.0	0.0.0	0.0.0	0.0.0	3.0.0
	LC	<i>Cereopsis novaehollandiae</i>	Cereopsis goose	1.1.0	0.0.0	0.0.0	0.0.0	0.0.0	1.1.0
	LC	<i>Coscoroba coscoroba</i>	Coscoroba swan	3.1.0	0.0.0	0.0.0	1.0.0	0.0.0	2.1.0
	LC	<i>Aix galericulata</i>	Mandarin duck	12.6.11	0.0.0	0.0.0	0.0.0	0.0.0	12.6.11
	LC	<i>Aix sponsa</i>	North American wood duck	6.2.4	0.0.0	0.0.0	1.0.0	0.0.0	5.2.4
	LC	<i>Anas acuta</i>	Northern pintail	1.1.1	0.0.0	0.0.0	0.0.0	0.0.0	1.1.1
	LC	<i>Aythya fuligula</i>	Tufted duck	4.3.11	0.0.0	0.0.0	0.0.0	0.0.0	4.3.11
	NT	<i>Aythya nyroca</i>	Common white-eye	2.1.2	0.0.0	0.0.0	0.0.0	0.0.0	2.1.2
	LC	<i>Netta rufina</i> *	Red-crested pochard	8.9.11	0.0.0	0.0.0	1.2.1	0.0.0	7.7.5
	LC	<i>Somateria mollissima</i>	Eider	3.3.0	3.0.0	0.0.0	0.0.0	0.0.0	6.3.0
	LC	<i>Tadorna variegata</i>	Paradise shelduck	1.0.0	0.0.0	0.0.0	0.0.0	0.0.0	1.0.0
	LC	<i>Mareca strepera</i>	Gadwall	1.0.0	0.0.0	0.0.0	1.0.0	0.0.0	0.0.0
	LC	<i>Phoenicopterus chilensis</i>	Chilean flamingo	2.4.0	0.0.0	0.0.0	1.0.0	0.0.0	1.4.0
	LC	<i>Crex crex</i>	Corncrake	11.9.0	0.0.0	0.1.0	2.1.0	0.0.0	9.9.0
EEP	VU	<i>Spheniscus humboldti</i>	Humboldt penguin	10.13.10	0.0.0	0.0.0	0.1.0	0.0.0	10.12.10
	LC	<i>Pelecanus onocrotalus</i>	Eastern white pelican	3.1.0	0.0.0	0.0.0	0.0.0	0.0.0	3.1.0
EEP	LC	<i>Haliaeetus albicilla</i>	White-tailed sea eagle	0.2.0	0.0.0	0.0.0	0.0.0	0.0.0	0.2.0
	LC	<i>Ara ararauna</i>	Blue-and-yellow macaw	2.1.0	0.0.1	0.0.0	0.0.0	2.1.0	0.0.0
	LC	<i>Ara macao</i>	Scarlet macaw	1.0.0	0.0.0	0.0.0	1.0.0	0.0.0	0.0.0
	LC	<i>Amazona aestiva</i>	Blue-fronted amazon	1.0.0	0.0.0	0.0.0	1.0.0	0.0.0	0.0.0
		CLASS: MAMMALIA	CLASS: MAMMALS						
		MARSUPIALIA	MARSUPIAL						
ESB	LC	<i>Macropus giganteus</i>	Eastern grey kangaroo	6.8.1	0.0.1	0.0.0	2.2.0	0.0.0	6.6.0
	LC	<i>Macropus rufogriseus</i> *	Red-necked wallaby	0.0.185	0.0.0	0.0.0	0.0.2	0.0.0	0.0.183

	IUCN Status	SPECIES		Beginning	Births	Acquisitions	Dead	Dispositions	Ending
		PRIMATES	PRIMATES						
ESB	EN	<i>Lemur catta</i>	Ring-tailed lemur	2.3.0	0.0.0	0.0.0	1.1.0	0.0.0	1.2.0
EEP	CR	<i>Varecia rubra</i>	Red ruffed lemur	0.1.0	0.0.0	0.0.0	0.0.0	0.0.0	0.1.0
EEP	CR	<i>Varecia variegata</i>	Black-and-white ruffed lemur	1.1.0	0.0.1	0.0.0	0.0.0	0.0.0	1.1.1
EEP	LC	<i>Pithecia pithecia</i>	White-faced saki	3.5.0	0.0.0	0.0.0	0.0.0	0.2.0	3.3.0
ESB	LC	<i>Alouatta caraya</i>	Black howler	2.2.0	0.0.0	0.0.0	0.0.0	0.0.0	2.2.0
EEP	CR	<i>Ateles fusciceps</i>	Black-headed spider monkey	2.4.1	0.0.0	0.0.0	0.1.0	0.0.0	2.3.1
EEP	EN	<i>Cercopithecus roloway</i>	Roloway monkey	0.0.0	0.0.0	0.2.0	0.0.0	0.0.0	0.2.0
	LC	<i>Lophocebus albigena</i>	Grey-cheeked mangabey	1.2.0	0.0.0	0.0.0	0.0.0	0.0.0	1.2.0
EEP	EN	<i>Macaca silenus</i>	Lion-tailed macaque	8.12.0	0.0.1	0.0.0	0.0.0	0.0.0	8.12.1
ESB	LC	<i>Colobus guereza</i>	Eastern black-and-white colobus	4.0.0	0.0.0	0.0.0	0.0.0	0.0.0	4.0.0
EEP	EN	<i>Trachypithecus francoisi</i>	Francois' langur	2.0.0	0.0.0	0.0.0	0.0.0	0.0.0	2.0.0
EEP	EN	<i>Hylobates agilis</i>	Agile gibbon	1.1.0	0.0.1	0.0.0	0.0.0	0.0.0	1.1.1
EEP	EN	<i>Hylobates lar</i>	Lar gibbon	1.3.0	0.0.0	0.0.0	0.0.0	0.0.0	1.3.0
EEP	EN	<i>Symphalangus syndactylus</i>	Siamang	4.1.0	0.0.0	0.0.0	0.0.0	0.0.0	4.1.0
		RODENTIA	RODENTS						
	LC	<i>Cynomys ludovicianus</i>	Black-tailed prairie dog	2.3.0	0.0.0	0.0.0	0.0.0	0.0.0	2.3.0
	NT	<i>Dolichotis patagonum</i> *	Patagonian mara	0.0.16	0.0.0	0.0.0	0.0.0	0.0.0	0.0.16
	LC	<i>Hydrochoerus hydrochaeris</i>	Capybara	1.0.0	0.0.0	2.0.0	1.0.0	0.0.0	2.0.0
		CARNIVORA	CARNIVORES						
EEP	VU	<i>Acinonyx jubatus</i>	Cheetah	11.9.0	3.1.2	0.0.0	1.0.2	0.0.0	13.10.0
EEP	EN	<i>Panthera leo</i>	Lion	2.4.0	0.2.0	0.0.0	0.2.0	0.0.0	2.4.0
EEP	CR	<i>Panthera tigris</i>	Tiger	2.3.0	0.0.0	0.0.0	0.0.0	0.0.0	2.3.0
	LC	<i>Suricata suricatta</i>	Slender-tailed meerkat	6.2.5	0.0.0	0.0.0	4.0.5	0.0.0	2.2.0
	LC	<i>Halichoerus grypus</i>	Grey seal	0.1.0	0.0.0	0.0.0	0.0.0	0.0.0	0.1.0
	LC	<i>Phoca vitulina</i>	Harbor seal	0.1.0	0.0.0	0.0.0	0.0.0	0.0.0	0.1.0
EEP	VU	<i>Ailurus fulgens</i>	Red panda	3.2.0	0.0.0	0.0.0	1.0.0	2.0.0	0.2.0

	IUCN Status	SPECIES		Beginning	Births	Acquisitions	Dead	Dispositions	Ending
		PERISSODACTYLA	ODD-TOED UNGULATES						
	LC	<i>Equus burchellii</i>	Plains zebra	3.2.0	0.0.0	0.0.0	0.0.0	0.0.0	3.2.0
EEP	VU	<i>Tapirus terrestris</i>	South American tapir	3.2.0	0.0.0	0.0.0	0.0.0	0.0.0	3.2.0
EEP	VU	<i>Rhinoceros unicornis</i>	One-horned rhinoceros	2.0.0	0.0.0	0.0.0	0.0.0	0.0.0	2.0.0
		ARTIODACTYLA	EVEN-TOED UNGULATES						
EEP	CR	<i>Sus cebifrons</i>	Visayan warty pig	1.1.0	0.0.0	0.0.0	0.0.0	0.0.0	1.1.0
EEP	EN	<i>Rusa alfredi</i>	Alfred's spotted deer	0.3.0	0.0.0	0.0.0	0.1.0	0.0.0	0.2.0
EEP	VU	<i>Giraffa camelopardalis</i>	Giraffe	4.9.0	0.0.0	0.0.0	1.0.0	0.0.0	3.9.0
EEP	VU	<i>Bison bonasus</i>	European wisent	4.8.0	1.2.0	0.0.0	0.0.0	0.0.0	5.10.0
EEP	EW	<i>Oryx dammah</i>	Scimitar-horned oryx	4.8.0	2.2.0	0.0.0	0.1.0	0.0.0	6.9.0
ESB	VU	<i>Kobus leche</i>	Southern lechwe	4.10.0	3.0.1	0.0.0	3.1.1	0.0.0	4.9.0
		TOTAL		224.237.677	14.15.25	5.7.17	14.15.36	5.10.0	224.234.683

* = Group Inventory Counts Included In Row
** = Colony counts included in Row
+ = Both Group and Colony counts included in Row



THE ZOOLOGICAL SOCIETY OF IRELAND

**(A company limited by guarantee and
not having a share capital)**

**Reports and Consolidated
Financial Statements
for the financial year ended
31 December 2018**

Registered number: 207824

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THE ZOOLOGICAL SOCIETY OF IRELAND

MEMBERS OF COUNCIL AND OTHER INFORMATION

Members of Council:

Council president

Michael Daly

Immediate past president

Tom Dunphy

Ordinary Council members

Dorothy Kilroy
Paul Burke Kennedy
Martin O'Grady
Nigel Bell
Ann Keenan
James McMonagle
John McMahon
Carmel O'Connor
Andy Beer

Other information:

Past presidents

Michael O'Grady FCIPD
Seán Cromien BA, MRIA, FNCI, F (Mgt), IMI, FZSI
Joseph McCullough BE, C Eng, FZSI
Michael MacNulty MBA (Harvard)
Derek McClean
Margaret Sininan
Tom Dunphy

Vice president

N/A

Honorary secretary

Dorothy Kilroy

Honorary treasurer

Nigel Bell

Secretary and registered office

John Sweeney
The Zoological Gardens, Phoenix Park, Dublin 8

(A company limited by guarantee and not having a share capital)

MEMBERS OF COUNCIL AND OTHER INFORMATION *(Continued)*

Auditors

Deloitte Ireland LLP
Chartered Accountants and Statutory Audit Firm
Deloitte & Touche House
Earlsfort Terrace
Dublin 2

Bankers

Ulster Bank Limited, 33 College Green, Dublin 2

Bank of Ireland, 2 College Green, Dublin 2

AIB, 66 South Mall, Cork

Solicitors

Mason Hayes & Curran,
South Bank House, Barrow Street, Dublin 4

Ronan Daly Jermyn & Company, 12 South Mall, Cork

Kilroy Solicitors, 66 Leeson Street Lower, Dublin 2

Charity Number

CHY2964

Company Number

207824

THE ZOOLOGICAL SOCIETY OF IRELAND

COUNCIL'S REPORT

The Council presents its annual report together with the audited consolidated financial statements for the financial year ended 31 December 2018.

Consolidation

These accounts form the Consolidated Accounts of the Zoological Society of Ireland which includes the results of both Dublin Zoo and Fota Wildlife Park for the financial year ended 31 December 2018.

Principal activities, business review and future developments

The principal activities of The Zoological Society of Ireland (“the Society”) are:

- (a) The operation of a Zoo in the Phoenix Park, Dublin.
- (b) To maintain the Fota Wildlife Park.
- (c) To promote the conservation of wildlife generally worldwide by advancing the study of environmental sciences and knowledge of zoology through science and scientific education.

The attendance for the financial year ended 31 December 2018 at Dublin Zoo was 1,019,910 (2017: 1,108,728), there was also a special cultural event that had 210,235 visitors. This was the Eighth year in a row that Dublin Zoo has had visitation surpassing the one million mark. The attendance at Fota Wildlife Park for the financial year ended 31 December 2018 was 424,889. (2017: 455,559).

The Council do not foresee any significant change to the operations in the short term.

Principal risks and uncertainties

The Council considers that the principal risks and uncertainties to the Society relate to weather conditions affecting visitor numbers, uncertainty impacting on the Society relating to an outbreak of animal disease and changes in the economic environment.

Results for the financial year

The results for the financial year and state of affairs of the Group are set out in the consolidated income and expenditure account, the statement of comprehensive income and balance sheet on pages 73, 74 and 75 respectively.

Council and Secretary

The members of Council, who served at any time during the financial year except as noted, were as follows:

Tom Dunphy	Ann Keenan
Dorothy Kilroy	James McMonagle
Paul Burke Kennedy	John McMahon
Martin O’Grady	Carmel O’Connor
Michael Daly	Andy Beer
Nigel Bell	

Secretary:

John Sweeney

Martin O’Grady sadly passed away in early 2018. Carmel O’Connor was appointed as a director on 22 March 2018, Andy Beer was appointed as a director on 25 October 2018.

Legal status

The Society is limited by guarantee and has no share capital.

Subsidiaries

The statutory information concerning subsidiary undertakings is provided in Note 9 to the financial statements.

Governance

The Society is governed by a Council of directors, who under the Society’s Articles of Association, are not entitled to remuneration for their services. The members of Council bring their varied experience in their respective fields to bear on guiding the Society. The members of Council are legally responsible for the overall control and management of the Society.

The Council delegates the management of the day to day operation of the Society and Fota Wildlife Park, the implementation of policy and strategy to the Directors (Chief Executives) of Dublin Zoo and Fota Wildlife Park. The executive management teams, chaired by the Directors and consisting of key senior executives, is the main day to day decision making forum of the Society and

Fota Wildlife Park.

The Council believe that committing to a high level of corporate governance is essential to achieving the optimal standard of operation of the Society’s activities. To accomplish this, the Society has a competent executive team. There is clear division of responsibility with the Council retaining control of major decisions, with the Director responsible for devising strategy and policy within authority delegated to him by the Council. The Council is responsible for providing leadership, setting strategy and ensuring control.

The Society has a clear and detailed process for reporting management information to the Council. The Council is provided with regular information, which includes key performance and risk indicators for all aspects of the organisation. The Council meets regularly as required and met 9 times during 2018.

The Council recognise their overall responsibility for the Society’s systems of internal control and for reviewing their effectiveness. They have delegated responsibility for the implementation of this system to the executive team. This system includes financial controls, which enable the Council to meet its responsibilities for the integrity and accuracy of the Society’s accounting records.

The Council is supported by a number of sub-committees (not confined to Council members) established for good governance, as follows:

THE ZOOLOGICAL SOCIETY OF IRELAND

Finance Committee

The function of the Committee is to review internal financial controls, treasury. The Committee liaises with the external auditors and reports directly to the Council. It also monitors and reviews the financial performance, including remuneration issues of the Society.

Governance Committee

The function of the Nominations Committee is to ensure that the composition of the Council and its Committees have the appropriate skills, knowledge and experience. It also ensures that there is effective succession planning.

Conservation & Research Committee

The responsibility of this Committee is to oversee conservation and research projects undertaken and supported by the Society.

Ethics Committee

The Ethics Committee was established to provide guidance and advice on all ethical matters that may arise. The Committee comprises members of the Council, the Zoo Director and some external appointments.

Programme Committee

The responsibility of this Committee is to oversee management processes and ensure that any changes and improvements are implemented. The Committee comprises three members of Council.

Risk Committee

The responsibility of this Committee is to oversee the health and safety function and ensure that any changes and improvements are implemented. The Committee comprises three members of Council and the Zoo Director.

Accounting Records

The measures that the directors have taken to secure compliance with the requirements of sections 281 to 285 of the Companies Act 2014 with regard to the keeping of accounting records, are the employment of appropriately qualified accounting personnel and the maintenance of computerised accounting systems. The company's accounting records are maintained at the Society's registered office in The Zoological Gardens, Phoenix Park, Dublin 8.

Post Balance Sheet Events

No significant events have taken place since the financial year end that would result in adjustment to the financial statements or inclusion of a note thereto.

Health and Safety Policy

The Society has prepared a health and safety policy which is being complied with and satisfactorily operated.

Political Donations

The Society did not make any political donations during the financial year, which require disclosure in accordance with the Electoral Act, 1997.

Going Concern

Further details regarding the adoption of the going concern basis can be found in Note 1.

Statement On Relevant Audit Information

Each of the persons who are directors at the time when this Directors' report is approved has confirmed that:

So far as each of the directors in office at the date of approval of the financial statements is aware:

- There is no relevant audit information of which the Company's auditors are unaware; and
- The Council Members have taken all the steps that they ought to have taken as Council Members in order to make themselves aware of any relevant audit information and to establish that the Company's auditors are aware of that information.

Auditors

The auditors, Deloitte Ireland LLP, Chartered Accountants and Statutory Audit Firm, continue in office in accordance with Section 383(2) of the Companies Act 2014.

Approved by the Board and signed on its behalf by:

Michael Daly
Council President

Nigel Bell
Honorary Treasurer

Date: 20th June 2019

COUNCIL'S RESPONSIBILITIES STATEMENT

The directors are responsible for preparing the directors' report and the financial statements in accordance with the Companies Act 2014.

Irish company law requires the directors to prepare financial statements for each financial year. Under the law, the directors have elected to prepare the financial statements in accordance with FRS 102 The Financial Reporting Standard applicable in the UK and Republic of Ireland issued by the Financial Reporting Council ("relevant financial reporting framework"). Under company law, the directors must not approve the financial statements unless they are satisfied that they give a true and fair view of the assets, liabilities and financial position of the company as at the financial year end date and of the profit or loss of the company for the financial year and otherwise comply with the Companies Act 2014.

In preparing those financial statements, the directors are required to:

- Select suitable accounting policies for the Company Financial Statements and then apply them consistently;
- Make judgements and estimates that are reasonable

THE ZOOLOGICAL SOCIETY OF IRELAND

and prudent;

- State whether the financial statements have been prepared in accordance with the applicable accounting standards, identify those standards, and note the effect and the reasons for any material departure from those standards; and
- Prepare the financial statements on the going concern basis unless it is inappropriate to presume that the company will continue in business.

The directors are responsible for ensuring that the company keeps or causes to be kept adequate accounting records which correctly explain and record the transactions of the company, enable at any time the assets, liabilities, financial position and profit or loss of the company to be determined with reasonable accuracy, enable them to ensure that the financial statements and directors' report comply with the Companies Act 2014 and enable the financial statements to be audited.

They are also responsible for safeguarding the assets of the company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF THE ZOOLOGICAL SOCIETY OF IRELAND

(A company limited by guarantee and not having a share capital)

Report on the audit of the financial statements

Opinion on the financial statements of The Zoological Society of Ireland (A company limited by guarantee and

not having a share capital) (the 'company')

In our opinion the group and parent company financial statements:

- Give a true and fair view of the assets, liabilities and financial position of the group and parent company as at 31 December 2018 and of the profit of the group and parent company for the financial year then ended; and
- Have been properly prepared in accordance with the relevant financial reporting framework and, in particular, with the requirements of the Companies Act 2014.

The financial statements we have audited comprise:

The group financial statements:

- The Consolidated Income and Expenditure Account;
- The Consolidated Statement of Comprehensive Income;
- The Consolidated Balance Sheet;
- The Consolidated Statement of Changes in Equity;
- The Consolidated Statement of Cash Flows; and
- The related notes 1 to 19, including a summary of significant accounting policies as set out in note 1.

The parent company financial statements:

- The Balance Sheet;
- The Statement of Changes in Equity; and
- The related notes 1 to 19, including a summary of significant accounting policies as set out in note 1.

The relevant financial reporting framework that has been applied in the preparation of the group financial statements is the Companies Act 2014 and FRS 102 “The Financial Reporting Standard applicable in the UK and Republic of Ireland” issued by the Financial Reporting Council (“the relevant financial reporting framework”). The relevant financial reporting framework that has been applied in the preparation of the parent company financial statements is the Companies Act 2014 and FRS 102 “The Financial Reporting Standard applicable in the UK and Republic of Ireland” issued by the Financial Reporting Council.

Basis for Opinion

We conducted our audit in accordance with International Standards on Auditing (Ireland) (ISAs (Ireland)) and applicable law. Our responsibilities under those standards are described below in the “Auditor’s responsibilities for the audit of the financial statements” section of our report.

We are independent of the group and parent company in accordance with the ethical requirements that are relevant to our audit of the financial statements in Ireland, including the Ethical Standard issued by the Irish Auditing and Accounting Supervisory Authority, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Conclusions Relating to Going Concern

We have nothing to report in respect of the following

matters in relation to which ISAs (Ireland) require us to report to you where:

- The directors’ use of the going concern basis of accounting in preparation of the financial statements is not appropriate; or
- The directors have not disclosed in the financial statements any identified material uncertainties that may cast significant doubt about the group or parent company’s ability to continue to adopt the going concern basis of accounting for a period of at least twelve months from the date when the financial statements are authorised for issue.

Other Information

The directors are responsible for the other information. The other information comprises the information included in the Reports and Consolidated Financial Statements for the financial year ended 31 December 2018, other than the financial statements and our auditor’s report thereon. Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material

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misstatement in the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

Responsibilities of directors

As explained more fully in the Council's Responsibilities Statement, the directors are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view and otherwise comply with the Companies Act 2014, and for such internal control as the directors determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the directors are responsible for assessing the group and parent company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the group and parent company or to cease operations, or have no realistic alternative but to do so.

Auditor's responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from

material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (Ireland) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with ISAs (Ireland), we exercise professional judgment and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the group and parent company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the directors.

- Conclude on the appropriateness of the directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the group and parent company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of the auditor's report. However, future events or conditions may cause the entity (or where relevant, the group) to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the business activities within the group to express an opinion on the (consolidated) financial statements. The group auditor is responsible for the direction, supervision and performance of the group audit. The group auditor remains solely responsible for the audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that the auditor identifies during the audit.

This report is made solely to the company's members, as a body, in accordance with Section 391 of the Companies Act 2014. Our audit work has been undertaken so that we might state to the company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the company and the company's members as a body, for our audit work, for this report, or for the opinions we have formed.

Report on other legal and regulatory requirements

Opinion on other matters prescribed by the Companies Act 2014

Based solely on the work undertaken in the course of the audit, we report that:

- We have obtained all the information and explanations which we consider necessary for the purposes of our audit.
- In our opinion the accounting records of the parent company were sufficient to permit the financial statements to be readily and properly audited.
- The parent company financial statements are in agreement with the accounting records.
- In our opinion the information given in the directors' report is consistent with the financial statements and the directors' report has been prepared in accordance with the Companies Act 2014.

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Matters on which we are required to report by exception

Based on the knowledge and understanding of the group and the parent company and its environment obtained in the course of the audit, we have not identified material misstatements in the directors' report.

We have nothing to report in respect of the provisions in the Companies Act 2014 which require us to report to you if, in our opinion, the disclosures of directors' remuneration and transactions specified by law are not made.

Richard Howard

For and on behalf of Deloitte Ireland LLP

Chartered Accountants and Statutory Audit Firm

Deloitte & Touche House, Earlsfort Terrace, Dublin 2

Date: 20th June 2019

(A company limited by guarantee and not having a share capital)

CONSOLIDATED INCOME AND EXPENDITURE ACCOUNT FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018

	Notes	2018 €'000	2017 €'000
INCOME	3	20,759	21,439
EXPENDITURE			
Operating costs		(19,188)	(17,932)
Administration expenses		(806)	(892)
TOTAL EXPENDITURE		(19,994)	(18,824)
OPERATING SURPLUS	5	765	2,615
Interest payable	6	(25)	(46)
Interest income	6	14	8
Amortisation of government grants	14	32	32
SURPLUS FOR THE FINANCIAL YEAR		786	2,609

THE ZOOLOGICAL SOCIETY OF IRELAND

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018

	Notes	2018 €'000	2017 €'000
SURPLUS FOR THE FINANCIAL YEAR		786	2,609
Remeasurement of net defined benefit asset	15	<u>—</u>	<u>—</u>
TOTAL COMPREHENSIVE INCOME		<u>786</u>	<u>2,609</u>

(A company limited by guarantee and not having a share capital)

CONSOLIDATED BALANCE SHEET AS AT 31 DECEMBER 2018

		2018	2017
		€'000	€'000
FIXED ASSETS	Notes		
Tangible assets	8	<u>28,363</u>	<u>25,973</u>
CURRENT ASSETS			
Stocks	10	302	273
Debtors	11	958	968
Cash at bank and in hand			
– Restricted - OPW grant	12	30	30
– Unrestricted		<u>6,174</u>	<u>7,085</u>
		<u>7,464</u>	<u>8,356</u>
CREDITORS: (Amounts falling due within one year)	12	<u>(5,876)</u>	<u>(5,012)</u>
NET CURRENT ASSETS		<u>1,588</u>	<u>3,344</u>
TOTAL ASSETS LESS CURRENT LIABILITIES		29,951	29,317
CREDITORS: (Amounts falling due after more than one year)	13	(0)	(120)
OTHER DEFERRED GRANTS	14	<u>(315)</u>	<u>(347)</u>
NET ASSETS EXCLUDING PENSION		<u>29,636</u>	<u>28,850</u>
Pension asset	15	<u>279</u>	<u>279</u>
NET ASSETS INCLUDING PENSION ASSET		<u><u>29,915</u></u>	<u><u>29,129</u></u>

THE ZOOLOGICAL SOCIETY OF IRELAND

Represented by:

Accumulated surplus	8,643	7,857
Development reserve	19,000	19,000
Emergency reserve	2,272	2,272
	<u>29,915</u>	<u>29,129</u>

The financial statements were approved and authorised for issue by the Board of Directors on 24 May 2018 and signed on its behalf by:

Michael Daly
Council President

Nigel Bell
Honorary Treasurer

(A company limited by guarantee and not having a share capital)

COMPANY BALANCE SHEET AS AT 31 DECEMBER 2018 (Continued)

	Notes	2018 €'000	2017 €'000
FIXED ASSETS			
Tangible assets	8	17,811	15,562
Financial assets	9	500	500
		<u> </u>	<u> </u>
			16,062
CURRENT ASSETS			
Stocks	10	170	179
Debtors			
– Due within one year	11	1,169	995
– Due after one year	11	300	500
Cash at bank and in hand:			
– Restricted - OPW grant	12	30	30
– Unrestricted		4,999	5,976
		<u> </u>	<u> </u>
		6,668	7,680
CREDITORS: (Amounts falling due within one year)	12	(4,451)	(3,723)
		<u> </u>	<u> </u>
Net current assets excluding pension asset		2,217	3,957
Pension asset	15	167	167
		<u> </u>	<u> </u>
Net current assets including pension asset		2,384	4,124
		<u> </u>	<u> </u>
NET ASSETS		20,695	20,186
		<u> </u>	<u> </u>
Represented by:			
Accumulated surplus		7,448	6,939
Development reserve		10,975	10,975
Emergency reserve		2,272	2,272
		<u> </u>	<u> </u>
		20,695	20,186
		<u> </u>	<u> </u>

THE ZOOLOGICAL SOCIETY OF IRELAND

The financial statements were approved and authorised for issue by the Board of Directors on 24 May 2018 and signed on its behalf by:

Michael Daly

Council President

Nigel Bell

Honorary Treasurer

(A company limited by guarantee and not having a share capital)

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018

Notes	Development	Emergency	Accumulated	Total
	Reserve	Reserve	Surplus	
	€'000	€'000	€'000	€'000
Balance at 1 January 2017	19,000	2,268	5,252	26,520
Surplus for the financial year	–	–	2,609	2,609
Transfers between reserves	–	4	(4)	–
At 31 December 2017	19,000	2,272	7,857	29,129
Surplus for the financial year	–	–	786	786
Transfers between reserves	–	–	–	–
At 31 December 2018	19,000	2,272	8,643	29,915

The Council members continue to monitor the strategic development of the Zoo & park facilities and have set aside funds to finance future capital investment projects in the emergency reserve.

THE ZOOLOGICAL SOCIETY OF IRELAND

COMPANY STATEMENT OF CHANGES IN EQUITY FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018

	Notes	Development	Emergency	Accumulated	Total
		Reserve	Reserve	Surplus	
		€'000	€'000	€'000	€'000
Balance at 1 January 2017		10,975	2,268	8,985	18,384
Surplus for the financial year		–	–	1,802	1,802
Transfers between reserves		–	4	(4)	–
		<u>10,975</u>	<u>2,272</u>	<u>6,939</u>	<u>20,186</u>
At 31 December 2017		10,975	2,272	6,939	20,186
Surplus for the financial year		–	–	509	509
Transfers between reserves		–	–	–	–
		<u>–</u>	<u>–</u>	<u>–</u>	<u>–</u>
At 31 December 2018		<u>10,975</u>	<u>2,272</u>	<u>7,448</u>	<u>20,695</u>

The Council members continue to monitor the strategic development of Dublin Zoo and have set aside funds to finance future capital investment projects in the emergency reserve.

CONSOLIDATED STATEMENT OF CASH FLOWS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018

	Notes	2018 €'000	2017 €'000
NET CASH INFLOW FROM OPERATING ACTIVITIES	17	4,627	6,231
Cash flows from investing activities			
Payment to acquire tangible fixed assets		(5,317)	(5,149)
Interest received		14	8
Interest paid		(25)	(46)
Net cash outflow from investing activities		(5,328)	(5,187)
Cash flows from investing activities			
Repayment of bank loan		(210)	(210)
Net cash inflow from financing activities		(210)	(210)
DECREASE IN CASH IN THE FINANCIAL YEAR	17	(911)	834
Cash and cash equivalents at beginning of financial year		7,115	6,281
Cash and cash equivalents at end of financial year		6,204	7,115

THE ZOOLOGICAL SOCIETY OF IRELAND

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018

1. ACCOUNTING POLICIES

The principal accounting policies are summarised below. They have all been applied consistently throughout the current and the preceding financial year.

General Information and Basis of Accounting

The Zoological Society of Ireland is a company incorporated in Ireland under the Companies Act 2014. The address of the registered office is given on page 2. The nature of the company's operations and its principal activities are set out in the Council's report on pages 4 to 7.

The financial statements have been prepared under the historical cost convention and in accordance with the Companies Act 2014 and Financial Reporting Standard 102 (FRS 102) issued by the Financial Reporting Council. The consolidated financial statements incorporate the financial statements of the company and its subsidiary undertaking for the financial year ended 31 December 2018.

The functional currency of the Zoological Society of Ireland is considered to be Euro because that is the currency of the primary economic environment in which the company operates.

Income

Income comprises annual pass and membership subscriptions relating to the current period. Where subscriptions are received in advance, they are included in deferred income in creditors and released to the income and expenditure account in the relevant period.

Life membership subscriptions are amortised to the income and expenditure account based on the estimated useful life of membership which is considered ten years.

Other income comprises the value of sales, excluding VAT and discounts, to third parties and is recognised once the related goods or services are provided to customers.

Foreign Currencies

Transactions in foreign currencies are recorded at the rate at the date of the transaction. Monetary assets and liabilities denominated in foreign currencies at the balance sheet date are reported at the rates of exchange prevailing at that date. Exchange differences are recognised in the income and expenditure account in the period in which they arise.

Taxation

Dublin Zoo is regarded by the Revenue Commissioners as established for charitable purposes and, accordingly, is exempt from corporation tax.

Tangible Fixed Assets and Depreciation

Tangible fixed assets are stated at cost less accumulated depreciation and any provision for impairment. The charge for depreciation is calculated to write down the cost of tangible fixed assets to their estimated residual values by equal annual instalments over their expected useful lives as follows:

Plant, machinery and equipment	20%
Computer equipment and software	33 ⅓%
Motor vehicles	20%
Habitats	10%

Land and assets under construction are not depreciated.

Residual value represents the estimated amount which would currently be obtained from disposal of an asset, after deducting estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its useful life.

An asset is impaired where there is objective evidence that, as a result of one or more events that occurred after initial recognition, the estimated recoverable value of the asset has been reduced to below its carrying amount. The recoverable amount of an asset is the higher of its fair value less costs to sell and its value in use.

Where indicators exist for a decrease in impairment loss, the prior impairment loss is tested to determine reversal. An impairment loss is reversed on an individual impaired asset to the extent that the revised recoverable value does not lead to a revised carrying amount higher than the

carrying value had no impairment been recognised.

Financial Fixed Assets

Investment in subsidiary is stated at cost less provision for impairment. An asset is impaired where there is objective evidence that, as a result of one or more events that occurred after initial recognition, the estimated recoverable value of the asset has been reduced to below its carrying amount.

Where indicators exist for a decrease in impairment loss, the prior impairment loss is tested to determine reversal. An impairment loss is reversed on an individual impaired asset to the extent that the revised recoverable value does not lead to a revised carrying amount higher than the carrying value had no impairment been recognised.

Government Support

The land in the Phoenix Park occupied by the Zoo (“the Society”) is used under a licence from the State, the Society being a tenant at will. No value is reflected in these financial statements in respect of this licence or this land.

The Government Capital Investment Programme in the Society is provided and accounted for by the Office of Public Works (OPW) and any related assets are therefore excluded in these financial statements. The accounts of the Society reflect only its disbursements for the OPW under this programme. The facilities provided under this Programme are used by the Society under licence from the State.

THE ZOOLOGICAL SOCIETY OF IRELAND

Other Government grants in respect of capital expenditure are credited to a deferred grant account and are amortised to the income and expenditure account by equal annual instalments over the expected useful lives of the related assets.

Leases

Rentals under operating leases are charged on a straight-line basis over the lease term, even if the payments are not made on such a basis. Benefits received and receivable as an incentive to sign an operating lease are similarly spread on a straight-line basis over the lease term.

Animals

No value is placed on the animals belonging to the Society.

Stocks

Stocks, other than animals, are stated at the lower of cost and net realisable value.

Grants

Capital grants are accounted for in the financial year in which they are received and credited to the Income and Expenditure Account on the same basis as the related fixed assets are depreciated.

Retirement Benefits

For defined benefit schemes the amounts charged to the operating surplus are the costs arising from employee services rendered during the period and the cost of plan introductions, benefit changes, settlements and curtailments. They are included as part of staff costs. The net interest cost on the net defined asset/liability is charged to the income and expenditure account. Remeasurement comprising actuarial gains and losses and the return on scheme (excluding amounts included in net interest on the net defined benefit asset/liability) are recognised immediately in other comprehensive income.

A defined benefit scheme is funded, with the assets of the scheme held separately from those of the Society, in separate trustee administered funds. Pension scheme assets are measured at fair value and liabilities are measured on an actuarial basis using the projected unit method. The actuarial valuations are obtained at least triennially and are updated at each balance sheet date.

For the defined contribution scheme the amount charged to the income and expenditure account in respect of pension costs and other post-retirement benefits is the contributions payable in the year. Differences between contributions payable in the year and contributions actually paid are shown as either accruals or prepayments in the balance sheet.

Financial Instruments

Financial assets and financial liabilities are recognised when the company becomes a party to the contractual provisions of the instrument. Financial liabilities are classified according to the substance of the contractual arrangements entered into.

All financial assets and liabilities are initially measured at transaction price (including transaction costs), except for those financial assets classified as at fair value through the income and expenditure account, which are initially measured at fair value (which is normally the transaction price excluding transaction costs), unless the arrangement constitutes a financing transaction. If an arrangement constitutes a financing transaction, the financial asset or financial liability is measured at the present value of the future payments discounted at a market rate of interest for a similar debt instrument.

Financial assets and liabilities are only offset in the statement of financial position when, and only when there exists a legally enforceable right to set off the recognised amounts and the company intends either to settle on a net basis, or to realise the asset and settle the liability simultaneously.

Financial assets are derecognised when and only when a) the contractual rights to the cash flows from the financial asset expire or are settled, b) the company transfers to another party substantially all of the risks and rewards of ownership of the financial asset, or c) the company, despite having retained some, but not all, significant risks and

rewards of ownership, has transferred control of the asset to another party. Financial liabilities are derecognised only when the obligation specified in the contract is discharged, cancelled or expires.

Financial assets and liabilities that are classified as receivable or payable within one year on initial recognition are measured at the undiscounted amount of the consideration expected to be received or paid, net of impairment.

Non-current bank debt is measured at amortised cost using the effective interest method.

Going Concern

Based on budgets and cashflow projections, the Council has a reasonable expectation that the company can meet all liabilities for a period of not less than twelve months from the date of approval of the financial statements. Accordingly, the Council have prepared the financial statements of the company on a going concern basis.

2. CRITICAL ACCOUNTING JUDGEMENTS AND KEY SOURCES OF ESTIMATION UNCERTAINTY

In the application of accounting policies, which are described in note 1, the Council members are required to make judgements, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual

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results may differ from these estimates. The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period or in the period of the revision and future periods if the revision affects both current and future periods.

The following are the critical judgements and estimates that the Council members have made in the process of applying the accounting policies and that have the most significant effect on the amounts recognised in the financial statements:

Retirement Benefit Obligations

The estimation of and accounting for retirement benefit obligations involves judgements made in conjunction with independent actuaries. There are estimates in respect of life expectancy of scheme members, increase in salaries, inflation as well as discount rates. The assumptions used are disclosed in note 15.

Provisions

The company provides for defective stock and stock losses. The amount recognised as a provision is the best estimate of the stock write off required based on historical evidence.

Useful economic lives

The annual depreciation charge for tangible fixed assets is sensitive to changes in the estimated useful economic

lives and residual values of the assets. Determination of appropriate useful economic lives is a key judgement and the useful economic lives and residual values are re-assessed annually. They are amended when necessary to reflect current estimates, based on technological advancement, future investments, economic utilisation and the physical condition of the assets.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

3. INCOME	2018	2017
Income arises from the following activities undertaken wholly within Ireland.	€'000	€'000
Gate receipt income	14,054	14,171
Annual pass and membership income	2,733	2,775
Shop income	2,720	2,797
Other income	1,252	1,696
	<u>20,759</u>	<u>21,439</u>

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

4. EMPLOYEE INFORMATION

	2018	2017
Staff numbers and costs		
Average number of employees:		
Management	10	10
Administration	26	26
General staff		
– full time	98	95
– part time	12	11
Shop	21	20
	<u>167</u>	<u>162</u>

The aggregate payroll costs of these persons were as follows	2018	2017
	€'000	€'000
Wages and salaries	6,163	5,859
Social welfare costs	753	679
Retirement benefit costs (Note 15)	282	144
	<u>7,198</u>	<u>6,682</u>

The total remuneration for thirteen key management personnel for the financial year totalled €1,002,828 (2017: €1,067,737 for fourteen key management personnel)

All payroll costs were expensed during the current and prior financial year.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

5. OPERATING SURPLUS	2018	2017
The operating surplus is stated after charging:	€'000	€'000
Remuneration of Council members	–	–
Auditor's remuneration in respect of		
• the audit of the entity	22	19
• the audit of subsidiary entity	8	7
• tax services	30	12
• other services	–	–
Depreciation	3,017	2,541
Operating lease charges	25	6

Under the Society's Articles of Association, Council members are not entitled to remuneration. Auditor's remuneration is disclosed net of VAT.

6. INTEREST	2018	2017
Interest payable	€'000	€'000
On bank loans due within five years	25	46

	2018	2017
Interest income	€'000	€'000
Deposit interest	14	8
	14	8

7. TAXATION

No liability to taxation arose during the financial year as the Society is exempt from corporation tax.

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

8 . TANGIBLE FIXED ASSETS

Group

	Land €'000	Plant Machinery & Equipment €'000	Computer Equipment €'000	Motor Vehicles €'000	Buildings & Habitats €'000	Total €'000
Cost:						
At 1 January 2018	191	4,141	1,071	553	35,644	41,600
Additions	–	123	45	29	5,210	5,407
At 31 December 2018	191	4,264	1,116	582	40,854	47,007
Depreciation:						
At 1 January 2018	–	3,595	1,061	432	10,539	15,627
Charge for financial year	–	222	18	27	2,750	3,017
At 31 December 2018	–	3,817	1,079	459	13,289	18,644
Net Book Value:						
At 31 December 2018	191	447	37	123	27,565	28,363
At 31 December 2017	191	546	10	121	25,105	25,973

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

8. TANGIBLE FIXED ASSETS (Continued)

Company	Land €'000	Plant Machinery & equipment €'000	Computer equipment €'000	Motor vehicles €'000	Buildings & Habitats €'000	Total €'000
Cost:						
At 1 January 2018	191	1,932	1,071	246	22,013	25,453
Additions	–	80	45	1	4,505	4,631
At 31 December 2018	191	2,012	1,116	247	26,518	30,084
Depreciation:						
At 1 January 2018	–	1,736	1,061	242	6,852	9,891
Charge for financial year	–	64	18	2	2,298	2,382
At 31 December 2018	–	1,800	1,079	244	9,150	12,273
Net Book Value:						
At 31 December 2018	191	212	37	3	17,368	17,811
At 31 December 2017	191	196	10	4	15,161	15,562

Included in habitats at 31 December 2018 are assets under construction which amounted to €881,597.

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

9 . FINANCIAL ASSETS

Company	2018 €'000	2017 €'000
At beginning and end of financial year	<u>500</u>	<u>500</u>

The Society's financial asset comprises its investment in Fota Wildlife Park Limited ("Fota"), a company limited by guarantee. Fota is accounted for as a subsidiary undertaking as the Society is a member of Fota Wildlife Park Limited and has the power to appoint a majority of the Governors of the Fota Board.

Details in respect of Fota are set out below:

Name and registered office	Country of Incorporation	Principal activity
Fota Wildlife Park Limited	Ireland	Operation of a wildlife park

In respect of prior financial year	2018 €'000	2017 €'000
At beginning and end of financial year	<u>500</u>	<u>500</u>

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

The Society's financial asset comprises its investment in Fota Wildlife Park Limited ("Fota"), a company limited by guarantee. Fota is accounted for as a subsidiary undertaking as the Society is a member of Fota Wildlife Park Limited and has the power to appoint a majority of the Governors of the Fota Board.

Details in respect of Fota are set out below:

Name and registered office	Country of Incorporation	Principal activity
Fota Wildlife Park Limited	Ireland	Operation of a wildlife park

10. STOCKS

	Group		Company	
	2018	2017	2018	2017
	€'000	€'000	€'000	€'000
Shops	278	247	146	153
Consumables	24	26	24	26
	<u>302</u>	<u>273</u>	<u>170</u>	<u>179</u>

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

11. DEBTORS	Group		Company	
	2018 €'000	2017 €'000	2018 €'000	2017 €'000
Amounts falling due within one year:				
Trade debtors	435	505	363	466
Prepayments and other debtors	506	433	397	297
VAT	17	30	–	–
Amounts due from subsidiary	–	–	9	32
Loan to subsidiary	–	–	400	200
	<u>958</u>	<u>968</u>	<u>1,169</u>	<u>995</u>
Amounts falling due after more than one year:				
Loan to subsidiary	–	–	300	500
	<u>–</u>	<u>–</u>	<u>300</u>	<u>500</u>

During the financial year Fota Wildlife Park repaid €200,000.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

12. CREDITORS

(Amounts falling due within one year)

	Group		Company	
	2018	2017	2018	2017
	€'000	€'000	€'000	€'000
Bank loan (Note 13)	120	210	–	–
Trade creditors	2,149	1,447	1,853	1,135
Accruals	587	462	248	284
Deferred income	2,467	2,307	1,900	1,775
PAYE/PRSI	380	422	277	365
VAT	143	134	143	134
	<u>5,846</u>	<u>4,982</u>	<u>4,421</u>	<u>3,693</u>
OPW grant	<u>30</u>	<u>30</u>	<u>30</u>	<u>30</u>
	<u>5,876</u>	<u>5,012</u>	<u>4,451</u>	<u>3,723</u>

In prior periods, the OPW issued grants to the Society. These funds are to be used solely for purposes of development projects authorised by the OPW. All expenditure on such projects is approved by the OPW prior to payment. At 31 December 2018, €30,000 (2017: €30,000) remained unspent from the grant received and has been included in creditors and cash.

	2018	2017
	€'000	€'000
At beginning and end of financial year	<u>30</u>	<u>30</u>

THE ZOOLOGICAL SOCIETY OF IRELAND

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

12. CREDITORS (Amounts falling due within one year) (Continued)

In respect of prior financial year	2017 €'000	2016 €'000
At beginning of financial year	<u>30</u>	<u>30</u>

13. CREDITORS: Amounts falling due after more than one year

	Group	
	2018 €'000	2017 €'000
Bank loan	<u>120</u>	<u>120</u>
Loan maturity analysis:		
	2018	2017
	€'000	€'000
In one year or less, or on demand	120	210
Between two and five years	–	120
After more than five years	<u>–</u>	<u>–</u>
	<u>120</u>	<u>330</u>

The bank loan is repayable in installments over the next five years. It is subject to an interest rate of 1 - 3%

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

14. OTHER DEFERRED GRANTS

	Group	
	2018	2017
	€'000	€'000
Government grants		
Received and receivable:		
At beginning of financial year	835	835
Received during the financial year	—	—
At end of financial year	<u>835</u>	<u>835</u>
Amortisation:		
At beginning of financial year	488	456
Amortised to income and expenditure	32	32
At end of financial year	<u>520</u>	<u>488</u>
At end of financial year	<u>315</u>	<u>347</u>

The total funding received to date of €200,000 from SECAD is subject to terms and conditions and if these are not adhered to, SECAD reserves the right to deem the contract to be invalid and all grant aid shall be immediately repayable.

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

15. RETIREMENT BENEFIT SCHEMES

Group

Defined contribution scheme

The Group operates a defined contribution retirement benefit scheme for all qualifying employees. The total expense charged to income and expenditure in the financial year ended 31 December 2018 was €182,306 (2017: €164,682).

Defined benefit pension scheme

The Group operates a defined benefit pension scheme. Pension costs for the defined benefit pension scheme members are assessed in accordance with the advice of independent qualified actuaries using the projected unit method.

The most recent actuarial valuation of the Group's pension scheme was carried out as at 8 March 2017.

The financial assumptions used to calculate the value of the defined benefit pension scheme's liabilities under FRS 102 are:

	2018	2017
	%	%
Rate of general increase in salaries	3.10	3.10
Rate of increase in pensions in payment	0.00	0.00
Discount rate of scheme liabilities	1.80	1.80
Inflation	<u>1.60</u>	<u>1.50</u>

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

15. RETIREMENT BENEFIT SCHEMES (Continued)

Mortality

No mortality table used pre-retirement (all members assumed to survive to NRA). Post-retirement tables used are 62% PNML 00 (Males) and 70% PNFL 00 (females) plus allowance for future mortality improvements.

Expected Lifetime

The expected lifetime of a participant who is aged 65 and the expected lifetime (from the age 65) of a participant who will be aged 65 in 25 years are shown in years below based on the above mortality tables

AGE	Males	Females
65	21.6	23.6
65 in 25 years	<u>24.5</u>	<u>25.4</u>

Pension Asset

Amounts recognised in the income and expenditure account in respect of the defined benefit pension scheme is as follows:

	2018 €'000	2017 €'000
Current service cost	(54)	(55)
Net interest income	<u>13</u>	<u>5</u>
	<u>(41)</u>	<u>(50)</u>
Recognised in other comprehensive income	<u>—</u>	<u>—</u>
Total cost relating to defined benefit scheme	<u>(41)</u>	<u>(50)</u>

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

15. PENSION ASSET (Continued)

The amount included in the balance sheet arising from the group's obligations in respect of its defined benefit retirement scheme is as follows:

	2018	2017
	€'000	€'000
Fair value of assets	3,805	3,861
Present value of defined benefit obligations	(3,183)	(3,110)
Asset Ceiling	(343)	(472)
Net asset recognised in the balance sheet	<u>279</u>	<u>279</u>

In assessing the carrying value of the defined benefit asset, the council have assessed what value is recoverable by the company in the foreseeable future. On that basis, the value of the asset has been kept at €279,000, reflecting the value of the reduced contributions over the foreseeable future.

Movements in the fair value of scheme assets were as follows:

	2018	2017
	€'000	€'000
At 1 January	3,861	3,720
Contributions	43	83
Benefits paid	(67)	(83)
Expected return on pension scheme assets	69	67
Actual return less expected return on pension scheme assets	(101)	74
At 31 December	<u>3,805</u>	<u>3,861</u>

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

15. PENSION ASSET (Continued)

Movements in the present value of defined benefit obligations were as follows:

	2018	2017
	€'000	€'000
At 1 January	3,110	3,441
Service cost	54	55
Interest cost	56	62
Benefits paid	(67)	(83)
Actuarial loss/(gain)	30	(365)
At 31 December	<u>3,183</u>	<u>3,110</u>

The analysis of the scheme's assets at the balance sheet date was as follows:

	Fair value	Fair value
	at	at
	31 December	31 December
	2018	2017
	€'000	€'000
Equities	896	1,270
Bonds	2,795	2,385
Property	24	32
Other	90	174
Total market value of assets	<u>3,805</u>	<u>3,861</u>

THE ZOOLOGICAL SOCIETY OF IRELAND

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

15. PENSION ASSET (Continued)

Company

Defined contribution scheme

The company operates a defined contribution retirement benefit scheme for all qualifying employees. The total expense charged to income and expenditure in the financial year ended 31 December 2018 was €148,778 (2017: €133,000).

Defined benefit scheme

Dublin Zoo participates in The Zoological Society of Ireland Employee Benefits Plan, a defined benefit scheme which includes employees of both Dublin Zoo and Fota Wildlife Park Limited (Fota). The net defined benefit asset/cost and contributions have been allocated based on an estimate of final pensionable salary of the employees of both Dublin Zoo and Fota.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

15. PENSION ASSET (Continued)

Amounts recognised in the income and expenditure account in respect of the defined benefit pension scheme is as follows:

	2018 €'000	2017 €'000
Current service cost	(32)	(33)
Net interest income	<u>8</u>	<u>3</u>
	<u>(24)</u>	<u>(30)</u>
Recognised in other comprehensive income	<u>(79)</u>	263
Total cost relating to defined benefit scheme	<u>(103)</u>	<u>233</u>

The amount included in the balance sheet arising from the group's obligations in respect of its defined benefit retirement scheme is as follows:

	2018 €'000	2017 €'000
Fair value of assets	2,283	2,317
Present value of defined benefit obligations	(1,910)	(1,866)
Asset Ceiling	<u>(206)</u>	<u>(284)</u>
Net asset recognised in the balance sheet	<u>167</u>	<u>167</u>

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

15. PENSION ASSET (Continued)

Movements in the fair value of scheme assets were as follows:

	2018	2017
	€'000	€'000
At 1 January	2,317	2,232
Contributions	26	50
Benefits paid	(40)	(50)
Expected return on pension scheme assets	41	40
Actual return less expected return on pension scheme assets	(61)	45
	<u>2,283</u>	<u>2,317</u>
At 31 December	<u>2,283</u>	<u>2,317</u>

Movements in the present value of defined benefit obligations were as follows:

	2018	2017
	€'000	€'000
At 1 January	1,866	2,065
Service cost	32	33
Interest cost	34	37
Benefits paid	(40)	(50)
Actuarial loss/(gain)	18	(219)
	<u>1,910</u>	<u>1,866</u>
At 31 December	<u>1,910</u>	<u>1,866</u>

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

16. FINANCIAL INSTRUMENTS

The carrying values of the Group's financial assets and liabilities are summarised by category below:

	2018	2017
	€'000	€'000
Financial assets		
<i>Measured at undiscounted amount receivable</i>		
• Trade and other debtors (Note 11)	<u>920</u>	<u>938</u>
	2018	2017
	€'000	€'000
Financial liabilities		
<i>Measured at amortised cost</i>		
• Bank loans (Note 12 & 13)	120	330
<i>Measured at undiscounted amount payable</i>		
• Trade and other payables (Note 12)	<u>2,178</u>	<u>1,477</u>
	<u>2,298</u>	<u>1,777</u>
	2018	2017
	€'000	€'000
Interest expense		
• Interest expense on financial liabilities measured at amortised cost (Note 6)	<u>25</u>	<u>46</u>

THE ZOOLOGICAL SOCIETY OF IRELAND

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

16. FINANCIAL INSTRUMENTS (Continued)

The carrying values of the company's financial assets and liabilities are summarised by category below:

	2018 €'000	2017 €'000
Financial assets		
<i>Measured at cost less impairment</i>		
• Investment in subsidiary (Note 9)	500	500
<i>Measured at cost less impairment</i>		
• Loan to subsidiary (Note 11)	700	700
<i>Measured at undiscounted amount receivable</i>		
• Trade and other debtors (Note 11)	760	763
• Amount due from subsidiary (Note 11)	9	32
	<u>1,969</u>	<u>1,995</u>

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

16. FINANCIAL INSTRUMENTS (Continued)

	2018	2017
	€'000	€'000
Financial liabilities		
<i>Measured at undiscounted amount payable</i>		
Trade and other payables (Note 12)	<u>1,853</u>	<u>1,135</u>

	2018	2017
	€'000	€'000
Interest income		
• Interest income on financial assets measured at amortised cost	<u>14</u>	<u>8</u>

17. CASH FLOW STATEMENT

Reconciliation of operating surplus to cash generated by operations

	2018	2017
	€'000	€'000
Operating surplus	765	2,615
Depreciation of tangible fixed assets	3,017	2,540
Adjustment for retirement benefit plan	–	–
(Increase)/decrease in stocks	(29)	(38)
Increase in debtors	(10)	(112)
Increase in non OPW creditors	<u>864</u>	<u>1,226</u>
Cash generated by operations	<u>4,627</u>	<u>6,231</u>

THE ZOOLOGICAL SOCIETY OF IRELAND

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

17. CASH FLOW STATEMENT (Continued)

Analysis of movement in net funds

	At beginning of year €'000	Cashflows €'000	At end of year €'000
Cash at bank and in hand	7,115	(911)	6,204
Bank loan	<u>(330)</u>	<u>210</u>	<u>(120)</u>
Net funds	<u>6,785</u>	<u>(701)</u>	<u>6,084</u>

18. COMMITMENTS AND CONTINGENCIES

	2018 €'000	2017 €'000
Authorised and contracted for commitments	3,000	3,700
Authorised but not contracted for commitments	<u>—</u>	<u>—</u>

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018 (Continued)

19. POST BALANCE SHEET EVENTS

There have been no significant events affecting the Zoological Society of Ireland since the year end that would result in an adjustment to the financial statements or inclusion of a note thereto.

20. APPROVAL OF FINANCIAL STATEMENTS

The consolidated financial statements were approved by the Council on 20 June 2019.





*(Above) Asian elephant calf
(Left) Red panda*



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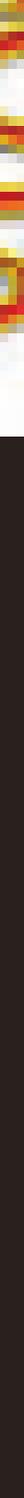
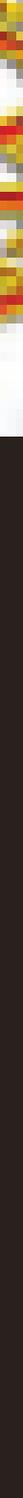
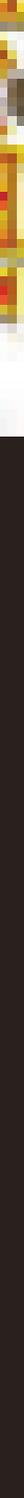
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Annual Report 2018/19 Social Impact

