



Institute
of Zoology

BUSINESS PLAN

2022/23 to 2024/25

zsl.org

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CONTEXT

Our purpose is to understand wildlife ecology in a changing world. We identify threats to biodiversity and develop solutions to global conservation challenges, thus enabling sustainable, healthy societies and ecosystems.

THE NEED FOR IMPACTFUL SCIENCE

Biodiversity is essential for human health and wellbeing. As the extent of human impacts on wildlife and ecosystems becomes clear, a scientific understanding of the processes driving biodiversity loss, the associated threats to human societies, and interventions to address these threats is urgently required. Scientific progress in these areas is key to the development of effective approaches to address biodiversity loss and develop effective solutions for people and the planet.

INTRODUCING THE INSTITUTE OF ZOOLOGY

The Institute of Zoology (IOZ) is a world-leading research organisation, directly addressing global challenges in the field of conservation science. We are the research division of the Zoological Society of London (ZSL), an international conservation NGO that houses living collections at two major zoos (London, Whipsnade), runs on-the-ground conservation programmes in >60 countries, and engages with policy makers and practitioners around the world. The unique position of IOZ as a Higher Education Institute (HEI) within a conservation NGO brings a variety of benefits to its research and amplifies our conservation impact. It also creates a unique research and education environment that allows staff and students to work alongside wildlife conservation professionals, as well as to access ZSL's living collections, providing experiences and opportunities that go beyond their immediate academic disciplines.

IOZ is a small unit by HEI standards. We currently employ 60 research staff, including five Professors, 10 Senior Research Fellows, 14 Research Fellows, and 16 Postdoctoral Research Associates. Yet despite our small size, we have an established record of excellence in research and impact, most recently evidenced by our performance in REF2021. In a joint submission with University College London (UCL) and Birkbeck, University of London, to the Biological Sciences unit of assessment (UoA5), 88.5% of our research outputs were judged as 'world leading' or 'internationally excellent' and 90.9% of our impacts were judged as 'outstanding' or 'very considerable'. In addition, while we only comprised 10% of the staff in this submission (24.2 FTEs), we contributed five of the 11 Impact Case Studies.



AMBITION

WHAT THE INSTITUTE OF ZOOLOGY WILL ACHIEVE

To achieve its purpose, IOZ adopts four routes to delivery:

- **Generating world-leading research**
- **Building capacity through teaching and training**
- **Accelerating the translation of research into impact**
- **Inspiring new, diverse, and existing audiences**

In the next four sections, we outline our planned activities for each route to delivery over the next three years. These activities build on our previous work in these areas (described in the IOZ Business Plan 2019/20–21/22) which we briefly report where relevant, both in the text and through our Key Performance Indicators (KPIs).

GENERATING WORLD-LEADING RESEARCH

CREATING KNOWLEDGE THROUGH RESEARCH

The Institute of Zoology's research focuses strategically on five global Conservation Challenges, where improving our scientific knowledge offers potentially transformative conservation outcomes:

- **Biology and Recovery of Small Populations:** Developing a holistic understanding of small population recovery, including drivers of extinction risk, conservation management and the science to best support the implementation of solutions
- **Co-existence between People and Wildlife:** Developing effective tools that foster biodiversity and human wellbeing in order to attain sustainable development alongside improved nature conservation
- **Global Biodiversity Monitoring:** Developing tools to understand the impact of anthropogenic threats on ecosystem composition, structure and function, as well as on ecosystem stability and generating indicators to track biodiversity loss at the global scale
- **Mitigating and Adapting to Climate Change:** Understanding species and ecosystem vulnerability to the current climate crisis and identifying the best nature-based solutions for the benefit of wildlife and people
- **Wildlife Health:** Identifying, understanding and mitigating wildlife disease threats to biodiversity conservation and to human health and wellbeing

Our research and impact across these five Conservation Challenges is facilitated and enhanced by our **Long-term Programmes**, which are an exceptional asset arising from our Research England Special Funding. They provide us with study systems of the necessary time and depth to explore long-term change, natural and anthropogenic, in wildlife populations and ecosystems.

In this Section, we describe how we will create knowledge in each of our five Conservation Challenges, and develop our Long-term Programmes, over the 2022/23–24/25 period.

For further information on our Conservation Challenges, see Appendix A.

CREATING KNOWLEDGE IN BIOLOGY AND RECOVERY OF SMALL POPULATIONS

We will track conservation interventions that aim to recover small populations to improve our understanding of population recovery, leading to more effective restoration programmes for threatened species. We will work directly to restore a range of species (e.g., island birds in New Zealand, Guam and Mauritius; large carnivores in Africa) as well as on reintroduction programmes for 25 UK native species and will use multiple long-term data sets (>20 years) held at IOZ to understand opportunities and challenges in species recovery. Our priorities will include:

1. Developing a holistic understanding of population recovery that integrates genetic, demographic and socio-ecological processes
2. Developing a library of best-practice case studies to inform recovery programmes
3. Delivering timely comparative reviews to assess correlates of successful and failed programmes in line with new developments in recovery science

In the last three
years, IOZ secured

**>£16
MILLION**
in external
grant income



CREATING KNOWLEDGE IN CO-EXISTENCE BETWEEN PEOPLE AND WILDLIFE

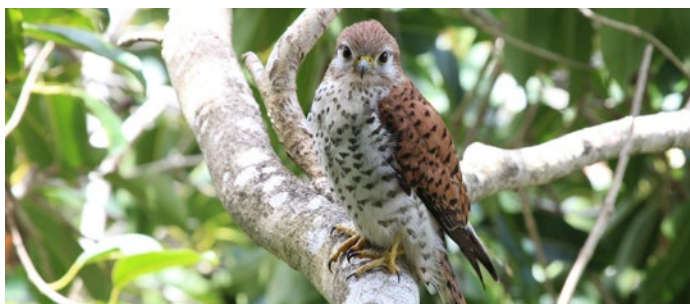
We will develop and implement transdisciplinary work that focuses on the human dimensions of wildlife conservation and strengthen capacity for social science through recruitment, collaborations and Fellowships. This is an important direction of growth for IOZ as a nexus between biodiversity loss, human population growth and increasing global consumption, with the increasing alignment of research and development funding within this area. IOZ is uniquely placed to become a global leader in this space given its transdisciplinary organisational structure and research capabilities, international collaborative long-term projects and relationships with local communities at ZSL's field sites in the UK and abroad. Our priorities will include:

1. Using a multidisciplinary approach to better understand the relationships between people, wildlife and the wider environment
2. Developing holistic approaches to nature conservation that take account of cultural and social contexts, including local knowledge systems
3. Developing and evaluating conservation and development interventions that support coexistence between people and wildlife

CREATING KNOWLEDGE IN GLOBAL BIODIVERSITY MONITORING

We will continue to develop and maintain our Living Planet Index and Red List datasets. These datasets have enabled us to produce leading indicators that have been used to communicate global biodiversity change and monitor progress to international targets (Living Planet Report, 2020; CBD GBO5, 2020). We will continue to develop new tools to monitor biodiversity, including tools for automated identification and classification of data, and tools to automatically process acoustic data and camera trap images. Our priorities will include:

1. Developing, maintaining and expanding our global biodiversity monitoring datasets to produce policy-relevant indicators for the assessment of biodiversity change at regional and global levels
2. Advancing our understanding of the impacts of anthropogenic pressures, threats and conservation activities on ecosystem composition, structure and function and ecosystem stability across global and regional scales
3. Creating and applying new methods and analytical tools to monitor and predict biodiversity trends and ecosystem changes using 'big-data' generated by novel monitoring technologies



Databases supporting four long-term studies were trialled in Kenya, Mauritius, Namibia and New Zealand by field teams and collaborators, and improved through 2019/20–21/22; these are now an integral component of those long-term studies

CREATING KNOWLEDGE IN MITIGATING AND ADAPTING TO CLIMATE CHANGE

We will support efforts to address the impacts of the current climate breakdown on biodiversity. We will do this by capitalising on novel technologies, encouraging collaboration between research disciplines, engaging with society and supporting decision-making processes at local, national and international scales. This will include researching how to best conserve and restore key ecosystems for climate change mitigation and adaptation such as mangrove and peatland forests; assessing climate change vulnerability of, and identifying resilience mechanisms for, key species and ecosystems; and supporting the development of rewilding as a tool to increase ecosystem resilience in a rapidly changing world. Our priorities will include:

1. Improving our ability to predict the ecological and societal impact of species on the move with climate change
2. Identifying evidence-based climate change adaptation practices to safeguard vulnerable wildlife
3. Advancing our understanding of interactions between climate change and other threats to biodiversity for better environmental-management decision making

CREATING KNOWLEDGE IN WILDLIFE HEALTH

We will use established research programmes to advance knowledge of specific systems including: disease threats to amphibians globally; dynamics of zoonotic pathogens in wildlife hosts (e.g. zoonotic bat viruses, bovine tuberculosis in badgers); spillover from wild animal hosts and consequences for human health and wellbeing; managing disease threats to endangered species (e.g. African wild dog, mountain chicken); as well as our Cetacean Strandings Investigation Programme (CSIP); Garden Wildlife Health (GWH) and Disease Risk Analysis and Health Surveillance (DRAHS) projects, which are long-term studies that monitor infectious and non-infectious disease trends in British wildlife and inform in situ mitigation of these health threats. Our priorities will include:

1. Investigating infectious and non-infectious disease as a conservation threat
2. Developing in situ mitigation of disease threats to promote the recovery of threatened populations and the co-existence of wildlife and people
3. Investigating the determinants of cross-species pathogen transmission, including zoonotic disease spillover from wildlife, and the implications of this for the health of wildlife, people and domestic animals

DEVELOPING OUR LONG-TERM PROGRAMMES ON WILDLIFE AND ECOSYSTEMS IN A CHANGING WORLD

Natural and anthropogenic change in wildlife populations and ecosystems can take place over long periods, and interventions aimed at reducing detrimental impacts also take time to be effective. To advance conservation, access to long-term information is thus key. IOZ has supported long-term research programmes for many decades, and now manages a significant number of long-term datasets (Appendix B). These represent >400 years of research since Special Funding arrangements for IOZ began 30 years ago. Most IOZ senior staff run at least one programme that has generated >20 years of data, research tools, and/or knowledge to the conservation community. These programmes also provide a unique foundation for our teaching, capacity building and engagement activities. Research England's Special Funding enables IOZ to provide the continuity of support to our scientists that makes these programmes possible.

Over the last three years, the COVID-19 pandemic has posed a substantial challenge to our Long-term Programmes. Nevertheless, we have managed to sustain these projects with minimal breaks in data collection, thanks to the dedication of our staff and students and the resilience of our local networks and partnerships. In addition, we have made significant progress in the development of databases for five of our long-term, individual-based, studies, including African wild dogs, New Zealand passerines and tropical seabirds.

Over the next three years, our priorities for Long-term Programmes will include:

1. Making IOZ-developed tools, resources and data more widely available to project partners and external research opportunities, with online portal facilities (where relevant) supported by a full-time data manager
2. Establishing data governance standards and developing succession planning for IOZ Long-term Programmes

OUR KPIS TO ACHIEVE RESEARCH EXCELLENCE

| GOAL | KPI TARGETS FOR 2020/21–21/22 | KPIS REACHED OVER 2020/21–21/22 | KPI TARGETS FOR 2022/23–24/25 ² |
|--|--|---|---|
| Achieve a vibrant research output, indexed by the number of peer-reviewed research papers per year | >150 papers | 166 papers (20/21) 159 papers (21/22) | >160 papers ² |
| Demonstrate our status as a world-leading organisation in conservation science, indexed annually by a Web of Science citation analysis over the preceding 10 years | h-index in top three global conservation science organisations | h-index=92, rank 2 (20/21) h-index=101, rank 3 (21/22) | h-index in top ³ three global conservation science organisations |
| Deliver excellence in our REF2021 performance | UK research excellence recognised | 88.5% of research is world-leading or internationally excellent | NA ⁴ |
| Utilise and enhance our Long-term Programmes, indexed by the number of MSc/PhD projects per year | 33 MSc/PhD research projects supported ¹ | 37 MSc/PhD projects (20/21) 32 MSc/PhD projects (21/22) | 33 MSc/PhD ⁵ projects |

For KPI details, see Appendix G, Section 1. ¹This KPI has been adapted from our previous Business Plan to provide an annual figure.

²KPI target is a 7% increase on our previous target and informed by performance over the last two years. ³KPI target is in line with our previous target and informed by performance over the last two years. ⁴KPI target not applicable for the 2022/23-24/25 period.

⁵KPI target is in line with our previous target and informed by performance over the last two years.

BUILDING CAPACITY THROUGH TEACHING AND TRAINING

The Institute of Zoology builds capacity through teaching and training. Our student offer reflects the distinctiveness of IOZ within the HE sector, and the unique education and training environment created by IOZ's access to ZSL's Zoos and field conservation programmes worldwide. IOZ teaching and training is conducted in six areas:

- **PhD supervision**
- **Masters taught courses and projects**
- **Residencies**
- **Undergraduate training**
- **Practitioner training targeted at wildlife professionals**
- **Continuing professional development**

Despite the inevitable disruption due to the covid pandemic over the last three years, we have largely been able to continue to deliver these teaching and training activities, and to support our students to complete their courses.

In this Section, we describe how we build capacity through our activities in each of the six areas, and outline our priorities for the 2022/23–24/25 period.



Since 2010 we have supervised

22

PhD students registered at universities in 12 countries outside of the UK

During the same period, we have supervised 15 PhD students registered in the UK from 11 Low- and Middle-Income Countries (LMICs)

PHD SUPERVISION

IOZ currently supervises 77 PhD students. These students join us on a variety of schemes, but many come from the four Doctoral Training Partnerships (DTPs) on which we are partners: the London NERC DTP, the Science and Solutions for a Changing Planet DTP, the SCENARIO DTP, and the ARIES DTP. IOZ is not a degree-awarding institution, so our PhD students are also co-registered at another HEI from which they graduate. Approximately one third are registered with UCL, one fifth with Imperial College, and the rest spread across a further 23 universities, including Oxford, Cambridge, Bristol, Liverpool, Leeds, and Edinburgh. A recent review of our PhD student outcomes for REF2021 found that 99% (81/82) went on to graduate-level employment, including 50% (41/82) taking up university research positions and 32% (26/82) gaining roles in the conservation sector.

IOZ cost recovery for PhD students is based on fee-sharing arrangements. These vary between DTPs, CDTs (Centres for Doctoral Training), and individual institutions. In AY 2020/21, full partnership arrangements increased from 60% to 67% (56/84) of IOZ PGRs, typically with 50% fee-sharing. PGR projects are a valuable way of developing collaborations and often lead to significant outputs and further external research funding. Consequently, we are reluctant to base our PGR arrangements solely around opportunities for fee-sharing. Nevertheless, we plan to reduce the proportion of PGRs we supervise without fee sharing to c. 10% in order to improve the balance between PGR collaboration and PGR cost recovery. While we do not receive a share of the Quality-related Research (QR) Research Degree Programme (RDP) supervision funding allocations, our wider arrangements with our primary university partner, UCL, provide in-kind benefits (see Section 6).

In addition, we supervise a small number of PhD students registered at universities overseas, including the Universidad Andres Bello (Chile) and University of Ghana (Ghana). Often, these students are in Low- and Middle-Income Countries (LMICs) with insufficient resources for registration in a UK institution. In addition, when we supervise such students in collaboration with LMIC scientists, we bring in specialist skills and knowledge that may not be available in country. Thus, these collaborations help to broaden in-country institutional capacity.

MASTERS TAUGHT COURSES AND PROJECTS

Our MSc courses in Wild Animal Health (established in 1994/95), and in Wild Animal Biology (established in 2003/04) are run in partnership with the Royal Veterinary College (RVC). These courses provide high-quality education in wildlife health, ecosystem health and wildlife biology, and have generated a global graduate network of 700 wildlife health and conservation professionals from 68 countries. Access to the animals held in ZSL's Zoos is a critical component of these courses. Data from our alumni surveys indicates that 84% of graduates go on to work in professional roles in animal health or wildlife conservation. Over the next three years, our MSc courses with RVC will continue in essentially the same format, although the Wild Animal Biology MSci stream (established in 2014) has been discontinued due to limited demand and management difficulties. We aim to offset this loss of students through growth in other courses (see table below). We are also in the process of reviewing content and staffing of these courses to better manage delivery.

Our collaboration with UCL on postgraduate teaching has intensified recently, adding to the existing MRes Biodiversity Evolution and Conservation with new MSc courses in Biodiversity and Global Change in starting in 2021 (IOZ currently delivers one module for this), and Ecology and Data Science starting in 2022 (we currently contribute to the research project module for this).

Cost recovery for IOZ's Masters students is based on fee-sharing arrangements with the HEI partners. These vary between courses and reflect the roles that different partners play in course leadership. For example, we recover a greater proportion of the fees for courses that we lead (e.g., MSc courses with RVC) compared with those led by our HEI partner (e.g., with UCL). The arrangements for each course are managed by existing Memoranda of Understanding (MoUs).

CURRENT AND PROJECTED STUDENT NUMBERS

| COURSE | PARTNER UNIVERSITY | FIRST GRADUATING YEAR | 19/20 | 20/21 | 21/22 | 22/23 | 23/24 | 24/25 |
|--|--|-----------------------|------------|------------|------------|------------|------------|------------|
| PhD students | Various | | 78 | 87 | 81 | 83 | 83 | 83 |
| MSc Wild Animal Health | RVC | 1994/95 | 9 | 10 | 9 | 10 | 10 | 10 |
| MSc Wild Animal Biology | RVC | 2003/04 | 16 | 18 | 17 | 18 | 18 | 18 |
| MSci Wild Animal Biology | RVC | 2017/18 | 3 | 12 | 9 | 0 | 0 | 0 |
| MRes Biodiversity Evolution and Conservation | UCL | 2012/13 | 18 | 16 | 18 | 20 | 20 | 20 |
| MSc Biodiversity and Global Change | UCL | 2021/22 | 0 | 0 | 12 | 15 | 20 | 20 |
| MSc Ecology and Data Science | UCL | 2022/23 | 0 | 0 | 0 | 15 | 20 | 25 |
| Interventions in Wild Animal Health Field Course | RVC, Edinburgh, Melbourne, Wildlife Institute of India | 2016 | 26 | 18 | 37 | 30 | 30 | 30 |
| TOTAL | | | 150 | 161 | 183 | 191 | 201 | 206 |

RESIDENCIES

As of July 2022, ZSL and the RVC have jointly trained five Diplomates under the auspices of the European College of Zoological Medicine (ECZM): three in Wildlife Population Health (WPH) and two in Zoo Health Management (ZHM). These residencies are three-year training programmes for qualified veterinary graduates wishing to specialise and are accredited by the European Board of Veterinary Specialisation. The ZSL/RVC partnership is the only place in Europe that hosts both WPH and ZHM residency programmes. IOZ trains one WPH diplomate at a time, while ZSL's Wildlife Health Services has increased the number of ZHM diplomates from one to two at a time.

IOZ hosts the WPH residency programme in recognition of the growing global need for veterinary capacity in wildlife health and conservation medicine to address the threats of emerging disease to wildlife. Until the formation of the ECZM in 2009, there was no opportunity for high-level zoological veterinary training in Europe and no professional organisation to recognise and audit this specialty. IOZ staff were cofounders of the ECZM and led the development of the WPH specialty.

Our MSc Wild Animal Health, MSc Wild Animal Biology, MSci Wild Animal Biology, and Interventions in Wild Animal Health Field courses (collectively referred to as the Wildlife Health Bridge) have included students from 68 countries (including 31 LMICs), and 27% of a total 760 graduate students from these courses are from Low- and Middle-Income Countries (LMICs)



UNDERGRADUATE TRAINING

IOZ staff contribute a limited amount of undergraduate teaching on university courses, including UCL and RVC students. These range from individual lectures in conservation biology delivered to third-year UCL Biology students to practical training sessions for developing wildlife disease investigation skills for RVC veterinary students during two-week training placements at ZSL. IOZ also occasionally hosts undergraduate placement students during their professional training year, providing a unique training experience. These include students in Biological Sciences from the University of Cardiff and students in Veterinary Bioscience and Microbiology from the University of Surrey. Several of these students have gone on to pursue PhDs and clinical veterinary degrees.

PRACTITIONER TRAINING

IOZ's practitioner training courses provide opportunities for others to benefit from our expertise. Courses include the IUCN Conservation Translocations Training Course, which has trained 162 practitioners from 33 countries since 2016, building capacity for species recovery programmes worldwide; the Interventions in Wild Animal Health Field Course, held annually in Sariska National Park, India, has trained 181 wildlife health professionals since its inception in 2016. Of these 64% are nationals of South Asian countries, building essential capacity in biodiverse Low- and Middle-Income Countries (LMICs). Additional practitioner training has recently focused on Rights-Based Conservation, delivered to 20 practitioners, including participants from India, Pakistan, Afghanistan, Brazil, Iran, China and Kyrgyzstan. Our training and mentoring program also continued to provide support for National Carnivore Coordinators across 14 countries in Africa, including providing support for project design and implementation. Many of our overseas projects involve a training component, focusing on field survey and monitoring methods.

CONTINUING PROFESSIONAL DEVELOPMENT (CPD)

IOZ develops and delivers courses designed for early career researchers and conservation professionals. CPD is an area that we identified for potential development in our last Business Plan, and a programme of provisional courses was identified based on demand and IOZ expertise (see Appendix C). However, progress was delayed due to the covid pandemic. We will now take these plans forward over the coming 2022/23–2024/25 period (see below).

Over the next three years, our priorities for building capacity through teaching and training will include:

1. Appointing a Project Developer, using our Uplift Funding, to investigate teaching and training development opportunities and to produce a business case in three of these areas:
 - a. Online Masters courses
 - b. CPD courses
 - c. ZSL becoming a degree-awarding body
2. Reviewing our teaching and training activities to identify ways in which we can improve efficiencies through sharing teaching contributions across multiple courses.

OUR KPIS TO BUILD CAPACITY THROUGH TEACHING AND TRAINING

| GOAL | KPI TARGETS FOR 2020/21–21/22 | KPIS REACHED OVER 2020/21–21/22 | KPI TARGETS FOR 2022/23–24/25 |
|---|--|--|---|
| Supervise PhD students, indexed by the number of PhD students supervised each year | 68 students ¹ | 87 students (20/21) 81 students (21/22) | 83 students ³ |
| Teach MSc students, indexed by the number of MSc students taught each year | 96 students ¹ | 73 students (20/21) 100 students (21/22) | 108 students (22/23) 118 students (23/24) 123 students (24/25) ⁴ |
| Train practitioners, indexed by the numbers of practitioners trained, training weeks, and practitioner nationalities involved, including LMICs, each year | 200 practitioners, 55 weeks, 15 nationalities, including >10 LMICs ¹ | 1,180 practitioners, 47 weeks, 15 nationalities, 6 LMICs (20/21) 402 practitioners, 54 weeks, 22 nationalities, 16 LMICs (21/22) ² | 200 practitioners, 55 weeks, 15 nationalities, >10 LMICs ⁵ |

For KPI details, see Appendix G, Section 2. ¹These KPIs have been adapted from our previous Business Plan to provide annual figures.

²Figures include atypical training events involving 1,000 trainees (20/21) and 300 trainees (21/22) on 1-day online courses. ³KPI target is a 22% increase on our previous target and informed by performance over the last two years (see also 'student numbers' table above).

⁴KPI targets are a 13-28% increase on our previous target and informed by performance over the last two years (see also 'student numbers' table above). ⁵KPI targets are in line with previous targets and informed by performance over the last two years.



ACCELERATING THE TRANSLATION AND USE OF RESEARCH TO MAXIMISE CONSERVATION IMPACT

The Institute of Zoology's research underpins conservation practice and policy, and we work with our network of partners to reduce the impacts of human activities on wildlife at national, regional and global scales. Our activities are supported by ZSL's Conservation and Policy team, press office and public engagement teams, which provide pathways through which IOZ's science is shared with the wider conservation community.

We achieve conservation impact by:

- **Providing impartial, evidence-based advice on biodiversity conservation policy to governmental and inter-governmental bodies**
- **Conservation action planning (regional, national and species focused)**
- **Developing tools and indicators that track progress towards conservation goals, including the UN Conventions on Biological Diversity**
- **Working with ZSL and partners in countries worldwide on evidence-based conservation initiatives, including species and ecosystem management, species translocations, disease surveillance and biodiversity monitoring**
- **Publishing our science and providing thought leadership in identification and mitigation of threats to biodiversity**

In this Section, we describe our impact-related priorities for each of our Conservation Challenges for the 2022/23–24/25 period.

CONSERVATION IMPACT IN BIOLOGY AND RECOVERY OF SMALL POPULATIONS

Our priorities for achieving conservation impact in Biology and Recovery of Small Populations will include:

1. Providing science-based decision support for 56 species recovery programmes. IOZ staff are increasingly approached by governments and conservation practitioners to provide consultancy and support for species recovery programmes. For example, in the previous three years this has included kuaka (Whenua Hou Diving Petrel), the extinct in the wild sihek (Guam kingfisher) and the Mauritius lesser night gecko. Over the next three years we will continue to advise governments, NGOs, and local communities on species recovery, where IOZ capacity and resources allow
2. Monitoring and evaluation of conservation interventions for threatened species. We have provided various multi-species evaluations across a broad range of topics from wildlife health to outreach aimed at improving conservation attitudes and support within Indigenous communities. We will continue our evaluation of ex-situ facilities in caring for the world's extinct in the wild species and have co-produced a new book text on conservation translocations
3. Facilitating IUCN Species Action Planning processes for IOZ focal species. Over the next three years, with colleagues from ZSL, these will include European sturgeon species, Chinese giant salamanders, extinct in the wild Socorro dove, and tamaraw
4. Informing policy decisions and developing mitigation strategies to minimise threats to small populations, through both dedicated on-the-ground involvement in long-term recovery projects and wider comparative assessment to identify optimal approaches across multi-species datasets

**IOZ staff
partnered with**

235

**institutions, working
on science and
conservation across
60 countries, in 2021/22**





In 2021/22, IOZ staff
produced

19

practitioner tools or
guidelines and contributed
to 44 IUCN specialist
or major conservation
advisory groups

CONSERVATION IMPACT IN CO-EXISTENCE BETWEEN PEOPLE AND WILDLIFE

Our priorities for achieving conservation impact in Co-Existence between People and Wildlife will include:

1. Developing and implementing sustainable approaches to support coexistence between people and predators, including reducing human-wildlife conflict and increasing tolerance. Our research is being used to test and adapt a toolkit to local contexts in East Africa and inform the design of awareness raising programmes about large carnivore conservation in western and southern Africa. This will continue over the next three years alongside the development of sustainable solutions to other co-existence challenges, including human-shark conflict in Ascension Island
2. Understanding and mitigating the role of zoonotic disease as a barrier to coexistence between people and wildlife. Current research includes testing the efficacy of badger vaccination as a means to combat the spread of TB in cattle
3. Understanding and mitigating trade-offs between biodiversity conservation and development
4. Developing and implementing socio-ecological frameworks to improve conservation and wellbeing outcomes. We have developed and published a theory of change to enhance co-existence with large carnivores in Africa and will focus on its application over the coming three years

CONSERVATION IMPACT IN GLOBAL BIODIVERSITY MONITORING

Our priorities for achieving conservation impact in Global Biodiversity Monitoring will include:

1. Informing international biodiversity convention targets. For example, The Living Planet Index and Red List Index were both used in the Convention on Biological Diversities GBO5 global assessment. Both are proposed headline indicators for the post-2020 biodiversity framework (to be completed at CBD COP in December 2022)
2. Producing or assisting with the production of national biodiversity indicators, including Canada (we produce the Canadian Species Index), Australia (using our publicly available code and methodology) and Belgium. Our indicator for migratory fish was featured in World Fish Migration Foundation's 2020 report
3. Producing the Living Planet Report (LPI). In partnership with WWF, we produced LPI 2020, which had an estimated reach of over 100 million people. Over the next three years we expect to produce LPI 2022 and 2024, helping ensure biodiversity change is communicated to the public and a wide range of stakeholders
4. Developing and applying the sampled Red List. Using our revised methodology, the assessment of the extinction risk of cephalopods is nearly finished and our assessment of swallowtail butterflies continues with completion in the coming year

CONSERVATION IMPACT IN MITIGATING AND ADAPTING TO CLIMATE CHANGE

Our priorities for achieving conservation impact in Mitigating and Adapting to Climate Change will include:

1. Assessing the ecological and societal impact of species on the move with climate change in the UK. We have recruited in 2020 a PhD student in collaboration with JNCC to explore how current monitoring setups enable the monitoring of species on the move with climate change in the UK
2. Providing a framework for measuring the vulnerability of species and ecosystems to climate change-land use change interactions. A framework was developed and published in TREE – we are now focusing on applying this framework
3. Leading and informing the development of an evidence-based IUCN policy on rewilding; ZSL led the submission of a motion to the IUCN to set up an inter-commission working group on rewilding, which was formally adopted early 2021. The group was set up at the end of 2021, and is co-chaired by one of our staff members
4. Mitigating climate change impacts on wildlife populations. We secured, in 2020, a grant to identify evidence-based climate change adaptation practices to safeguard vulnerable seabird populations in western Europe; the outcomes of this project (guidelines) are to be released by autumn 2022

CONSERVATION IMPACT IN WILDLIFE HEALTH

Our priorities for achieving conservation impact in Wildlife Health will include:

1. Continuing to acquire and collate data on wildlife disease threats to biodiversity, domestic animals and public health in Great Britain. This will be achieved through wildlife disease surveillance conducted under contract to Defra, the Animal Plant and Health Agency (APHA) and Natural England; IOZ researchers meet with policy makers on a six-monthly basis to present our results as part of the GB Wildlife Health Partnership and assessments are submitted as required to the Veterinary Risk Group (VRG) and to the Human Animal Infections and Risk Surveillance group to inform UK government policy
2. Providing decision-making support, including disease risk analyses, for the recovery of c. 35 species, including for species reintroductions in the UK, e.g., the dormouse, curl bunting, wart-biter cricket and Northern pool frog
3. Identifying and mitigating the risks and impacts of wildlife diseases, both in the UK (e.g., finch trichomonosis, marine mammal contaminants) and overseas (e.g., African wild dogs, Darwin's frogs). For example, having recently identified the presence of snake fungal disease in wild snakes in the UK for the first time, we are now investigating the impact – if any – of this disease on the population dynamics of the grass snake in England
4. Conducting research on the infection dynamics of pathogens in wildlife hosts to inform measures to prevent the emergence of zoonotic diseases from wildlife, whilst promoting human-wildlife coexistence. For example, our work on viruses in West African bats has identified species which may, and species which do not, harbour Marburg virus, which is informing current World Health Organisation investigations into the recent Marburg outbreak in Ghana

IOZ staff have helped the government in Aotearoa New Zealand work alongside indigenous Māori to co-develop recovery strategies for the hihi (stitchbird) and the Tara iti (New Zealand Fairy Tern); helped plan for the rescue and recovery of four critically endangered forest passerines on Hawaii for the United States Fish and Wildlife Service; and designed and supported conservation translocations for the endangered Mauritius kestrel

IOZ wild bird disease surveillance recently identified the first known incursion into the UK of a mosquito-borne zoonotic pathogen, Usutu virus, which has led to a multi-agency governmental response involving Defra, the APHA and the UK Health Security Agency

OUR KPIS TO MAXIMISE CONSERVATION IMPACT

| GOAL | KPI TARGETS FOR 2020/21–21/22 | KPIS REACHED OVER 2020/21–21/22 | KPI TARGETS FOR 2022/23–24/25 |
|--|--|--|---|
| Influence UK and international conventions and policies, indexed by the number of cases each year | NA ¹ | 12 cases (20/21) 7 cases (21/22) | 8 cases ⁴ |
| Inform UK and international conventions and policies through consultations and provision of evidence, indexed by the number of cases each year | NA ¹ | 18 cases (20/21) 18 cases (21/22) | 18 cases ⁴ |
| Conduct and review IUCN Red and Green List species assessments, indexed by the number of assessments each year | 20 assessments ² | 312 assessments ³ (20/21) 13 assessments (21/22) | 20 assessments ⁵ |
| Contribute to species actions plans and species recovery programmes, indexed by the number of cases each year | 5 action plans and 20 species recovery programmes ² | 15 plans, 28 programmes (20/21) 16 plans, 41 programmes (21/22) | 15 action plans and 30 species recovery programmes ⁶ |
| Work in partnership with ZSL's Conservation & Policy (C&P) and Living Collections (LC) directorates, indexed by the number of joint projects each year | 20 joint field-based conservation projects ² | 36 joint C&P projects; 43 joint LC projects (20/21) 22 joint C&P projects; 19 joint LC projects (21/22) | 25 joint C&P projects 25 joint LC projects ⁷ |

For KPI details, see Appendix G, Section 3. ¹These KPI targets were not set in our previous Business Plan. ²These KPIs have been adapted from our previous Business Plan to provide annual figures. ³Includes an atypical number of assessments for two specific groups (187 butterfly species, 123 hydrothermal vent-endemic mollusc species). ⁴New KPI target informed by performance over the last two years. ⁵KPI target is in line with our previous target and informed by performance over the last two years. ⁶KPI targets are a threefold increase (action plans) or 50% increase (species recovery programmes) on our previous targets and informed by performance over the last two years. ⁷KPI targets are a 25% increase on our previous target and informed by performance over the last two years.

INSPIRING NEW, DIVERSE, AND EXISTING AUDIENCES TO CARE ABOUT AND BETTER UNDERSTAND WILDLIFE AND ITS CONSERVATION

Communicating science is a central part of our work and we are in a unique position to engage with over 1.7 million people visiting ZSL's Zoos annually. Our programming creates opportunities for the Institute of Zoology's staff and students to discuss research with public audiences and provides pathways to impact through policy and practitioner engagement. Our public engagement and outreach also focus on traditionally underserved audiences so that we gain insights and reflect on how people relate to and understand the ways in which science can provide solutions to global environmental challenges.

The full cost of ZSL's communications and Learned Society activities, including IOZ's public lecture series, symposia, public engagement and outreach, is met by income from ZSL's portfolio of scientific journals.

Our science communication and public engagement activities focus on five key areas:

- **Science and Conservation events**
- **Public engagement at ZSL's Zoos and outreach**
- **ZSL Education Access scheme**
- **Building capacity and skills in science communication and engagement**
- **Recruiting citizen scientists**

In this Section, we describe our science communication and public engagement activities and highlight our priorities for the 2022/23–24/25 period.

Since 2020/21, science events on the ZSL Science and Conservation YouTube channel have accrued

OVER 35K

views from 51 countries, extending the international reach of our work



SCIENCE AND CONSERVATION EVENTS

Following Covid-19 disruption to in-person events, IOZ's public lecture series has been live streamed. Since October 2020, we have hosted 17 online Science and Conservation Events, with an average of 225 attendees at each event. This has enabled non-UK researchers to participate; and 24% of attendees are now outside the UK, with 60% not having previously attended a ZSL science event. Lectures are recorded and uploaded to a new **ZSL Science and Conservation YouTube channel**. Science and Conservation Events form the basis of our Wild Science Podcast; 38 episodes have been produced to date, with over 34K unique downloads in the last three years. From September 2022 IOZ's science events programme will include a range of in-person, online and hybrid events.

Biannual International Symposia provide opportunities for science and conservation professionals to share the latest research, support collaborations and create networking opportunities. Workshops associated with Symposia focus on priority setting, project development or outputs, including scientific papers and positions statements

ZSL has invested in a new audio-visual system in the Huxley Lecture Theatre to improve accessibility of events and engagement

PUBLIC ENGAGEMENT AT ZSL'S ZOOS AND OUTREACH

IOZ's public engagement aims to identify and remove barriers to entry and encourage young people from all backgrounds to consider careers in Science, Technology, Engineering, Mathematics, and Medicine (STEMM). Soapbox Science, our outreach platform for promoting women and non-binary scientists, transforms public streets into places for learning and scientific debate. Each event creates an opportunity for people who might not otherwise engage with STEMM to discuss science and be inspired by leading women and non-binary scientists. In 2019, our last pre-Covid reporting year, we organised 42 Soapbox Science events in 13 countries, involving 504 speakers and reaching an audience of 42,000. Events in 2020 and 2021 were primarily online; the priority for 2022/23 and beyond is supporting teams as they restart in-person events.

Each year we participate in Biology Week and British Science Week delivering free online 'ZSL in Your Classroom' sessions, giving 2,200 students the opportunity to speak directly to our scientists. We also collaborate with organisations outside of the STEMM community; for example, by co-creating public engagement that brings together art and science, which connect new audiences with our work.

In addition to organising and participating in STEMM careers events, we provide work placements through initiatives including In2Science, and the Kickstarter and Nuffield Placement schemes, helping young people gain skills and experience in science.

ZSL EDUCATION ACCESS SCHEME

IOZ staff and students work with Senior Learning Officers to embed science in ZSL's formal educational programmes and teaching resources. As part of our pledge to support our local community, ZSL has launched an Education Access Scheme that gives schools and colleges in Camden, Westminster and L1 to L7 postcodes (Luton/Bedfordshire) unlimited term-time access to ZSL London and ZSL Whipsnade Zoos. Since the launch in January 2022, 72 schools have joined the Education Access Scheme (as of 30 June 2022), supporting over 33,000 visits. Over the next three years, IOZ staff and students will contribute conservation science content for formal learning sessions, as well as provide informal learning experiences at ZSL's Zoos and at ZSL careers events.

Over the last three years,

>18,000

citizen scientists have contributed disease incident reports to our Garden Wildlife Health project

Since 2019/20, 79 Soapbox Science events have been organized in 13 countries, involving 948 speakers, 1580 trained volunteers and reaching over 80K attendees

RECRUITING CITIZEN SCIENTISTS

IOZ has a strong track record of enlisting help from citizen scientists to enable nationwide projects to run in the long-term, that would otherwise be logistically and financially infeasible. For example, we appeal for members of the public to report sightings of sick and dead wild birds, amphibians, hedgehogs and reptiles to our Garden Wildlife Health project. IOZ's citizen science projects also include sightings reported to the Cetacean Strandings Investigation Programmes, Seabird Watch and the London HogWatch project.

Over the next three years, our priorities for inspiring new, diverse, and existing audiences will include:

- Auditing and co-creating public engagement activities that relate to IOZ long-term projects, in both the UK and in the countries where we work
- Embedding IOZ conservation science in ZSL's Zoos, through Interpretation, public engagement, and in collaboration with ZSL's Community Access Scheme and Education Access Scheme
- Supporting international growth of Soapbox Science by hosting over 60 events annually, including events in India, Kyrgyzstan and Mexico

BUILDING CAPACITY AND SKILLS IN SCIENCE COMMUNICATION AND ENGAGEMENT

We provide public engagement and science communication training for IOZ staff, students and others participating in our events. We promote and share best practice in public engagement with teams at ZSL and stay informed of the latest developments in monitoring and evaluation so that we know the impact of our work. Since 2019, for example, 11 training videos have been created for local organisers of Soapbox Science; this resource had been accessed by 60 local organising teams.

OUR KPIS TO INSPIRE NEW, DIVERSE, AND EXISTING AUDIENCES

| GOAL | KPI TARGETS FOR 2020/21–21/22 | KPIS REACHED OVER 2020/21–21/22 | KPI TARGETS FOR 2022/23–24/25 |
|--|-------------------------------|--|---|
| Engage with new, diverse, and existing audiences through our public engagement activities and scientific events, indexed by the number of people each year | 100,000 people ¹ | 25,837 people (20/21) 236,000 people ³ (21/22) | 50,000 people ⁴ |
| Encourage participation in citizen science, through ZSL's research and conservation programmes, indexed by the number of people each year | 3,500 people ¹ | 2,195 people (20/21) 4,799 people (21/22) | 3,500 people ⁵ |
| Develop a publicly accessible archive of digital science resources (lectures, events, podcasts) | NA ² | 10 lectures & events; >16,000 views (20/21) 7 lectures & events; >18,000 views (21/22) | 9 lectures & events; >20,000 views ⁶ |
| | | 7 podcast episodes; >10,000 downloads (20/21) 2 podcast episodes; >12,000 downloads (21/22) | 5 podcast episodes; >13,000 downloads ⁶ |

For KPI details, see Appendix G, Section 4. ¹These KPIs have been adapted from our previous Business Plan to provide annual figures.

²These KPI targets were not set in our previous Business Plan. ³Includes atypical viewing figure for Channel 4 TV programme What Killed the Killer Whale. ⁴KPI target is revised from our previous target, which was based on pre-covid participation in in-person events. ⁵KPI target is in line with our previous target and informed by performance over the last two years. ⁶KPI targets are informed by performance over the last two years, and allow for our growing archive of online content.

HOW WE WILL WORK IN IOZ TO ACHIEVE THE PLAN

In order to achieve its ambition, the Institute of Zoology adopts a variety of structures and approaches that ensure the delivery of our world-leading research, teaching, impact and engagement activities. These include:

- a strong governance structure to oversee our four routes to delivery
- a research structure that facilitates and promotes interdisciplinary science and impact
- initiatives to promote equality, diversity and inclusion
- guidance and advice from our Independent Science Advisory Board

In this Section, we describe these ways of working in IOZ and our priorities for the 2022/23–24/25 period.



GOVERNANCE

The Institute of Zoology is governed by its Senior Management Team (SMT), overseen by ZSL's Director of Science, with an Independent Science Advisory Board acting in an advisory role (Fig. 1). The SMT has 12 members in addition to the Director of Science (Fig. 2) and meets on a monthly basis. All SMT members occupy important operational and/or strategic roles, as well as working together to support a suite of operational and strategic groups, which in turn advise the Director of Science and SMT on policy and practice in these areas. These groups now include a Data Governance group, a priority identified in our last Business Plan, to develop our thinking around data access, data agreements, and succession planning for long-term projects.

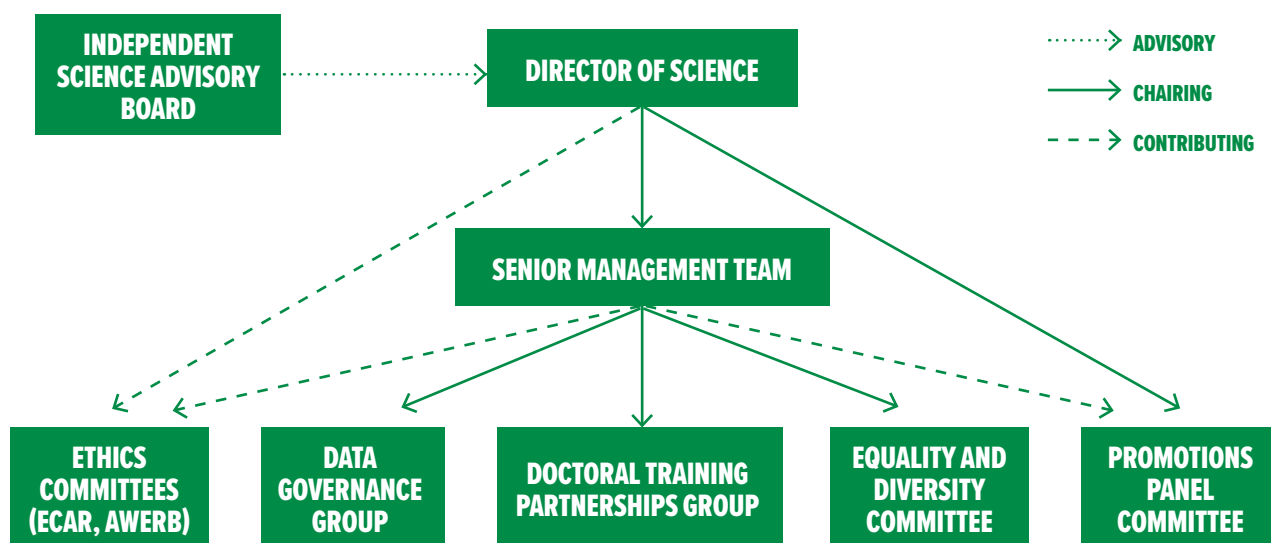


Figure 1. The governance structure of IOZ

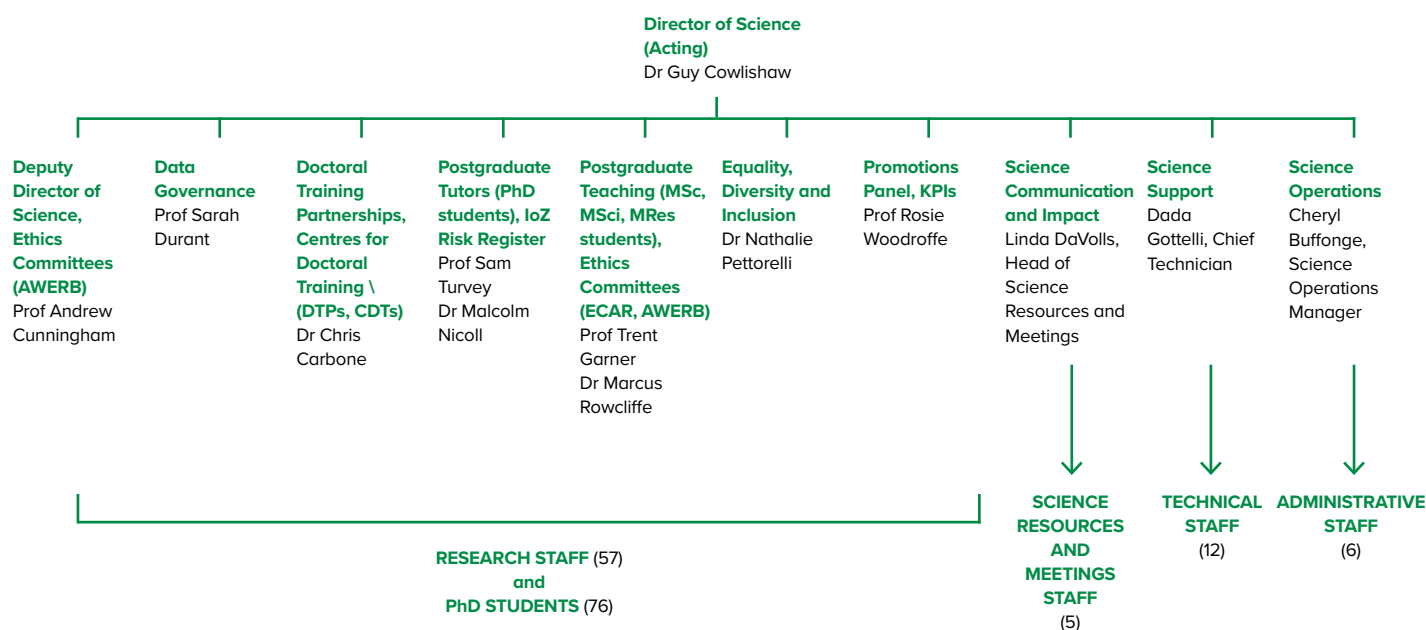


Figure 2. The structure of and composition of IOZ's Senior Management Team (SMT)

The 10 SMT members drawn from our research staff also provide a representative cross-section of senior staff working across the five Conservation Challenges (see below). Outside the SMT, staff actively participate in the running of the IOZ in a variety of additional support roles (Appendix D). Such organisational citizenship helps to build our sense of community and to increase our organisational effectiveness.

RESEARCH STRUCTURE

Our research and impact revolve around the five Conservation Challenges (Sections 1 and 3, Appendix A). Each has a 'Champion' drawn from among our senior staff to provide strategic leadership and operational advice. However, because our staff usually work across multiple Conservation Challenges, and our projects are typically multidisciplinary (e.g., projects on zoonoses involve both Wildlife Health and Co-Existence of People and Wildlife), we do not recognise discrete research groups. Rather, staff line management is independent of the Conservation Challenges, creating a matrix approach where each staff member is free to run projects in multiple areas. This avoids the insularity of discrete research groups and encourages cross-disciplinary collaboration, an essential approach given the intrinsic multidisciplinary of conservation science.

The success of our approach is illustrated by the observation that the majority of IOZ staff conduct projects in at least two Conservation Challenges (Fig. 3), with each project typically involving three staff members (analysis of 154 projects live in July 2022, mean: 3 staff members, range 1–7). As a result, the majority of our research papers (68% of 325 publications over the last two years) inform our understanding of multiple Conservation Challenges (Fig. 4).

Staff are also encouraged to develop informal 'science focus groups' to discuss cross-cutting themes across the Conservation Challenges. These are open to all, and currently include a Social Science Group, a Marine Science Group, and a Biologging & Behaviour Journal Club.



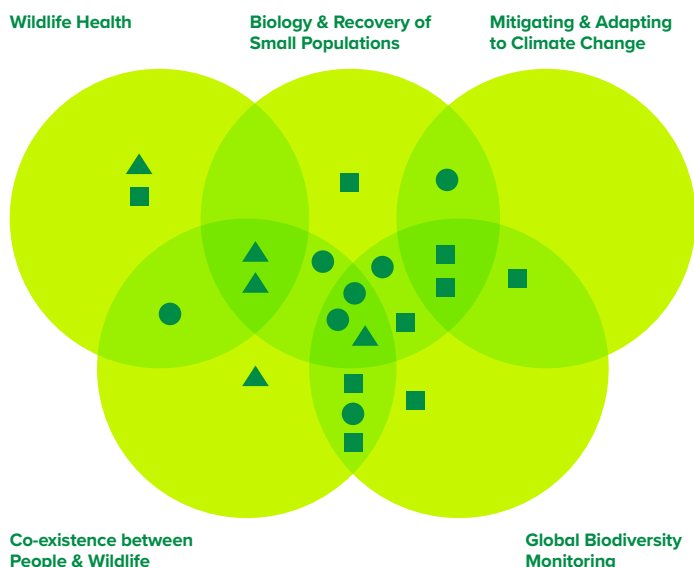


Figure 3. Distribution of research staff across Conservation Challenges: Professors (triangles), Senior Research Fellows (squares), and Research Fellows (circles) funded by Research England Special Funding, positioned according to the top 2–3 Conservation Challenges that their scientific publications address in the last two years (2020/21–21/22). Note this plot only shows the principal subset of potential overlap between Conservation Challenges, rather than all possible combinations.

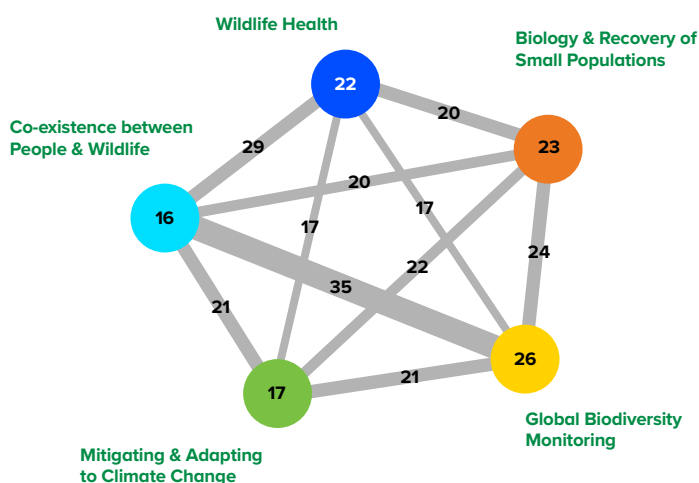


Figure 4. Distribution of scientific publications across Conservation Challenges. Publications generated between 2020/21–21/22 by Research England-funded IOZ staff. Ovals represent Conservation Challenges, with numbers in ovals indicating the number of publications which only addressed that Challenge. Lines between symbols represent a publication that addressed those two Conservation Challenges and line thickness (and associated numbers) represent the number of times (i.e., publications) where this occurred, e.g., Biology and Recovery of Small Populations and Co-existence between People and Wildlife simultaneously occurred in 20 publications. Note: if one publication addressed 3 Challenges then it would be represented by 3 lines; 4 Challenges by 6 lines; 5 Challenges (which does happen) by 10 lines.

EQUALITY, DIVERSITY, AND INCLUSION

Since 2019/20, IOZ's Equality, Diversity, and Inclusion (EDI) committee has (1) developed and started implementing a new EDI action plan to improve ethnic and gender diversity among our researchers and students (Appendix E); and (2) improved our safeguarding processes by identifying a safeguarding lead and developing a tailored training video for our students. During this period, we left the Athena SWAN Charter, due to the raised costs of membership as well as our inability to join the RACE charter. Because of the pandemic, we haven't been able to increase our offer on work placements for students from underrepresented groups, or make as much progress as hoped towards developing actions to better support staff and students with disabilities. However, we were able to launch an EDI Speaker Series in Nov 2021, which featured, among others, scientists with a disability. ZSL was awarded **Disability Confident Committed** employer accreditation in May 2021, and IOZ is benefitting from ZSL's Accessibility and Inclusion action plans which have been developed to improve how we recruit, retain and develop disabled at ZSL.

Over the next three years, we will concentrate on further implementing our new EDI action plan (Appendix E), with priorities including:

- Improving our offer of work placements for students from underrepresented groups
- Diversifying our Science Directorate social media feeds, communication, and blogs
- Reviewing and improving processes to ensure that engagement and co-design with local scientists and communities are encouraged and highlighted
- Broadening our offer of EDI training and ensuring that mandatory EDI training is completed by staff and students
- Identifying and implementing actions to better support staff and students with disabilities

INDEPENDENT SCIENCE ADVISORY BOARD

In the last year we have established the Institute of Zoology's Independent Science Advisory Board (ISAB), a priority identified in our last Business Plan. The ISAB provides advice to the Director of Science on the strategy, academic policy, quality of science, and development of the Institute of Zoology. The Board comprises the Secretary of ZSL Council, the Dean of UCL Life Sciences, the Principal of the Royal Veterinary College, and a further seven members drawn from across the academic, conservation, and public engagement sectors, nationally and internationally (Appendix F). The ISAB meets twice per year.

Over the next three years, we look forward to working more closely with the ISAB to benefit from their exceptional knowledge and expertise. Our priorities will include:

- A continuing programme of engagement and follow-up meetings with individual ISAB members who have offered to advise us in their specific areas of expertise
- Arranging a series of presentations to the ISAB about our research and impact by a cross-section of our staff, providing an opportunity to learn more about our specific projects from those who lead them

HOW WE WILL WORK WITH PARTNERS OUTSIDE IOZ TO ACHIEVE THE PLAN

The Institute of Zoology would not be able to achieve its ambition without the support of its collaborators and partners. These operate at four levels:

- **ZSL, the international conservation NGO in which we are embedded**
- **our key academic partners, University College London and the Royal Veterinary College, together with Research England**
- **the wider academic community with whom we collaborate, both in the UK and around the world**
- **the conservation community, both governments and NGOs, with whom we translate our research into real-world impact**

In this Section, we describe these key partnerships (Fig. 5) and our priorities for those relationships in the 2022/23–24/25 period.

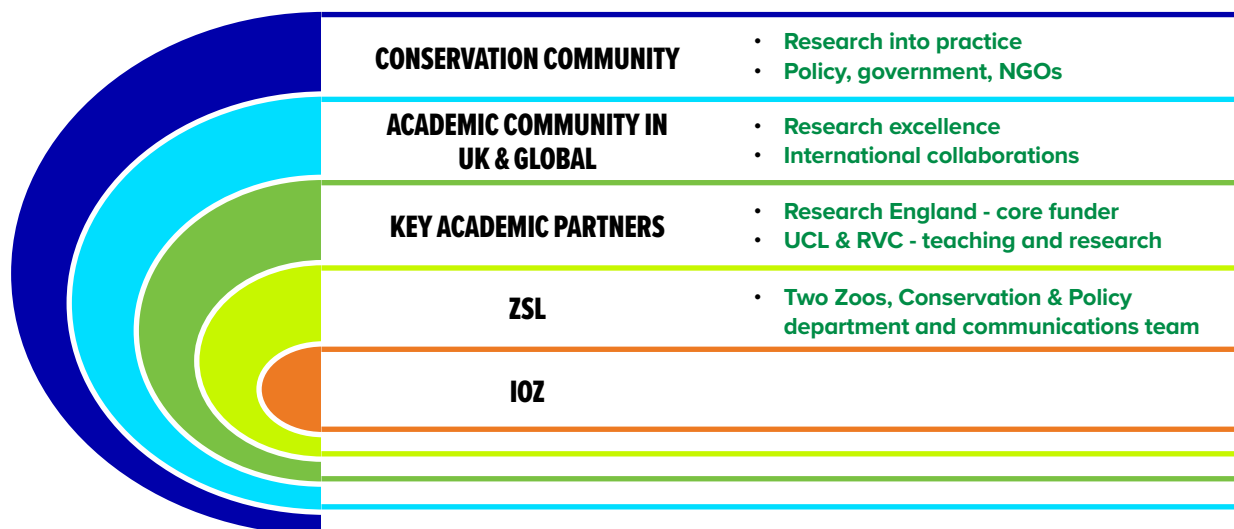


Figure 5. The stakeholders that are key to achieving our ambitions.

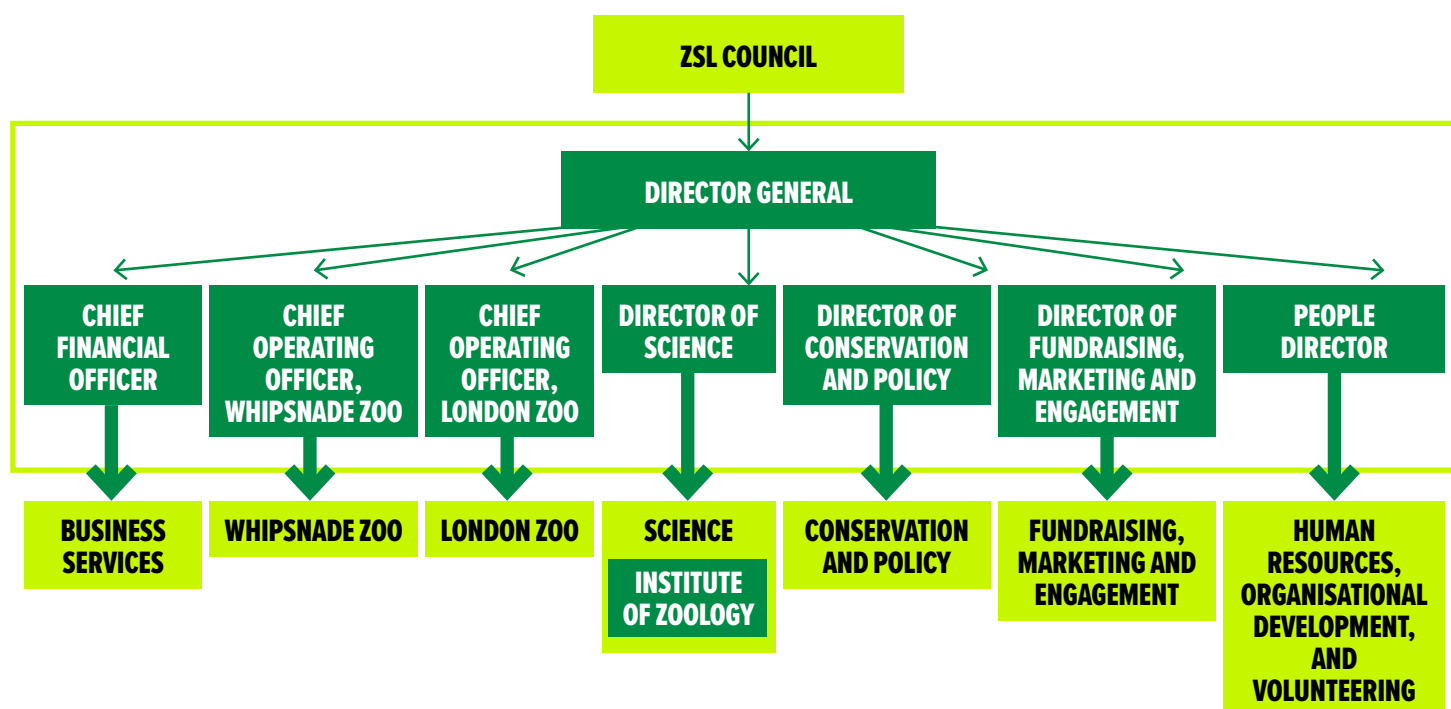


Figure 6. The governance and structure of ZSL showing the functional position of IOZ.

THE ZOOLOGICAL SOCIETY OF LONDON (ZSL)

The Institute of Zoology is the research division of ZSL (Fig. 6), a learned society established in 1826 and now an international conservation NGO, whose purpose is *To inspire, inform and empower people to stop wild animals going extinct*. Its vision is *A world where wildlife thrives*.

ZSL's strategy to achieve its ambition, **ZSL200**, was fundamentally driven by IOZ. The three Priority Areas of ZSL200 (Wildlife and People, Wildlife Health, and Wildlife Back from the Brink) map directly onto three of IOZ's Conservation Challenges (Co-existence between People and Wildlife, Wildlife Health, Biology and Recovery of Small Populations), while our two remaining Conservation Challenges (Global Biodiversity Monitoring, Mitigating and Adapting to Climate Change) contribute cross-cutting knowledge to inform conservation practice across all three Priority Areas. The designed alignment between the IOZ's Conservation Challenges and ZSL's Priority Areas creates exceptional opportunities for us to translate IOZ's science into impact.

IOZ staff regularly draw on the knowledge and expertise of conservation practitioners across ZSL, providing unique opportunities to ensure that our science delivers impact. These include colleagues from:

- ZSL's Conservation and Policy directorate, which informs IOZ's science to ensure it is relevant to policy frameworks and management realities, and provides pathways to conservation impact
- ZSL's living collections, London Zoo and Whipsnade Zoo, which contribute to IOZ's research programmes and provide a unique research and teaching environment
- ZSL's communications and convening teams, who provide access to a wide diversity of audiences for IOZ's public engagement activities

The strength of these collaborations is well reflected in our research, capacity building, impact, and public engagement activities. For instance, over the last three years:

- One quarter (25%) of the 154 live research projects (July 2022) led by IOZ staff included 1–4 staff colleagues from across ZSL
- One in every ten research papers by IOZ staff in the last two years (2020/21–21/22) included a ZSL co-author
- ZSL colleagues contribute unique practitioner perspectives to IOZ's teaching and training, including through the delivery of lectures and modules to our MSc courses, supervision of MSc student projects, and co-supervision of PhD students
- IOZ and ZSL colleagues collaborate closely in the development of ZSL policy and policy responses through joint membership of ZSL's Policy and Leadership Group
- IOZ staff and students participate in ZSL's Community and Learning activities and Careers events, and engage with over 2,000 secondary school students annually through 'ZSL in your Classroom' sessions

Over the last three years, ZSL initiated a Masterplanning process which is now nearing completion. A key output will be a Strategic Framework for the future development of ZSL's estates. This includes plans for a new state-of-the-art Science and Conservation Building at the heart of a wider Science and Conservation Campus at Regent's Park. This building will bring together IOZ's scientists and ZSL's conservation practitioners and veterinarians, enhancing opportunities for interaction and collaboration. The new building will also include laboratories, clinical facilities, and public engagement spaces. Raising the capital investment required for this building is part of the Masterplanning process, which ZSL is committed to leading over the next 5–10 years.

We will continue to develop and enhance these collaborations between IOZ and ZSL over the next three years.

KEY ACADEMIC PARTNERS

The Institute of Zoology's two main academic partners are University College London (UCL) and the Royal Veterinary College (RVC).

Our partnership with UCL includes:

- Collaborative research and impact (e.g., joint REF2021 Impact Case Studies)
- Shared research support (e.g., joint internal peer-review processes for new NERC/BBSRC grant applications, UCL also sit on the IOZ Promotions Panel)
- Postgraduate research training (e.g., we are co-founders of the London DTP, that UCL leads, and co-supervise more PhD students from UCL than any other university)
- Postgraduate taught courses (e.g., our joint MRes in 'Biodiversity, Ecology, and Conservation', plus other courses)
- Joint academic appointments (e.g., a UCL/ZSL chair appointed in 2014, and ZSL/UCL Springboard Fellowships launched in 2016)
- Appointment of IOZ staff as Honorary Fellows, granting access to UCL Library Services (including electronic journals) and UCL's Research Staff Development Programme

Our partnership with RVC includes:

- Joint delivery of MSc taught courses and projects, including the MSc Wild Animal Health (since 1994/5) and MSc Wild Animal Biology (since 2003/4) (Section 2)
- Joint delivery of three-year Residencies, in Wildlife Population Health and Zoo Health Management, under the auspices of the European College of Zoological Medicine (Section 2)
- Appointment of some IOZ staff as Honorary positions

Over the last three years, we worked closely with UCL in the development of our joint REF2021 submission (together with Birkbeck). In addition, and in response to the COVID-19 pandemic, we worked with UCL and RVC to develop a major joint infrastructure proposal for a National Institute for Biodiversity and Public Health (NIBPH) at ZSL. This £200M initiative was built on IOZ's research at the interface between biodiversity conservation, wildlife health and human health. The aim of the NIBPH was to identify and mitigate the eco-epidemiological and socio-economic drivers of biodiversity loss and associated zoonotic diseases. This joint ZSL-UCL-RVC infrastructure proposal was unsuccessful, but has provided an invaluable starting point for the development of the new Science and Conservation Building in ZSL's Strategic Framework (see above). Most recently, UCL and RVC joined the IOZ's ISAB to support the development of our science and strategy.

Over the next three years, our key academic partner priorities will include:

- Continuing to invest in our partnerships with UCL and RVC to foster joint research, teaching and training, impact, and public engagement
- Reviewing and renewing the Memoranda of Understanding that govern our relationships with UCL and the RVC. Both MoUs are due for renewal over this period, providing us with a timely opportunity to review and strengthen these partnerships.



THE ACADEMIC COMMUNITY IN UK AND WORLDWIDE

We are an active member of the academic community through our contribution to research, teaching, events, collaboration and knowledge sharing. As of August 2022, IOZ science is carried out in collaboration with 410 institutions worldwide. These include 36 academic institutions in the UK, such as the University of Cambridge and Francis Crick Institute, and 53 academic institutions internationally, such as Stanford University and the Smithsonian Institution. We are uniquely placed to integrate, develop and apply expertise and technology from other disciplines into conservation practice, leading to better conservation outcomes.

THE CONSERVATION COMMUNITY IN THE UK AND WORLDWIDE

IOZ has an established history of successful research collaborations. As of August 2022 we are currently working on 154 projects in 60 countries. These are conducted in partnership, with 30 conservation organisations in the UK, such as the RSPB and the Durrell Wildlife Conservation Trust, and 74 conservation organisations internationally, such as WWF International and the Wildlife Conservation Society. We also have a long-term record of developing research facilities that advance our science and impact, including the Galapagos Genetics, Epidemiology and Pathology Laboratory, which led to the development of the Galapagos Biosecurity Agency by the Ecuadorian government, and the Vulture Conservation Centre in India. We will continue to use our convening power to establish and support research facilities in countries as requested, and where external funding permits.

KEY PERFORMANCE INDICATORS

The Institute of Zoology will assess its annual progress for each of its routes to delivery using the KPI targets set out in Sections 1 to 4 above. The following table provides a summary of these targets.

| ROUTE TO DELIVERY | ANNUAL TARGETS (2022/23-24/25) |
|--|--|
| 1. Generate world-leading research | <p>Publish >160 peer-reviewed research papers</p> <p>h-index in top three global conservation science organisations</p> <p>33 MSc/PhD projects utilised our Long-term Programmes</p> <p>See Appendix G, Section 1, for further details</p> |
| 2. Build capacity through teaching and training | <p>83 PhD students supervised</p> <p>108 (22/23) to 123 (24/25) Masters students supervised</p> <p>200 practitioners trained, over 55 weeks, in 15 countries, including >10 LMICs</p> <p>See Appendix G, Section 2, for further details</p> |
| 3. Accelerate the translation and use of research to maximise conservation impact | <p>8 UK and international conventions and policies influenced</p> <p>18 UK and international conventions and policies informed through consultations and provision of evidence</p> <p>20 IUCN Red and Green List species assessments conducted and reviewed</p> <p>15 action plans and 30 species recovery programmes contributed to</p> <p>25 joint C&P projects, and 25 joint LC projects, conducted</p> <p>See Appendix G, section 3, for further details</p> |
| 4. Inspire new, diverse, and existing audiences to care about and better understand wildlife and its conservation | <p>50,000 people engaged through our public engagement activities and scientific events</p> <p>3,500 people participate in citizen science projects</p> <p>9 lectures & events with >20K views; and 5 podcast episodes with >13K downloads from our publicly accessible archive of digital science resources</p> <p>See Appendix G, section 4, for further details</p> |

APPENDIX A:

IOZ GLOBAL CONSERVATION CHALLENGES

BIOLOGY AND RECOVERY OF SMALL POPULATIONS

In the face of unprecedented biodiversity losses, effective strategies for the conservation of endangered species are urgently required. Among conservationists, there is almost universal agreement on the need for evidence-based management and for science that supports conservation decision making. However, management of small populations remains primarily based on the application of experience without careful evaluation. IOZ science aims to provide the evidence-base and decision support to maximise the likelihood of small population recovery, and underpins some of the most successful endangered species recovery programmes in the world. This science has enabled certain island states, such as Mauritius, to record improving trends in their biodiversity, a pattern seen in only a few countries globally. We directly support governments and NGOs involved in the recovery of small populations. IOZ has led on the recovery of hihi, a threatened passerine in New Zealand. This work has resulted in seven additional populations through reintroduction, adding over 600 adult birds to the global population. IOZ's analysis of factors affecting successful conservation outcomes in mammals is now embedded in WWF's global programmes covering large areas of Africa, Asia and Latin America. In the UK, IOZ's science informed the development of a wildlife reintroduction code for England, and our scientists have developed a training course for application of the IUCN Guidelines for reintroductions which has now been delivered to conservation practitioners including senior government officials, executive directors of leading environmental organizations, professors, graduate students, and national park managers from more than 33 countries. In response to a direct request, we will deliver this training to staff at Natural England later in 2022. Our work has resulted in an IUCN world congress motion to recognise the precarious state of extinct in the wild species and actively recover wild populations of these species, which was endorsed through 95% of 115 government and 99% of 572 non-government organizations globally. We provide specialist advice on numerous species on the brink of extinction, including the world's rarest mammal, the Hainan gibbon, as well as species that are extinct-in-the-wild, such as the Guam kingfisher. Our software tools for the analysis of molecular genetics data are freely available online and widely used, including the program COLONY, downloaded 3000 times per year, and the program COANCESTRY, downloaded 1000 times per year.

CO-EXISTENCE BETWEEN PEOPLE AND WILDLIFE

Human development can only be sustainable if it does not destroy the ecosystems on which people and wildlife depend. Yet, the global human population is expected to reach nearly 10 billion by 2050 which, combined with rising per capita consumption, will place unprecedented pressures on the planet's support systems. Maintaining biodiversity in the face of these pressures is an enormous challenge and will depend on a sound understanding of the complex interdependencies between people and nature. IOZ focuses on improving this knowledge base in order to inform the development of effective strategies to foster nature and human wellbeing on an increasingly crowded planet. IOZ's work in this area includes understanding and evaluating natural capital and ecosystem services, evaluating economic and ecological impacts of conservation and development interventions and fostering co-existence between people and wildlife. IOZ has an established record in the assessment of natural capital and ecosystem services which are key to evaluating the contribution of nature to human wellbeing. It has ongoing research programmes that seek to understand the relationship between wildlife and local communities, ranging from nomadic pastoralist systems in Africa to understanding the use of illegal, unreported and unregulated (IUU) fishing in marine protected areas. IOZ is also at the forefront of the development of new approaches, such as citizen science and novel technologies, to the evaluation of the impact of management and policy interventions on biodiversity conservation and development. IOZ's relationships with other departments at ZSL is an additional strength in this area, providing access to an array of field sites for the development and testing of new approaches to foster coexistence across a range of social, cultural, political and ecological environments.

GLOBAL BIODIVERSITY MONITORING

Understanding current, future and historical trends in biodiversity is critical to developing meaningful policy and effective conservation interventions. As the extent of human impacts on global biodiversity becomes clearer, developing a mechanistic understanding of how these impacts manifest as changes in species diversity and abundance, as well as changes in ecosystem structure, composition and functions, is essential. Enabling useful decisions about conservation interventions and predicting future biodiversity change requires new understanding, data and effective policy communication. IOZ's biodiversity monitoring research encompasses a diverse range of approaches at the cutting edge of biodiversity science. Our research takes a cross-disciplinary approach to understanding biodiversity change, bringing together a partnership of researchers from ZSL and across academic, NGO and government organisations. IOZ also works at the cutting edge of global policy, with active relationships across global working groups such as BIP, GEO/GEOBON and IPBES. IOZ hosts and develops the Living Planet Index, an indicator of trends in global species abundance used to inform international biodiversity targets and as a valuable database of wildlife abundance. Our work is instrumental in the development

and production of Red List assessments for a range of species and ecosystems, and in the production of the Sampled Approach to the Red List Index. We are developing predictive ecological models to answer key conservation questions about how species may respond to socio-economic scenarios and associated land-use and climate change and to predict what policies are required to achieve biodiversity goals. IOZ develops new approaches to identify and monitor ecosystems and habitats from space and new techniques using camera-traps to provide multi-species estimates of abundance and behaviour. These are complemented by our work promoting new tools to monitor and understand the global movements of individuals and species alongside their behavioural shifts in relation to environmental variables. IOZ also leads on seminal work exploring historical trends and extirpations from paleo-archaeological data which also provides important insights on recent extinction events.

MITIGATING AND ADAPTING TO CLIMATE CHANGE

Predicting the ecological, economical and societal consequences of climate change requires a novel scientific approach that goes beyond traditional single-disciplinary and localised research. Our work focuses on understanding how climate change impacts various components of biodiversity, how it may interact with other threats (e.g., land use change, invasive species) to increase populations, species and ecosystems' vulnerability to global environmental change, and how species and ecosystems might be managed to mitigate the impacts of climate change on wildlife and people. Our research has already improved climate change vulnerability assessments, being used to identify populations, species and ecosystems most at risk. It has moreover furthered our understanding of the drivers and consequences of species redistributions driven by climate change, while demonstrating how changes in environmental management, such as husbandry practices for example, can help address rapid ecosystem conversion in response to changing climatic conditions. IOZ expertise includes conservation genetics, behavioural and population ecology, disease ecology and ecosystem dynamics and this allows us to take an interdisciplinary approach to climate change related issues. Our expertise in satellite remote sensing technology, for example, has allowed us to (1) research climate change impacts on ecosystem distribution, structure and functioning around the world, and (2) test hypotheses related to the efficiency of various mitigation and adaptation plans. IOZ works closely with key international organizations, e.g., IUCN and CMS, in helping prioritise species and ecosystems for conservation attention, based on their vulnerability to climate change.

WILDLIFE HEALTH

Unlike most conservation issues, where habitat and species protection initiatives can address threats and halt population declines, disease agents do not respect borders; e.g., multiple populations of protected amphibian species within and outside protected areas have been extirpated by the infectious disease, amphibian chytridiomycosis. Similarly, pollutants, such as PCBs, can disseminate beyond their source locations, poisoning wildlife far from areas where their discharge can be controlled. Often, the impacts of infectious and non-infectious diseases are insidious with visible outcomes only apparent once population declines are underway: the causative agents are invisible to the naked eye and the initial impacts are often unseen. Identifying disease as a cause of population decline or species loss can be extremely difficult and expensive. Wild animals harbour huge numbers of known and unknown pathogens, including many that are zoonotic and most of which are not a biodiversity threat under natural circumstances. Understanding the ecology of pathogens in their natural hosts and how opportunities for spillover might occur is challenging but can lead to the development of mitigation strategies that conserve nature and enable people and wildlife to coexist. IOZ is a global leader in wildlife health research. Our work focuses on reducing loss of biodiversity from infectious or non-infectious disease; minimising health and welfare risks to wildlife; preventing zoonotic spillover from wildlife to protect public health while protecting biodiversity from destructive mitigation measures, and developing an international cadre of wildlife health professionals. Our distinctive areas of high-quality science include identifying disease as primary or contributory threats to wildlife conservation and ways to mitigate them, including via the development of disease risk analyses for wildlife translocations. Our work on wildlife disease ecology shows anthropogenic factors to be paramount to the emergence of disease threats to biodiversity and to the spillover of wildlife pathogens to people and livestock, and assesses disease prevention and control strategies.

APPENDIX B:

IOZ LONG-TERM PROGRAMMES

| PROGRAMME TYPE | PROGRAMME | DESCRIPTION | YEAR INITIATED | DELIVERABLES |
|---|--|---|---|---|
| Biology and Recovery of Small Populations | Mauritius birds recovery programmes | Ecology and conservation of threatened birds species/ populations in Mauritius | 1988 onwards | Long-term ecological data on known individuals in a changing environment; scientific evidence to inform in-country conservation management; global best practice in reintroduction biology and endangered species management |
| | <u>Hihi Recovery Programme</u> | Ecology and conservation of New Zealand's Hihi | 1991 onwards | Long-term ecological data on known individuals in a changing environment; scientific evidence to inform in-country conservation management; global best practice in reintroduction biology and endangered species management |
| | <u>Hainan gibbon conservation programme</u> | Ecology and conservation of the world's rarest ape | 2010 onwards | Field-based data collection, including use of conservation technologies and ecological+social- science methods, to develop conservation evidence-base; scientific evidence used to inform in-country conservation management and emergency response actions |
| | Managing group breeding captive populations without individual pedigrees | Develop protocols, theory and software for genetically managing group breeding populations, using <i>Partula</i> (endemic snail) as case study | 2003 onwards | Conceptual framework; population genetics- based model and methodology; software tool; application to <i>Partula</i> data |
| | Inferring population parameters from marker data | Developing population genetics models and statistical methods for marker data analysis in understanding basic population parameters such as population size and migration rates | 2002 onwards | Software tools developed for estimating population size, migration rates, relatedness and inbreeding |
| | Tiger conservation and ecology in India and Sumatra | Pan-India and Sumatra tiger and co-occurring large mammal conservation | 2002 onwards | Developed camera-trap monitoring methods to estimate abundance of tiger prey species with Wildlife Institute of India; acted as international observers for tiger conservation programme in India in 2006 and 2019; scientific evidence to understand and address human vs tiger conflict in and around oil palm plantations in Sumatra |
| | <u>Serengeti Cheetah Project</u> | Longest ongoing study of individually recognised cheetah in the wild | 1991 onwards (records from 1974-1990 collected prior to IOZ management) | Long-term movement, behavioural and demographic data on known individuals to inform conservation and management |

| PROGRAMME TYPE | PROGRAMME | DESCRIPTION | YEAR INITIATED | DELIVERABLES |
|---|--|---|----------------|--|
| | Samburu Laikipia Wild Dog Project | Long-term monitoring of African wild dogs to understand anthropogenic impacts on their survival and reproduction | 2001 onwards | Long-term movement and demographic data on wild dog packs living in a multiple-use landscape that informs conservation planning action throughout Africa |
| | Inferring status of small populations using local ecological knowledge | Developing standardised social-science methods to collect and analyse data to understand presence/absence, population trends, local extinction events and key threats in species too rare to detect using standard ecological field methods | 2008 onwards | Conceptual framework and practical fieldwork & analytical toolkits; scientific evidence used to establish conservation baselines for otherwise poorly-known threatened species in numerous global conservation-priority systems; scientific evidence used to inform in-country conservation management |
| | Yangtze cetacean conservation | Understanding extinction and recovery strategies for the world's most threatened freshwater cetaceans | 2005 onwards | Scientific evidence to understand extinction dynamics and drivers (ecological+social-science methods), and how to disentangle effects of interacting threats in complex social-ecological system; scientific evidence used to inform in-country conservation management |
| | <u>Tsaobis Baboon Project</u> | Fundamental research on the behaviour, ecology, genetics, and health of desert baboons, and long-term monitoring of the desert environment | 1990 onwards | Long-term behavioural and ecological data on known individuals in a changing environment; scientific evidence to inform in-country conservation management; training and capacity building of young Namibian scientists |
| Co-existence between People and Wildlife | Bushmeat research programme | Research on the ecological impacts, socioeconomic drivers, and management of bushmeat hunting, focused primarily on West and Central Africa | 1999 onwards | Scientific evidence to inform NGO interventions and government policy on sustainable management of tropical wildlife exploited for food |
| | <u>African Range-wide Cheetah Conservation Initiative</u> | Pan-African programme for the conservation of cheetah. This program is also responsible for the IUCN strategic planning process for African wild dogs, which plans for this species alongside cheetah. | 2007 onwards | Scientific evidence to inform management and conservation cheetah and other large carnivores in Africa, underpinning co-ordinated frameworks for conservation across Africa, including three Regional Conservation Strategies and 17 National Conservation Action Plans covering >95% of species' ranges |
| | Reef Shark monitoring programme, BIOT | Long-term acoustic tracking of reef sharks inside a large, remote MPA | 2013 onwards | Scientific evidence to support the designation of the BIOT MPA and assist management and enforcement |

| PROGRAMME TYPE | PROGRAMME | DESCRIPTION | YEAR INITIATED | DELIVERABLES |
|--------------------------------|---|--|------------------------------------|--|
| | <u>Benthic habitats in Greenland</u> | Documenting seabed habitats in Greenland and assessing the impact of trawling on them | 2011 onwards | Scientific evidence to inform sustainable fishing practices and the establishment of protected areas |
| | Spatial ecology of marine predators across the Indian Ocean | Long-term satellite tracking of large mobile predators across the Indian Ocean, coupled with stable isotope and genetic analyses | 2013 onwards | Scientific evidence to support MPA management and enforcement and regional fisheries management |
| Global Biodiversity Monitoring | <u>Living Planet Index</u> | Trends of >27,000 populations of >4,000 species of vertebrates | 2009 onwards | Scientific evidence to inform global conservation policy (e.g. Convention on Biological Diversity); freely available online database of population trends data |
| | <u>Sampled Red-list Index</u> | Initiative to broaden the taxonomic coverage of the IUCN Red List (global assessment of extinction risk) | 2007 onwards | Scientific evidence to increase species data coverage for key regions and taxa, and to identify national, regional and global conservation priorities; freely available online assessments database |
| | Mid-water fish and shark monitoring programme | Large-scale/Long-term sampling of mid-water fish and shark communities | 2012 onwards | Large scale macroecological data to inform spatial management of marine resources and MPAs |
| | Wildlife monitoring technology programme | Development of innovative hardware and associated software for wildlife monitoring | 2007 onwards | New statistical and technological tools to improve wildlife monitoring options for previously hard to reach species |
| Wildlife Health | <u>Cetacean Stranding Investigations Programme (CSIP)</u> | Understand the underlying causes of stranding events | 1990 onwards | Scientific evidence to inform UK and international marine policy; freely available online database of strandings and post-mortem data; national cetacean tissue archive of over 80,000 samples |
| | <u>Garden Wildlife Health</u> (and predecessor projects) | Monitor the health of and disease threats to British wildlife | 1992 onwards, GWH launched in 2013 | Emerging disease threats to British wildlife; increased public awareness of disease threats to wildlife; best practice advice to the public on wildlife disease prevention; database and wildlife tissue archive to support collaborative research |
| | <u>Disease Risk Analysis and Health Surveillance (DRAHS)</u> | Investigate the disease and health implications of interventions carried out for wildlife conservation purposes | 1989 onwards | Disease risk analyses for individual species conservation programmes (over 30 species to date); detection and management of disease threats to species of conservation concern; best practice management for threatened species conservation programmes; national and international policy advice on assessing and managing the risks from conservation translocations |

| PROGRAMME TYPE | PROGRAMME | DESCRIPTION | YEAR INITIATED | DELIVERABLES |
|----------------|---|---|----------------|--|
| | <u>Bats as disease hosts</u> | Epidemiology of zoonotic and potentially zoonotic pathogens in African bats | 2007 onwards | Strategies to reduce the spillover of pathogens from bat hosts into humans |
| | <u>Mountain Chicken Recovery Programme</u> | Mountain chicken population and pathogen dynamics in the face of chytridiomycosis | 2002 onwards | Scientific evidence to inform in-country conservation management and to evaluate conservation actions applicable to this and other species threatened by chytridiomycosis. |
| | Darwin's frog conservation programme | Darwin's frog population and pathogen dynamics | 2010 onwards | Scientific evidence to inform in-country conservation management and to evaluate conservation actions applicable to this and other species threatened by chytridiomycosis. |
| | Cornwall Badger Project | Development of non-lethal control measures for bTB in badgers | 2012 onwards | Scientific evidence to support the development of locally appropriate measures to control the spread of bovine TB |

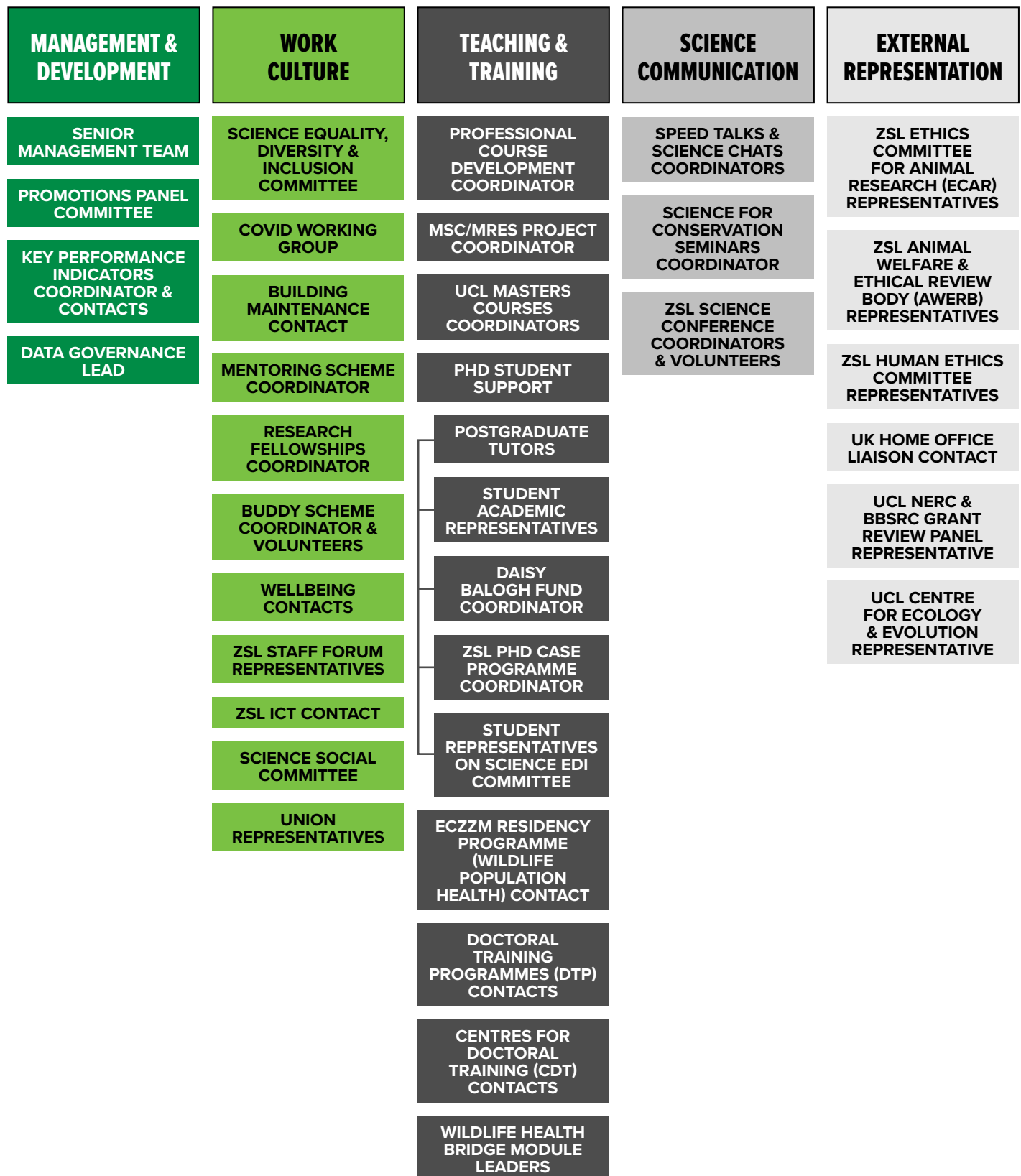
APPENDIX C:

PROFESSIONAL DEVELOPMENT COURSES PROPOSED OR TAUGHT AT IOZ

| | DURATION | PREP | FACILITIES | EQUIVALENT EXAMPLES |
|--|----------|---------|--------------------------------|---|
| Translocations | 1 day | Ready | Teaching room | https://iucn-ctsg.org/training/ |
| Reintroductions | 2 days | Ready | Teaching room | https://iucn-ctsg.org/training/ |
| GIS for Ecologists | 2 days | Ready | Teaching room | https://smconservation.gmu.edu/programs/ |
| Remote Sensing for Ecologists | 3 days | Ready | Teaching room | https://hhi.harvard.edu/geospatial-workshop |
| Red Listing (how to do Red List assessments) | 2-4 days | Ready | Teaching room | https://www.iucn.org/regions/europe/projects/life-european-red-lists/workshops/red-list-training-workshops |
| DRA (disease risk analysis) | 1 day | Ready | Teaching room | http://www.cpsg.org/our-approach/training |
| Animal Tracking (theory and practice) | 5 days | Partial | Teaching room + | https://www.unis.no/course/ab-825-biotelemetric-methods/ |
| CSIP – Cetacean Strandings | 2 days | Ready | Teaching room + dissection lab | |
| TB Vaccinations for Badgers | 3 days | Partial | Field course | https://www.gov.uk/guidance/bovine-tb-badger-vaccination-training |
| Wild animal pedigrees | 3+ days | Partial | Teaching room | |
| Species distribution modelling | 2+ days | Partial | Teaching room | |
| Camera Trapping | 3–5 days | Partial | Teaching room + | https://smconservation.gmu.edu/programs/graduate-and-professional/camera-trapping-study-design-and-data-analysis/ |
| Local Ecological Knowledge from Interviews | 2 days | Partial | Teaching room | |
| Surveys with BRUVs and Drones | | Partial | Teaching room | |
| AI for Ecology | TBD | TBD | Teaching room | https://www.futurelearn.com/courses/artificial-intelligence-for-earth-monitoring |
| Biological Databases | TBD | TBD | Teaching room | |
| Animal Welfare | TBD | TBD | Teaching room | https://cawsel.com/course-content#COURSE3 |
| Amphibian Handling | 1 day | TBD | Teaching room + access to labs | |
| Diagnosing Egg Mortality | 1-2 days | TBD | Microscope lab | |
| R for Ecologists | TBD | TBD | Teaching room | https://smconservation.gmu.edu/programs/graduate-and-professional/statistics-for-ecology-and-conservation-biology/ https://www.ceh.ac.uk/training/transforming-environmental-data-r |

APPENDIX D:

IOZ organisational support structure



APPENDIX E:

Priority: High (H) / Medium (M) / Low (L)

Pillars: ● Representation (R) / ● Science (S) / ● Outreach (O) / ● Accountability (A)

| PILLAR | PLANNED ACTION | RATIONALE | KEY OUTPUTS AND MILESTONES | SUCCESS CRITERIA AND OUTCOME |
|--------|---|---|---|--|
| R | Explicitly consider diversity in all ZSL science committees | Diverse committees make better decisions | Define diversity and associated metrics Regularly assess diversity in all ZSL science committees | Diversity in representation in all ZSL science committees increases |
| R | Link our EDI statement to all recruitment adverts in Science | % of under-represented groups applying to science positions is low | EDI statement for IOZ agreed and online; link to our statement appearing on recruitment adverts; Regularly assess diversity in applicants, shortlisted and recruited staff | % of under-represented groups recruited to fill science positions increases over time |
| R | Diversify Science Directorate social media feeds, communication, and blogs | Increase the visibility of under-represented groups in ZSL communication | Definition of an EDI-focused communication strategy; implementation of the strategy; review and lessons learnt identified after a year | Science Directorate social media communication matches diversity found in Science |
| | Creation of a Student EDI Forum | Improve opportunities for students to raise issues, share resources and learnings | Student EDI Forum hold bi-annually (twice yearly), good attendance (>10 students) | At least 80% of the students value this forum |
| S | Create a diversity award, given to staff and students that demonstrate high level of engagement and co-design with local scientists and communities | Helicopter science is common in conservation, perpetuating colonial attitudes and framing | Formulate how the award would work; First award given during staff and student conference in 2021 | At least 90% staff recognise the value of this award |
| S | Monitor how many of our publication have co-authors from the country where we work | We have committed to boosting engagement with communities we serve | We can monitor progress | At least 50% of our publications have co-authors from the country the work targets |
| S | Develop an EDI action plan for all ZSL-led peer reviewed journals | Important to carry out ZSL science vision in the publications the Society manages | Develop EDI statements for all journals; develop action plan for all journals; open Senior Editor and Associate Editor calls run for all journals; encourage, monitor and report on diversity in editorial board; authorship statement to address helicopter science for all journals | Improved Senior Editor and Associate Editor geographic and gender diversity; increased proportion of authors and reviewers from the Global South |

APPENDIX E:

Priority: High (H) / Medium (M) / Low (L)

Pillars: ● Representation (R) / ● Science (S) / ● Outreach (O) / ● Accountability (A)

| | | | | |
|---|---|--|--|---|
| | Efforts to better highlight and recognize the contributions of under-represented communities to conservation | Important to acknowledge, value and celebrate the contributions of all individuals, organizations and communities to our scientific achievements, past and present | Monthly emails and talks celebrating contributions to conservation by a diversity of backgrounds and communities; academic projects to examine and acknowledge areas of IOZ where systems or relics of colonialism have been / may still be in place | At least 80% of staff and students value these emails and talks; At least one student project focused on rediscovering and celebrating the hidden voices of those who have had a role shaping ZSL and its scientific history |
| ○ | Encourage staff and students to engage with programs that support STEM uptake by under-represented groups | Diversity in STEM is low; importance of engaging new generation | Regularly communicate to staff and students about opportunities to join these programs | At least 10% of our staff and students engage with programs that support STEM uptake at university levels by under-represented groups |
| ○ | Develop and run an annual EDI one day event celebrating diversity in UK conservation, focusing in particular on RENO groups | Few events like this exists; could help us attract more diverse set of applicants | Define event niche; establish key collaborations; run first event; identify key learnings. | % of attendees happy with the event: >90% Event run every year Attract at least 100 attendees |
| ○ | Maximise diversity in all our scientific events | Visibility of under-represented groups is key to attract more diverse people in conservation | Available distribution of protected characteristics (focusing to start with on gender and ethnic background) among speakers and chairs shared with EDI committee annually | % of under-represented groups among speakers and chairs similar to % in UK population |

APPENDIX E:

Priority: High (H) / Medium (M) / Low (L)

Pillars: ● Representation (R) / ● Science (S) / ● Outreach (O) / ● Accountability (A)

| | | | | |
|---|--|--|--|--|
| A | Continue to push for the inclusion of all protected characteristics when identifying needs and providing for the safeguarding of students & staff while travelling on behalf of ZSL. | Safeguarding risks are not yet adequately identified or mitigated for all protected characteristics | Travel risk assessment form revised by H&S; develop a video that explains safeguarding procedures for staff and students highlighting cryptic areas of risk; adequate provision is made to ensure the easy accomplishment of mitigating actions (e.g. supply of ZSL equipment, including to replace personal equipment while travelling) | >80% of staff and students feel that the new form increase their safety, and the safety of the community they serve, while in the field; >90% of students feel that they understand what safeguarding is and how it works for them; all staff and students are adequately safeguarded while travelling on ZSL business |
| A | Monitor diversity among PhD & MSc students | Low level of disclosure among staff and students, making it difficult to track changes in representation | Data compilation; Develop a video that encourage staff and students to disclose their personal characteristics | We have EDI info for at least 50% of the students that do a Master project or PhD with us |
| A | Ensure that mandatory EDI training are completed by staff and students | Completion of mandatory training not monitored/reported on | PDR form revision to ensure that mandatory training is discussed during PDRs; data compilation and annual reporting | 100% of staff and students complete mandatory EDI training each year |
| A | Report on EDI progress | There is a need to demonstrate how as an institution we are moving forwards with our EDI | Identification of EDI KPIs; report to Research England each year on these KPIs; report monthly on EDI issues to SMT; report regularly to staff and students through our newsletter. | >80% of staff and students feel that they are well informed on EDI progress for IOZ |

APPENDIX F:

IOZ Independent Science Advisory Board composition

| NAME | INSTITUTIONAL AFFILIATION |
|---------------------|---------------------------------------|
| Jane Hill (Chair) | University of York |
| Peter Brotherton | Natural England |
| Mercedes Bustamante | University of Brasilia |
| Duncan Craig | University College London |
| Sophie Duncan | National Centre for Public Engagement |
| Stuart Reid | Royal Veterinary College |
| Jim Smith | ZSL |
| Bill Sutherland | University of Cambridge |
| Juliet Vickery | British Trust for Ornithology |
| Christian Walzer | Wildlife Conservation Society |

APPENDIX G:

IOZ KPIs to support headline targets

KPIs are listed under the following headings:

1. We are a world-leading centre of excellence in conservation science
2. We build capacity in students and conservation professionals through our unique education and training environment
3. We accelerate the translation and use of research to maximise conservation impact
4. We inspire new and diverse audiences to care about and better understand wildlife conservation
5. Financial KPIs
6. Equality, Diversity and Inclusion KPIs

KPIs WITH REPORTING FREQUENCY, DEFINITIONS, AND BASELINES

| 1. IOZ IS A WORLD-LEADING CENTRE OF RESEARCH EXCELLENCE IN CONSERVATION SCIENCE, INCLUDING WILDLIFE HEALTH | | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/ appropriate) | 2020/21 DATA | 2021/22 DATA |
|--|--|---------------------|--|---|--------------|--|
| REF2021 | Research excellence recognised by REF2021 | Every 7 years | The scores assigned to IOZ by the Research Excellence Framework (REF). | REF2014: 85% outputs 'internationally excellent' or 'world leading' | N/A | REF2021: 88.5% of outputs 'internationally excellent' or 'world leading' |
| | Impact Case Studies | Every 7 years | Number of REF impact case studies and their scoring by REF panels. | 3 submitted to REF2014 / 2 'outstanding' impact, 1 'very considerable' impact | N/A | 5 submitted to REF2021 (45% of case studies in joint submission, despite contributing only 10% of staff) Scores for individual case studies not provided, but 90.9% of impacts 'outstanding' or 'very considerable' |
| Publications | >150 papers per AY published in peer-reviewed journals | Annually | Number of papers published in ISI-listed journals. | 154 | 166 | 159 |
| | Datasets published | Annually | Includes datasets published along with papers, as well as any datasets published separately. | N/A | 17 | 15 |

| 1. IOZ IS A WORLD-LEADING CENTRE OF RESEARCH EXCELLENCE IN CONSERVATION SCIENCE, INCLUDING WILDLIFE HEALTH | | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/appropriate) | 2020/21 DATA | 2021/22 DATA |
|--|--|---------------------|---|--|--------------|--------------|
| | Software packages published or updated | Annually | Includes updates to software packages (e.g. <i>R</i> packages) as well as new packages. | N/A | 11 | 6 |
| | Other major publications (books, book chapters, major reports) | Annually | Includes books, book chapters, major reports; does not include smaller reports such as annual reports to specific donors. | N/A | 10 | 7 |
| | h-index | Annually | H-index based on citation reports produced from Web of Science. | N/A | 92 | 101 |
| | Ranking compared with top 10 world-leading conservation science institutes | Annually | Based on calculating H index for IOZ and nine other world-leading conservation science institutes (e.g. Birdlife, WCS, WWF), and evaluating IOZ's position in the ranking. | N/A | 2 | 3 |
| Research priority areas | Studies of Wildlife Health | | | | | |
| | Long-term projects (>5 years) | Annually | Calculated by asking project leaders to estimate the percentage relevance to wildlife health of each IOZ project listed in ZSL's project database, active during the review period and for >5 years prior to the end of the period, then summing across projects. | N/A | 5.9 | 9.65 |
| | PhD theses submitted | Annually | Calculated by asking PhD students who submit during the review period to estimate the percentage relevance to wildlife health of their PhD thesis, and then summing across theses. | N/A | 3 | 5.55 |

| 1. IOZ IS A WORLD-LEADING CENTRE OF RESEARCH EXCELLENCE IN CONSERVATION SCIENCE, INCLUDING WILDLIFE HEALTH | | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/appropriate) | 2020/21 DATA | 2021/22 DATA |
|--|---|---------------------|---|--|--------------|--------------|
| | Masters theses submitted | Annually | Calculated by asking Masters project supervisors whose students submit during the review period to estimate the percentage relevance to wildlife health of the thesis, and then summing across theses. | N/A | 2.18 | 4.6 |
| | Peer-reviewed papers accepted | Annually | Calculated by asking IOZ authors of papers accepted during the review period to estimate the percentage relevance to wildlife health of the paper, averaging across IOZ co-authors (if there are multiple IOZ authors), and then summing across papers. | N/A | 24.1 | 15 |
| | External grant income | Annually | Calculated by asking IOZ Principal Investigators of Co-Investigators of grants awarded during the review period to estimate the percentage relevance to wildlife health of the grant, averaging across IOZ Investigators on the same grant (if there are multiple IOZ Investigators), and then summing across grants. | N/A | £5,491,547 | £871,829 |
| | Studies of Biology and Recovery of Small Populations | | | | | |
| | Long-term projects (>5 years) | Annually | Calculated as described for Wildlife Health | N/A | 15 | 15.15 |
| | PhD theses submitted | Annually | Calculated as described for Wildlife Health | N/A | 2.4 | 1.2 |
| | Masters theses submitted | Annually | Calculated as described for Wildlife Health | N/A | 7.13 | 4.8 |
| | | | | | | |

| 1. IOZ IS A WORLD-LEADING CENTRE OF RESEARCH EXCELLENCE IN CONSERVATION SCIENCE, INCLUDING WILDLIFE HEALTH | | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/appropriate) | 2020/21 DATA | 2021/22 DATA |
|--|---|---------------------|---|--|--------------|--------------|
| | Peer-reviewed papers accepted | Annually | Calculated as described for Wildlife Health | N/A | 29.9 | 18.05 |
| | External grant income | Annually | Calculated as described for Wildlife Health | N/A | £1,256,920 | £585,810 |
| | Studies of Co-existence between People and Wildlife | | | | | |
| | Long-term projects (>5 years) | Annually | Calculated as described for Wildlife Health | N/A | 3.1 | 6.2 |
| | PhD theses submitted | Annually | Calculated as described for Wildlife Health | N/A | 1.8 | 4.55 |
| | Masters theses submitted | Annually | Calculated as described for Wildlife Health | N/A | 3.7 | 4 |
| | Peer-reviewed papers accepted | Annually | Calculated as described for Wildlife Health | N/A | 27.75 | 22.65 |
| | External grant income | Annually | Calculated as described for Wildlife Health | N/A | £3,365,522 | £1,053,594 |
| | Studies of Global Biodiversity Monitoring | | | | | |
| | Long-term projects (>5 years) | Annually | Calculated as described for Wildlife Health | N/A | 9.5 | 12.35 |
| | PhD theses submitted | Annually | Calculated as described for Wildlife Health | N/A | 3.7 | 6.2 |
| | Masters theses submitted | Annually | Calculated as described for Wildlife Health | N/A | 8.1 | 7.1 |
| | Peer-reviewed papers accepted | Annually | Calculated as described for Wildlife Health | N/A | 36.35 | 28.25 |
| | External grant income | Annually | Calculated as described for Wildlife Health | N/A | £983,315 | £404,754 |
| | Studies of Mitigating and Adapting to Climate Change | | | | | |
| | Long-term projects (>5 years) | Annually | Calculated as described for Wildlife Health | N/A | 2.9 | 3.85 |

| 1. IOZ IS A WORLD-LEADING CENTRE OF RESEARCH EXCELLENCE IN CONSERVATION SCIENCE, INCLUDING WILDLIFE HEALTH | | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/ appropriate) | 2020/21 DATA | 2021/22 DATA |
|--|---|---------------------|--|--|--------------|--------------|
| | PhD theses submitted | Annually | Calculated as described for Wildlife Health | N/A | 0.3 | 1.5 |
| | Masters theses submitted | Annually | Calculated as described for Wildlife Health | N/A | 3.38 | 4.6 |
| | Peer-reviewed papers accepted | Annually | Calculated as described for Wildlife Health | N/A | 11.15 | 17.05 |
| | External grant income | Annually | Calculated as described for Wildlife Health | N/A | £66,197 | £165,286 |
| Recognition of excellence | # Recognitions of IOZ staff and PhD students for their excellence through award of prizes, senior editorships, honorary roles, advanced professional qualifications, etc. | Annually | Includes prizes, senior editorships, honorary roles, advanced professional qualifications, etc. | N/A | 18 | 23 |
| Academic citizenship | # roles held by IOZ staff and PhD students within academic and professional societies, review colleges, etc | Annually | Include roles in academic and professional societies, review colleges, etc. Impact roles are reported elsewhere. | N/A | 235 | 61 |

| 2. BUILDING CAPACITY THROUGH TEACHING AND TRAINING | | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/appropriate) | 2020/21 DATA | 2021/22 DATA |
|--|---|---------------------|---|--|---|--|
| PhD programme | # PhD students supervised: registered in UK/ LMIC/other countries | Annually | Numbers of PhD students registered with IOZ, reported separately for students registered at universities in the UK, in Lower-Middle Income countries (LMIC), and in other overseas countries. | 84.7 (79 UK / 0.3 LMIC / 5.3 other countries) | 87 (84 UK / 0 LMIC / 3 other countries) | 81 (79 UK / 0 LMIC / 2 other countries) |
| | # countries from which PhD students originate (high/ LMIC) | Annually | Numbers of countries of which PhD students are citizens, reported separately for high-income and lower-middle income countries. | N/A | N/A | N/A |
| | # Student-days of teaching PhD students (classroom/ field/ workshops) | Annually | Includes classroom/ lab/field teaching; does NOT include regular PhD student supervision | N/A | 5.75 | 7.25 |
| | # PhD theses submitted (% submitted within 4 years) | Annually | Number of PhD theses submitted, and the percentage of these submitted within 4 years. | 12 | 13 | 20 (100%) |
| | # DTPs and CDTs on which ZSL is a full/ associate partner | Annually | Number of Doctoral Training Partnerships on which ZSL is a full or associate partner | N/A | 5 | 6 |
| Masters programmes | # Masters projects supervised (UK/non-UK/ LMIC) | Annually | Numbers of Masters projects supervised by IOZ supervisors, reported separately for students from the UK, from Lower-Middle Income countries (LMIC), and from other countries. | N/A | 21 (data not available for separating into UK/non-UK/LMIC) | 27 (data not available for separating into UK/ non-UK/LMIC) |
| | # countries from which Masters students originate (high/ LMIC) | Annually | Numbers of countries of which Masters students are citizens, reported separately for high-income and lower-middle income countries. | N/A | N/A | N/A |

| 2. BUILDING CAPACITY THROUGH TEACHING AND TRAINING | | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/appropriate) | 2020/21 DATA | 2021/22 DATA |
|--|---|---------------------|---|--|--------------|---|
| | # Student-days of teaching Masters students (classroom/field/workshops) | Annually | Includes classroom/lab/field teaching; does NOT include regular Masters student supervision. | N/A | 10.35 | 29.1 |
| | # Masters programmes on which ZSL is a partner | Annually | Number of Masters programmes on which ZSL is a partner | N/A | 5 | 6 |
| | % of students tracked through alumni network in environment sector jobs | Annually | Alumni networks are not in place for all Masters programmes, so we acknowledge this will be an incomplete record. | N/A | 86% | 87% (287 graduates surveyed since 2003/4) |
| Undergraduate teaching | # Undergraduate placements (1-year placements and short projects) | Annually | Includes both 1-year placements and short projects | 6 | 1 | 0 |
| | # Student-days of undergraduate teaching (classroom/field/workshops) | Annually | Includes classroom/lab/field teaching; may also include undergraduate project supervision. | N/A | 13.7 | 14.1 |
| Residencies | # European College of Zoological Medicine residents | Annually | Number of European College of Zoological Medicine residents. | 2 | 2 | 1 |

| 2. BUILDING CAPACITY THROUGH TEACHING AND TRAINING | | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/appropriate) | 2020/21 DATA | 2021/22 DATA |
|--|---|---------------------|--|--|--|--|
| Practitioner training and coaching | Practitioner training courses held (UK/LMIC/other overseas) | Annually | Includes informal coaching as well as formal teaching. Excludes teaching targeting university students, instead focuses on training aimed at those working in practical conservation or wildlife management. Can involve field activities (e.g. camera trapping) as well as other technical skills (e.g., GIS, statistics, grant writing). | N/A | 4 UK / 7 LMIC / 7 other overseas | 3 UK / 3 LMIC / 3 other overseas |
| | Trainee-days of practitioner training and coaching (UK/LMIC/other overseas) | Annually | Includes informal coaching as well as formal teaching. Excludes teaching targeting university students, instead focuses on training aimed at those working in practical conservation or wildlife management. Can involve field activities (e.g. camera trapping) as well as other technical skills (e.g., GIS, statistics, grant writing). | N/A | 19 UK / 295 LMIC / 13 other overseas | 13 UK / 360 LMIC / 8 other overseas |
| | Practitioner trainees (UK/LMIC/other overseas) | Annually | Includes informal coaching as well as formal teaching. Excludes teaching targeting university students, instead focuses on training aimed at those working in practical conservation or wildlife management. Can involve field activities (e.g. camera trapping) as well as other technical skills (e.g., GIS, statistics, grant writing). | N/A | 113 UK / 43 LMIC / 1024 other overseas | 35 UK / 42 LMIC / 325 other overseas |

| 3. ACCELERATING THE TRANSLATION AND USE OF RESEARCH TO MAXIMIZE CONSERVATION IMPACT | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/ appropriate) | 2020/21 DATA | 2021/22 DATA |
|---|---------------------|---|--|---|---|
| Informing government/having a positive influence on policy | | | | | |
| # policies successfully influenced including international conventions / UK government policies / non-UK government policies | Annually | Includes only policy changes that were adopted following IOZ input, e.g. an IUCN motion that was adopted, or a government decision to confer protected status on a species. There must be evidence (e.g., citations, testimonials) that IOZ input influenced the decision to adopt the policy, although IOZ need not be solely responsible for the change. | N/A | 4 international conventions / 6 UK government policies / 2 non-UK government policies | 2 international conventions / 5 UK government policies / 0 non-UK government policies |
| # efforts to inform policy (e.g. consultation responses, evidence to parliamentary committees, meetings with policy makers) relating to international conventions / UK government policies / non-UK government policies | Annually | Includes attempts to change policy, whether or not they were successful (so far), e.g. an IUCN motion that was proposed, or evidence to parliamentary committees. Similar efforts are combined; e.g. example if IOZ staff met with officials several times, and then the Minister, all on the same topic, this would represent a single attempt to inform policy. IOZ need not be solely responsible for the effort, e.g. it might contribute to a consultation response in partnership with other NGOs or academic partners. | N/A | 2 international conventions / 9 UK government policies / 6 non-UK government policies | 4 international conventions / 8 UK government policies / 6 non-UK government policies |

| 3. ACCELERATING THE TRANSLATION AND USE OF RESEARCH TO MAXIMIZE CONSERVATION IMPACT | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/ appropriate) | 2020/21 DATA | 2021/22 DATA |
|---|---------------------|---|--|---------------------------------------|---------------------------------------|
| # Policy advisory groups with IOZ members (UK / non-UK) | Annually | Includes groups specifically concerned with policy, e.g. CITES working groups, Defra advisory groups. Does NOT include IUCN Specialist Groups or similar conservation advisory groups which are listed elsewhere. | N/A | 1 UK government / 9 non-UK government | 4 UK government / 7 non-UK government |
| Empowering partners worldwide to implement conservation interventions and monitoring | | | | | |
| # of countries where IOZ conducts conservation-relevant work | Annually | Number of countries where IOZ conducts conservation-relevant work (e.g. research, conservation, policy work). | N/A | 52 | 60 |
| # of institutions with which IOZ collaborates on science & conservation | Annually | Number of institutions, in the UK and overseas, with which IOZ collaborates on science & conservation | N/A | 190 | 235 |
| # species targeted by IOZ's conservation and science work | Annually | Number of species targeted by IOZ's conservation and science work. | N/A | >102 | ~170 |
| Conservation interventions or monitoring implemented or evaluated by IOZ scientists | Annually | Includes any conservation intervention implemented or trialled during the reporting period; e.g., a trial of distemper vaccination in captive African wild dogs, or vaccination of domestic dogs to protect free-ranging wild dogs. This work may also be documented in papers and reports - or it may not be written up yet. | N/A | 28 | 41 |

| 3. ACCELERATING THE TRANSLATION AND USE OF RESEARCH TO MAXIMIZE CONSERVATION IMPACT | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/ appropriate) | 2020/21 DATA | 2021/22 DATA |
|--|---------------------|---|--|-----------------|----------------------------|
| Practitioner tools and guidelines | Annually | Includes guidelines on methodologies (e.g., remote sensing, reintroduction, animal welfare) and management (e.g., CITES cheetah toolkit, human-wildlife conflict toolkit). Tools and guidelines need not be prepared exclusively by IOZ (e.g. IOZ staff might contribute to IUCN guidelines). | N/A | 8 | 19 |
| Conservation Action Plans developed with IOZ involvement | Annually | Includes any conservation action plans to which IOZ staff or students contributed, whether as a facilitator, convenor, author, technical expert, or other stakeholder | N/A | 15 | 16 |
| # IOZ Staff on IUCN specialist groups or other major conservation advisory groups / # groups | Annually | Includes all IUCN Specialist Groups, and also other similar conservation advisory groups such as SSPs, TAGs, etc. | N/A | 21 | 53 staff / 44 groups |
| # IUCN Red List species assessments carried out or reviewed | Annually | Includes all Red List assessments to which IOZ staff or students contributed as an assessor or reviewer | N/A | ~317 | 12 Red List / 1 Green List |
| Working with ZSL's living collections and conservation programmes | | | | | |
| # Projects conducted in partnership with ZSL Conservation & Policy Directorate | Annually | Includes all projects conducted in partnership with Conservation & Policy, including conservation projects, CASE-partnered studentships, etc. | N/A | 36 | 22 |
| # Projects conducted in partnership with ZSL Living Collections | Annually | Includes all projects conducted in partnership with London or Whipsnade Zoos, including zoo-based research, fieldwork involving zoo staff, conservation work, etc. | N/A | 43 | 19 |

| 4. WE INSPIRE NEW, DIVERSE, AND EXISTING AUDIENCES TO CARE ABOUT AND BETTER UNDERSTAND WILDLIFE AND ITS CONSERVATION | | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/appropriate) | 2020/21 DATA | 2021/22 DATA |
|--|---|---------------------|---|--|--|---|
| % Staff/students participating in science communication activities | | Annually | Staff and PhD student involvement in the development and or delivery of science communication content | N/A | 38% staff / 33% students | 18% (staff and students) |
| % Staff/student trained in public engagement | | Annually | Total staff and PhD students who have completed public engagement training at ZSL or elsewhere | N/A | 28% staff / 33% PhD students | N/A |
| | | | Staff and PhD students trained in public engagement during the current academic year | N/A | 11% staff / 17% students | 6.5% (staff and students) |
| Dissemination of IOZ research | | | | | | |
| Digital resources Content created and reach | WildScience podcast # episodes / # downloads | Annually | Podcast content created by staff and PhD students and reach | 9 episodes / 9,753 downloads | 7 episodes / 14,386 downloads | 2 episodes / 12,608 downloads |
| | ZSL blog # posts by IOZ staff and PhD students on ZSL website/ # readership / Blogs for external orgs | Annually | Number and reach of blogs created by staff and PhD students | 21 / N/A N/A | 31 / 9,305/ 8 | 17 blog posts / 12,533 number of reads of ZSL blogs / 9 blogs for other organisations |
| | @ZSLScience Twitter account # followers / # impressions | Annually | Twitter followers and impressions | N/A | 25.6K / 1,895,600 | 26,510 followers / 466,878 impressions |
| | IOZ YouTube channel # videos/# views/ #subscribers/ # countries (global reach)/ Watch time (hours) | Annually | YouTube content created and reach | N/A | 33 videos / 24,473 views 1.7K subscribers / 44 countries 6.8K hours watch time | 11 videos / 15,700 views (868 new subscribers [total 2520]) / 51 countries |
| | | | | | | |

| 4. WE INSPIRE NEW, DIVERSE, AND EXISTING AUDIENCES TO CARE ABOUT AND BETTER UNDERSTAND WILDLIFE AND ITS CONSERVATION | | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/ appropriate) | 2020/21 DATA | 2021/22 DATA |
|---|--|---------------------|---|---|--|--|
| IOZ in the news | Total number of articles including IOZ messages | Annually | Number of articles including IOZ messages, monitored by the ZSL Press Office using standard methods | N/A | 858 articles | 993 |
| | Total reach of IOZ messages | Annually | Total reach of IOZ messages, monitored by the ZSL Press Office using standard methods | N/A | 202,226,870 | 267,595,662 |
| | Total EAV (Equivalent Advertising Value) for IOZ messages | Annually | Equivalent Advertising Value for IOZ messages, monitored by the ZSL Press Office using standard methods | N/A | £4,926,350 | £9,341,602 |
| Public Engagement with IOZ research | | | | | | |
| ZSL organised activities where the activity and benefits of research are shared with the public. | # activities/# participants/ # activities/# participants/ # attendees / % replied to post-science and conservation events who were inspired informed | Annually | Engagement is by definition a two-way process, involving interaction and listening, with the goal of generating mutual benefit” (NCCPE). Includes Science & Conservation evening events programme, Wild Lunch Wednesdays, Scientist in your Classroom, careers conference | N/A | 25 activities / 28 staff; 19 students / >4000 attendees/ 90% inspired / 86% informed | 17 events / >4,000 attendees / 89% inspired / 95% informed |
| External activities (UK and non-UK) non-ZSL organised activities where the activity and benefits of research are shared with the public. | # activities # attendees (to be collated in AY 2021/22) | Annually | Includes science festivals, external event series (FSC, LNHS, Royal Society, Wellcome etc) | N/A | 36 | 48 activities / >200,000 attendees |

| 4. WE INSPIRE NEW, DIVERSE, AND EXISTING AUDIENCES TO CARE ABOUT AND BETTER UNDERSTAND WILDLIFE AND ITS CONSERVATION | | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/ appropriate) | 2020/21 DATA | 2021/22 DATA |
|--|--|---------------------|---|---|---------------------------------|--|
| Soapbox Science | # events/ # countries/ # participants/ # attendees with no prior participation in science events | Annually | Public outreach to promote women and non-binary scientists and the science they do | 30 events/ 10 countries 31,000 | 28 events / 13 countries 21,837 | 32 events / 12 countries / 384 participants / 32,000 attendees |
| Participation in IOZ research | | | | | | |
| Citizen science | # citizen scientists engaged in IOZ programmes | Annually | Includes citizen science programmes which involve in-person activities (e.g. Bioblitzes), as well as online engagement (e.g. classifying camera trap images) with which the general public can engage on a one-off or casual basis. | N/A | 2195 | 4799 |
| Volunteer programmes | # volunteers engaged in IOZ programmes | Annually | Includes programmes in which registered volunteers participate on an ongoing basis, e.g. biobank volunteers, library volunteers, badger project volunteers. | N/A | 31 | 33 |
| 5. FINANCIAL KPIS | | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/ appropriate) | 2020/21 DATA | 2021/22 DATA |
| Grants awarded | # grants / grant income | Annually | Includes all external grant income secured during the review period. | 33.3 grants / £2,447,372 | 36 grants / £11,520,430 | 39 grants / £3,440,972 |
| | % of grant income which recovers indirect / direct costs | Annually | The percentage of grant income which recovers IOZ costs through overhead (indirect costs) and direct costs (e.g. salary recovery). | N/A | 4.8% | 15% overhead / 59% direct costs |

| 5. FINANCIAL KPIS | | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/ appropriate) | 2020/21 DATA | 2021/22 DATA |
|---|--|---------------------|---|---|--------------|--------------|
| Teaching income (fee sharing) | # PhD | Annually | Income derived from IOZ staff teaching on university PhD courses, and fee-sharing of PhD fees. | £75,667 | £92,000 | £89,745 |
| | # MSc | Annually | Income derived from IOZ partnership on UCL MResBEC and RVC MSc courses | £280,666 | £373,632 | £218,301 |
| Publications income | Scientific journal portfolio | Annually | Income received through ZSL's scientific journals. | £583,000 | £556,000 | £483,783 |
| 6. EQUALITY, DIVERSITY AND INCLUSION KPIS | | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/ appropriate) | 2020/21 DATA | 2021/22 DATA |
| Staff composition | # / % researchers identifying as women in senior positions (Senior Research Fellow & Prof) | Annually | "Senior" researcher positions include Senior Research Fellows and Professors. Gender is self-reported in all cases. | N/A | 4 / 25% | 4 / 25% |
| | # / % technicians identifying as women in senior position (Senior Technician) | Annually | "Senior" researcher positions include Senior Research Fellows and Professors. Gender is self-reported in all cases. | N/A | 3 / 21% | 4 / 40% |
| | # / % researchers from UK ethnic minority groups | Annually | Number and percentage of researchers from UK ethnic minority groups | N/A | 1 / 2% | 3 / 7% |
| | # / % staff reporting disability | Annually | Number and percentage of staff reporting a disability | N/A | 5 / 8% | 5 / 7% |

| 6. EQUALITY, DIVERSITY AND INCLUSION KPIS | | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/ appropriate) | 2020/21 DATA | 2021/22 DATA |
|--|---|---------------------|--|--|--|--|
| Recruitment to researcher and technician positions | # / % applicants from UK ethnic minority groups / reporting disability / identifying as women | Annually | Numbers and percentages of applicants to researcher and technician roles from UK ethnic minority groups / reporting a disability / identifying as women. | N/A | UK ethnic minority groups - RESEARCHER (27/12%); TECHNICIAN (13/50%) Reporting disability - RESEARCHER (14/6%); TECHNICIAN (1/4%) Identifying as women - RESEARCHER (146/66%); TECHNICIAN (16/62%) | Researcher From ethnic minority groups: 15 / 32% Reporting a disability: 0 / 0% Identifying as women: 27 / 57% Technician From ethnic minority groups: 56 / 23% Reporting a disability: 20 / 8% Identifying as women: 164 / 66% |
| | # / % recruited staff from UK ethnic minority groups / reporting disability / identifying as women | Annually | Numbers and percentages of recruits to researcher and technician roles from UK ethnic minority groups / reporting a disability / identifying as women. | N/A | UK ethnic minority groups - RESEARCHER (1/11%); TECHNICIAN (2/67%) Reporting disability - RESEARCHER (0/0%); TECHNICIAN (0/0%) Identifying as women - RESEARCHER (4/44%); TECHNICIAN (1/33%) | Researcher From ethnic minority groups: 0 / 0% Reporting a disability: 0 / 0% Identifying as women: 2 / 25% Technician From ethnic minority groups: 0 / 0% Reporting a disability: 0 / 0% Identifying as women: 3 / 75% |
| Promotion | # / % promotion applicants from UK ethnic minority groups / who identify as women / report disability | Annually | Numbers and percentages of applicants for promotion from UK ethnic minority groups / reporting a disability / identifying as women. | N/A | UK ethnic minority groups (0/0%) Reporting disability (0/0%) Identifying as women (1/100%) | From ethnic minority groups: 0 / 0% Reporting a disability: 1 / 100% Identifying as women: 1 / 100% |

| 6. EQUALITY, DIVERSITY AND INCLUSION KPIS | | REPORTING FREQUENCY | DEFINITION | BASELINE (3-year average where available/ appropriate) | 2020/21 DATA | 2021/22 DATA |
|---|---|---------------------|--|---|---|---|
| Gender pay gap | Researcher / technician / admin | Annually | The difference in salary between male and female researchers/ technicians/ administrators with equivalent roles. | N/A | Mean - Admin: No gap (-14.3%) Mean - Research: 16.46% Mean - Tech: 19.75% | Mean Admin: No gap (-4.61%) Research: 27.21% Tech: 24.97% |
| EDI-focused programmes | # EDI schemes in which IOZ staff & PhD students participate | Annually | Includes any EDI scheme in which IOZ participates, e.g. in2scienceUK, Whizzkids. | N/A | 7 | 4 |
| | % IOZ staff / PhD students participating | Annually | Percentage of existing IOZ staff and students contributing to EDI schemes. | N/A | IOZ Staff – 4.3% PhD Students – 5.2% | 7% staff / 1.5% PhD students |
| | # EDI scheme placements offered | Annually | Number of EDI scheme placements, e.g. KickStart Scheme. | N/A | 38 | 7 |



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