



Conservation Strategy 2023–2028



**Marwell
Wildlife**



Supporting Nature's Recovery

A Conservation Health Approach



TOP LEFT

A tiger *Panthera tigris* receiving care from Marwell's dedicated veterinary team.

BOTTOM LEFT

Silver washed fritillary *Argynnis paphia*. Invertebrate declines are a cause for concern, as they underpin the health of our ecosystems. England.

MAIN LEFT

Marwell continues long-term actions to protect and restore one of our rarest reptiles, the sand lizard *Lacerta agilis*, in southern England.

Background

This new five-year strategy comes at an important time for our planet. The linked crises of climate change, ecosystem degradation and biodiversity loss, are rooted in the disconnect between people and nature. Unchecked, they have the potential to permanently alter our global environment, severely impacting the wellbeing of billions of people. The world has recently experienced a global pandemic, rooted in zoonotic disease, that has caused immense distress, while concerns about global security, economic growth and political values all contribute to deepening unease. Concerted efforts by the international community, such as the UN Sustainable Development Goals and Terra Carta¹, seek to alleviate and reverse these threats. Nevertheless, unsustainable use of natural resources places further stress on the relationship between people and nature, fuelling the disparity between the marginalised poor and the affluent, and putting future generations at a disadvantage.

The needs of people and our planet have required zoos to evolve a new purpose beyond traditional concepts. Our bold new approach is **for progressive zoos to focus on the interdependency between animals, people and ecosystems**. Most global biodiversity is under some form of human influence, and many animals in zoos have important roles in maintaining and recovering sustainable populations globally. We also recognise the wider benefits of the knowledge and expertise developed within progressive zoos, such as Marwell. The interdisciplinary nature of these conservation-focused organisations yields **a wealth of knowledge that can be applied beyond the zoo environment for the conservation of nature and the benefit of all**.

¹ Launched in 2021 by the then Prince of Wales, his Sustainable Markets Initiative is a charter that places sustainability at the heart of private sector business thinking.



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Conservation Health is about People *and* Nature

TOP LEFT
Snow leopard
Panthera uncia
in China's newly
established
National Park in
the Qilianshan
mountains, Gansu
Province.

BOTTOM LEFT
The endangered
Addax antelope
*Addax
nasomaculatus*
in the Grand Erg
desert of Tunisia.

MAIN LEFT
One of Marwell's
education
volunteers
engaging school
children.

The growing awareness that human health and wellbeing benefit is achieved through strengthening our connection with nature urges new socio-economic thinking. Well-managed zoos connect people with nature through five distinct pathways²: contact, beauty, emotion, meaning, and compassion. Our education programmes and wider communications transfer knowledge and experiential learning through participative engagement to promote pro-nature behaviours. Community and business engagement brings benefits to people with whom we work, sharing and multiplying our impact through the wider participation of partners and volunteers. Advances in our understanding of animal health across multiple disciplines and species, and deployment of new and emerging technologies offer innovative solutions to contemporary real-world problems, particularly when allied with and not against nature.

Our **interdisciplinary** approach seeks a culture of **innovation** and **collaboration**, using our combined knowledge to develop solutions to complex problems. Well managed zoos can also demonstrate nature-based solutions and sustainable living, based on equity, diversity and inclusion. Conservation efforts by modern zoos should seek to align activities, such as landscape regeneration, connectivity and carbon sequestration and storage to assist the recovery of the global environment, supporting the ecosystems in which people and animals live. Many other conservation organisations work on various aspects of this framework; however, zoos are unique in their composition of interdisciplinary expertise with **people, animals** and **ecosystems** in real-world situations, allowing them to fully address vital interdependencies.

We believe this is the modern purpose of zoos. (See table on the next page).

²Lumber R, Richardson M, Sheffield D (2017) Beyond knowing nature: Contact, emotion, compassion, meaning, and beauty are pathways to nature connection. PLoS ONE 12(5): e0177186. <https://doi.org/10.1371/journal.pone.0177186>

Example activities and outcomes from the work of a progressive zoo

Activities	Outcomes
People	
Connect people with nature	Positive Physical and Mental Health experiences, the restoration of individual capacity and capability, reduction in stress and stress related conditions, positive life experiences, positive effects and life interventions
Education, information, communication	The sharing of knowledge and the transfer of life skills, development and use of expertise, demonstrable impact both at home and in the wider world, participative and experiential learning, long-term, mutually beneficial behavioural change
Community engagement	Benefit to communities, both locally and internationally by becoming a valued member of those groups of individuals, volunteering and the offering to share skills and expertise
Demonstrate	Nature based solutions, sustainable ways of living, the benefit of equitable and inclusive ways of living interdependently
Provide evidence & expertise	Support policy and decision-making, participating in, and leading on research
Form partnerships	Increased capacities and capabilities across a broader range of individuals and organisations
Innovate	Solutions to complex problems
Animals	
Population management	Sustainable populations, reintroductions/translocations, the One Plan approach
Animal Health	Benefits to animal health & welfare, hub of collaborative expertise
Animal welfare monitoring	A positive life experience for animals in human care and those affected by human activities





Animal behaviour training	Reduced management impact and better welfare, increased likelihood of reintroduction success
Habitat design	Improved health & welfare leading to a positive life experience for animals
Animal Nutrition	Improved health & welfare and consequent reduction in disease risk
Knowledge transfer	The application of knowledge and expertise to 'wild/semi-wild' animals
Integrated pest management	Reduced impact of pest species and real-world application of novel approaches to pest management
Disease Risk	Disease risk analyses, reduced risk of disease transfer, approaches to disease risk mitigation
Innovation/Technology	Solutions to complex problems e.g., remote health assessment of wild animals

Ecosystems

Dynamic carbon stores	Climate change mitigation and sustainable incomes for communities
Biodiversity restoration	Ecosystem services and resilience, for food and water security and disease risk mitigation
Landscape regeneration	Increased biodiversity, sustainability and resilience
Browse/hay production	Sustainable food security for animals in care, including livestock
Flood risk alleviation	Catchment sensitive land management to provide water security and reduce threats
Water quality support	Nature-based solutions to reduce pollution for clean water security for people and thriving biodiversity
Landscape partnerships	Recovering landscape connectivity for wildlife and ensuring population resilience for threatened species
Sustainable technology	Demonstrating energy solutions and assisting 'off-grid' communities to prosper sustainably
Plant Conservation & Health	Underpinning ecosystem recovery with targeted species recovery supporting biodiversity and people

Conservation Health

Conservation actions led by zoos are essential interventions to assist nature's recovery

The interdependency between **animals, people and ecosystems** is well illustrated by the One Health model, a unifying approach that recognises the close link between the health of these groups, articulated in international legal frameworks³. One Health can be highly useful when applied in a conservation context; however, the model itself is centred on health, not the conservation of nature. The purpose of well-managed zoos is to focus their activities on the interdependencies of people, animals and ecosystems. We proffer that **conservation actions led by zoos, focusing on people, animals, and ecosystems, are interventions to assist nature's recovery from current crises**. We propose the term Conservation Health to encompass this interdependencies-based, and conservation-focused approach to assisting nature's recovery. Through Conservation Health, we place our zoo at the heart of our solutions-focused strategy.

As an organisation, our strengths include our highly regarded zoo, our conservation work at home and abroad, our passionate team, and our interdisciplinary ethos, experience, and expertise. However, by taking a Conservation Health approach, we fundamentally shift the way we work, creating a truly unified organisation with aligned practices and a culture that supports synergy and innovation. Our unique mix of expertise, outlook and approach offers an exciting opportunity for collaboration with those with similar thinking. Using our strengths and by taking a Conservation Health approach, together with our global network of collaborative partners we see our role as **providing vital support for nature's recovery for the benefit of people and our planet**.

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RIGHT
Our Nature
Nursery children
and our giraffes
are equally
curious about
each other.



³Davies, K., Lim, M., Qin, T. and Riordan, P. (2022). CHANS-Law: preventing the next pandemic through the integration of social and environmental law. *Int Environ Agreements* 22, 577-597. <https://doi.org/10.1007/s10784-022-09566-7>



Supporting Nature's Recovery



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LEFT
Marbled white butterfly *Melanargia galathea*. Sequestration by Marwell's open habitats and ancient woodlands will be considered in future calculations of our carbon footprint.

Conservation Health is the practice of zoo-led conservation activities which assist nature's recovery. From this first principle and our current organisational context, we have identified three key strategic themes to guide our activities and development over the next five years. These themes respond to clear needs and reflect our unique position at the juncture of species, people, and ecosystems. Linking Marwell's unique skills, networks, and interests, we will work with nature to provide solutions to many of the world's greatest challenges.

1. Health

Our focus will be using our zoo to benefit the psychological health of people, and the health and welfare of animals. We will employ new approaches to enhance the resilience and health of people, wildlife and ecosystems in the U.K. and abroad. We will do this by:

- Creating a zoo experience, including our restored natural landscapes on our estate, which actively promotes the psychological health of people by providing opportunities to connect with nature beyond the possibilities otherwise available to them. We will create explorable, immersive, and biodiverse environments, such as our innovative exhibit *Thriving through Nature*⁴, due to open in spring 2023. We will also explore other ecosystem health benefits beyond those relevant to psychological health. Our focus on health and wellbeing will be mutually beneficial to our guests, Marwell employees and the organisation.
 - Working with nature to recover ecosystems, restore and protect species, including with our local community and on the land we manage, both on our own estate and at Eelmoor Marsh, a Site of Special Scientific Interest. Focus on our wider ecological impact in the region will lead to reversed declines and improved biodiversity, sustainability and resilience. We will promote nature-based solutions and management that deliver actions to benefit global natural capital; sequestering and storing carbon in functioning and connected natural ecosystems
- We will strengthen our partnerships with those with animal and human health interests, working together to find innovative solutions to health issues across the breadth of conservation.

⁴The renovation of our old decommissioned tropical building into a mixed species temperate house, designed to encourage pro-nature behaviours and the improvement in personal wellbeing.



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LEFT
Marwell's Enrita Lesoloyia showing our Samburu women scouts how to use technology to collect biodiversity data.

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TOP RIGHT
Marwell are working with technology partners to use uncrewed aerial vehicles more effectively for conservation

BOTTOM RIGHT
Critically endangered Grevy's zebra *Equus grevyi* rely on our community scouts in Northern Kenya to provide hay during extreme droughts.

2. Connection

Using our Conservation Health approach, we will identify and overcome the barriers to nature's recovery; bringing together partners and working to achieve sustainable solutions. We will foster optimistic and positive connections between people and nature, between partners, between habitats and throughout ecosystems. We will do this by:

- Using our zoo as a positive focus to connect guests with nature through the five pathways: contact, beauty, emotion, meaning and compassion. We will explore how the five pathways may also be used in our work beyond the zoo. We will target improvements towards societal awareness, wellbeing and, increase pro-nature behaviours.
- Working with people and nature to enhance and protect vital ecosystem connections that provide resilience for species, maintain wildlife corridors, and reduce risks to people and wildlife. This will also include actions to mitigate human-wildlife conflict and disease, such as those we are undertaking in Tunisia to minimise risks surrounding reintroduced antelope, and people and livestock.
- Connecting academic disciplines internally and externally and ensuring strong links to decision making. We acknowledge that a multidisciplinary approach to problem solving leads to stronger conclusions through the principle of consilience⁵. Our interdisciplinary ethos as a zoo provides an excellent platform to foster collaborations and promote the growth of academic partnerships, including our

valued colleagues at Universities of Southampton and Surrey. These will yield innovative solutions to the real-world problems we face.

- Deepening the connections with our communities that form the bedrock of our work, including Marwell employees, zoo guests, partners, collaborators, and volunteers. The enthusiasm, passion and skills of our community will provide opportunities to widen our engagement and deliver conservation solutions that work with people and nature, including through our zoo membership and, as an example, with our community citizen scientists in northern Kenya.
- Connecting with key influencers and decision-makers in business and government. We will forge positive and respectful relationships with the private and public sector, government and policy makers promoting pro-nature behaviours and business practices across society.

3. Knowledge exchange & Innovation

The success of our Conservation Health approach in supporting nature's recovery relies on knowledge exchange and innovation. We will overcome barriers to sharing knowledge, accepting that people need the confidence to share and accept ideas, overcoming social, political, and cultural obstacles. Our organisation and partners are rich in knowledge and capable of forming powerful collaborative communities of practice. Applied to Conservation Health, we will create a culture of innovation, using and developing technology and expertise to provide practical and sustainable solutions. We will do this by:

- Delivering novel technology-based approaches to animal health assessment, animal welfare monitoring and improvement, for example building on our existing development of the Animal Welfare Assessment Grid (AWAG) approach, and identifying and reacting to disease risk, including zoonoses and emerging infectious disease.
- Working with nature and seeking nature-based solutions for complex problems, including issues relating to human health and wellbeing, and the security of energy, food and water supplies for people around the world. Our experience with the provision of solar power to communities in northern Kenya and sustainable water for people, livestock and wildlife provides valuable points from which to develop.
- Inspiring pro-nature awareness and behaviours in our visitors, stakeholders and future conservationists through education, social impact and learning activities. This includes promoting the circular economy to minimise supply chain impacts and support regenerative business models. These in turn will support policy and decision makers with expertise and evidence.
- Using 'big data' and advanced analytical techniques to assist saving species, including through the better management of sustainable populations. We will work with natural biological processes in novel ways to improve biological fitness and ensure animal adaptations are appropriate for the long-term survival of recovering populations.



⁵ Wilson, E.O. (1998) Consilience: The unity of knowledge. The harmony of knowledge at the juncture of ethics, social science and biology. Wilson argued that future problems must be solved in the areas of collaboration and crossover between different academic and practical disciplines.

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MAIN RIGHT

Grevy's zebra
Equus grevyi
populations in
northern Kenya are
becoming isolated,
requiring welfare
management and
ecosystem
restoration

TOP RIGHT

Scimitar-horned
oryx *Oryx dammah*
were extinct in the
wild until animals from
captivity were used to
restore populations in
North Africa

BOTTOM RIGHT

The hazel dormouse
*Muscardinus
avellanarius*
is one of our
most endearing
threatened species,
and their populations
are important
indicators of the
health of woodland
landscapes.

A call to action

We are excited about the opportunities arising from our strategic approach: Conservation Health, and the energy created from the closer integration across our entire organisation. This recalibration of the intrinsic connections between people, animals and ecosystems has never been more urgent. Focused on the urgent needs of society in the face of the tipping points arising from the multiple and combinatory threats of climate change and biodiversity loss, we call to our communities, collaborators, academic partners, funders and others who recognise the need for new thinking to join us and work together to support nature's recovery.

"We cannot solve
our problems with
the same thinking
used to create them."

Albert Einstein





Amur tiger
Panthera tigris altaica

For further information
[marwell.org.uk/
conservation](https://marwell.org.uk/conservation)

To access our publications
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