



WORLD ASSOCIATION  
OF ZOOS AND AQUARIUMS

- UNITED FOR CONSERVATION -

# **Building a Future for Wildlife: The World Zoo and Aquarium Conservation Strategy**

## **Executive Summary**

In 1993 The World Zoo Organisation (IUZG) and the Captive Breeding Specialist Group of The World Conservation Union (IUCN) published *The World Zoo Conservation Strategy*. That strategy defined, for the first time in a single document, the responsibilities and opportunities that the international zoo and aquarium community needed, in order to be fully involved in nature conservation. The pressures and threats to wildlife remain and have indeed increased. The need for help in conservation has intensified. It is therefore an opportune time for all zoos and aquariums to re-examine the ways and means by which they can consolidate and increase their support and involvement in conservation.

In 2005 this second strategy, *Building a Future for Wildlife: the World Zoo and Aquarium Conservation Strategy*, has been published by the World Zoo and Aquarium Association (WAZA). This document reinforces and expands the overall themes of the first document and presents a vision of the roles that all zoos and aquariums can and must play in the conservation of wildlife and of their ecosystems. The 72 page document, which is the result of assistance and advice from over 350 people, is truly international in its scope and in its production.

The Strategy is aimed at all zoos and aquariums, however large or small, however rich or poor, and not just those that are members of WAZA. The Strategy provides a common philosophy for zoos and aquariums across the globe and defines the standards and policies that are necessary to achieve their goals in conservation. The 2005 Strategy will be of use and interest not to only zoo and aquarium people but to anyone concerned with biodiversity conservation and sustainable development.

The document begins with a supportive foreword from the Director General of The World Conservation Union (IUCN), and a preface by the President of WAZA and by the Chair of the WAZA Conservation Committee, that set out the genesis and production of the Strategy. The document comprises an Introduction, followed by nine chapters, with each chapter having a summary, a vision statement, a main text, conclusions, and a series of recommendations. The final pages include four appendices: a glossary of terms used in the text, a list of acronyms with their full title and website, acknowledgements, and a list of the illustrations.

This Strategy, which will be complemented by a web-sited and an evolving Resource manual (currently in preparation), will be used by individual zoos and aquariums, by national and regional associations, and by WAZA itself, as the basis for the development of action plans for the implementation of the recommendations.

This Executive Summary includes the summaries, vision statements and recommendations of each chapter.

# Chapter 1. Integrating conservation

*SUMMARY: This chapter explains why and how all zoos and aquariums need to be directly associated with conservation programmes in the wild, and why and how they need to integrate their conservation work with their own organizational activities, internally and externally. Internal integrated conservation activities are those which relate to the way in which a zoo or aquarium is organized and acts in regard to its everyday dealings with visitors. External integrated activities are those which an organization conducts away from its grounds. Both internal and external activities are discussed and listed, and basic strategies are suggested. The emphasis throughout is on collaboration, coordination and communication.*

**VISION:** The major goal of zoos and aquariums will be to integrate all aspects of their work with conservation activities. The fundamental elements of each organization's culture will be the values of sustainability and conservation, and social and environmental responsibility. These values will permeate all areas of their work and will be understood and promoted by all those working within the WAZA network.

## **RECOMMENDATION:**

- **The World Zoo and Aquarium Conservation Strategy (WZACS) calls on institutions to pursue a strategy of integrated conservation and strive to allocate all their financial and human resources carefully and intelligently, with maximum cohesive and strategic thinking within their own organization, and maximum collaboration with others. This will achieve the greatest sustainable conservation benefit for threatened species, their habitats and their human neighbours.**

# Chapter 2. Conservation of wild populations

*SUMMARY: This chapter presents a vision of zoos and aquariums as a force for worldwide conservation, and details how this can be achieved. From a framework based on the Convention on Biological Diversity and the UN Millennium Development Goals, policy is translated into conservation action through involvement in regional, national and local Biodiversity Action Plans and Species Recovery Programmes. This ensures that zoo and aquarium-based activities are integrated, rather than isolated, activities. These institutions engage actively in conservation through diagnosis, problem solving and remedial action, with an emphasis on sustaining long-term studies and programmes. For example, zoos and aquarium wildlife veterinarians are uniquely placed to contribute to research on emerging diseases, and to work at the interfaces between wild and domestic animals and between humans and animals (such as in great ape ecotourism). Wildlife health is also an integral part of the reintroduction and translocation programmes which may be increasingly needed to cope with habitat fragmentation and human-wildlife conflict. All these activities will be most effectively carried out by field units of conservation professionals. Zoos and aquariums are developing as training centres for these professionals, thereby also building local conservation capacity. They are also centres of excellence in animal welfare, breeding, small population management and wildlife health care and use their sites to attract and sustain local wildlife. Moreover, the annual 600 million visitors that zoos and aquariums attract represent an important resource that can be used for funding field conservation. In conclusion, zoos and aquariums are ideally placed to contribute to conservation in the wild, in their own and other countries, through application of their knowledge, skills and resources. Developing this contribution should be a major focus.*

**VISION:** Zoos and aquariums will make further contributions to conservation in the wild by providing knowledge, skills and resources through initiatives in zoo breeding, translocations and reintroduction, wildlife health, research, training, education and by funding field activities. Zoos and aquariums will be an important force for worldwide conservation by their employment or support of field workers active in the conservation of wild animals and their habitats.

## RECOMMENDATIONS:

- The **WZACS** calls on all zoos and aquariums to increase their work in support of conservation in the wild.
- The **WZACS** takes the view that zoos and aquariums, encouraged by **WAZA** and its regional and national associations, should focus their conservation proposals and actions within local, national, or regional **Biodiversity Action Plans** and/or similar species recovery programmes. Where these have not been set up or are not effective, their formation should be initiated, supported or strengthened.
- The **WZACS** emphasizes that zoos and aquariums must not work independently in reintroduction or translocation programmes but must work with other institutions, and always with the appropriate government authorities, the relevant **IUCN/SSC Specialist Groups**, and other governmental and non-governmental conservation agencies, particularly those in the host country, and with the relevant national or regional zoo or aquarium associations.
- The **WZACS** strongly recommends that where possible zoos and aquariums recruit, train and support conservation staff for work in the wild; the **WZACS** also applauds those zoos and aquariums that have set up training courses for conservation professionals, and encourages other institutions to consider setting up their own courses or offer assistance to those courses already operating.
- The **WZACS** calls on national and regional associations and all zoos and aquariums, however small or large, to be actively involved in raising funds for field conservation.
- The **WZACS** suggests that zoos and aquariums enhance their sites with a view to providing habitats for threatened native species
- The **WZACS** recommends that regional and national zoo associations devote time and money to devising and implementing methods of assessment of the conservation contributions being made by their members.

## Chapter 3. Science and research

*SUMMARY: This chapter presents a vision of zoos and aquariums being serious, respected scientific institutions, integrated into the research community, and making sound scientific decisions for wildlife. It argues that through their living collections, zoos and aquariums are uniquely placed to contribute to conservation-directed research. Additionally they provide a venue for researchers and visitors to meet, thus assisting with the public understanding of science and offering opportunities to raise awareness about research and its conservation implications. Zoos and aquariums can undertake research to further their own as well as others' aims (e.g. by collaboration with universities). Research categories include research into pure and applied biological science (e.g. small population biology, behaviour, nutrition, reproductive biology), in situ conservation research (e.g. behavioural ecology, habitat survey) and research aimed at developing other roles (e.g. visitor learning, marketing, exhibit evaluation). It is argued that all research projects which contribute to conservation should be recorded and the information made broadly and easily accessible. Databases are being developed to assist with this. Zoos and aquariums can develop their research capacity by supporting specific research staff, by developing collaborative partnerships with universities, and by supporting regular publication, symposia and workshops for the presentation and discussion of scientific research. Increasing accessibility of results (to both the academic and zoo/aquarium communities) and sharing techniques and experiences maximize the benefit of research. By encouraging access to their animal collections and materials, zoos and aquariums also help develop the researchers of the future. In conclusion, there is much scope for zoos and aquariums to develop their scientific research to inform decision making within their collections as well as*

*to contribute to field conservation.*

**VISION:** Zoos and aquariums are fully and actively integrated into the research community and into public consciousness and understanding of science, as serious, respected scientific institutions that make significant contributions and sound scientific decisions for wildlife worldwide.

### **RECOMMENDATIONS:**

- The **WZACS** urges all associations, regional and national, to continue to record and collate the research that their members undertake, to make that information accessible, and to monitor the emergence of new areas of science for their potential application to conservation.
- The **WZACS** recommends that, for zoo and aquarium-directed research, institutions both individually and collectively identify, prioritize and pursue their own research needs.
- The **WZACS** calls upon the international zoo and aquarium community to promote the establishment and widespread use of databases and resource banks to assist zoo conservation efforts. In particular, it calls upon the **WAZA** network and the International Species Information System (**ISIS**) to ensure that in its final form the Zoological Information Management System (**ZIMS**) is valuable, accessible and affordable for all **WAZA** members and for members of **WAZA** regional and national associations. Furthermore, it calls on all regional associations to promote universal participation in **ISIS' ZIMS** project.
- The **WZACS** urges all zoos and aquariums to review their resources and contribute to the greatest extent and in as many ways as possible to research initiatives, especially those directed towards conservation. In addition, they should work both independently and cooperatively to obtain external research funding. To assist this effort, **WAZA** and regional associations should maintain information on available funding sources and the conditions for access.
- The **WZACS** encourages zoos and aquariums and associated research organizations to analyse and publish their research results in peer-reviewed scientific journals, and to promote their results through the compilation and circulation of bibliographies and through short reports and reviews in relevant journals, newsletters and websites.
- The **WZACS** calls for regular discipline-related reviews of zoo research to be undertaken at institutional, regional and/or global level. These reviews should assess and document progress with their identified research priorities and evaluate and redirect those priorities as needed.

## **Chapter 4. Population management**

*SUMMARY: This chapter presents a vision of the involvement of zoos and aquariums, as centres of expertise in small population management, in regional or global cooperative breeding programmes. To maximize value to conservation, ex situ populations need to be demographically stable, well-maintained and capable of self-sustaining reproduction. They should be distributed among several institutions and of sufficient size to maintain high levels of genetic diversity. However, many programmes have too few founders and participating institutions, depleted genetic diversity and/or poor breeding success. Strategies to enhance viability include: increasing breeding spaces, expanding from regional to global programmes, increasing the intensity of genetic management, improving husbandry practices through research, and importing founders from the wild or other regions. Population management includes demographic and genetic management, veterinary care and husbandry. The first involves monitoring numbers, and age, social and sex structure. Genetic management involves verifying taxonomic identity, and avoiding deleterious effects of inbreeding and loss of genetic diversity.*

*Management decisions are developed through studbooks. Population data are held on a database system at the International Species Information System (ISIS), supported by registration and analysis software. Other management aspects discussed include confiscated and abandoned animals, ownership, and the impact of regulations on animal transfers. The chapter emphasizes that a primary goal of ex situ programmes is support (including demographic and genetic reservoirs) for in situ conservation. Metapopulation management involves managing a set of interacting populations under a common conservation goal. Its components may include ex situ populations, in-country breeding programmes, wild populations and genome banks. Transfer between populations may involve reintroduction. The chapter ends by stating that many wild populations are like ex situ ones - of small size with limited gene flow between them. The science of small population management developed primarily for managing ex situ populations is thus of direct relevance to field conservation. This expertise is a major contribution that zoos and aquariums can offer conservation.*

VISION: All zoos and aquariums will be primary centres of expertise in small population management and will be involved in global or regional cooperative breeding programmes. All such programmes will be based on sound knowledge using the latest available data on population management, reproductive biology, genetics, behaviour, physiology, nutrition, veterinary care and husbandry.

### **RECOMMENDATIONS:**

- **The WZACS recommends that all breeding programmes for threatened species in zoos and aquariums be managed as global or regional cooperative programmes with participating zoos and aquariums sharing a set of specific programme objectives. Regional programmes should link together to address global conservation strategies. Global or regional studbooks or equivalent databases need to be maintained for these species. Where resources allow, breeding programmes for non-threatened species should also be monitored and managed.**
- **The WZACS recommends that all breeding programmes in which zoos or aquariums are involved should be quantitatively and objectively evaluated in terms of their objectives, status and viability.**
- **The WZACS strongly recommends that all breeding programmes should be based on sound science and management using the latest available knowledge on population management, reproductive biology, genetics, animal behaviour, nutrition, veterinary care and husbandry standards.**
- **The WZACS reminds all zoos and aquariums and local, regional and national authorities that they would find it useful to consult the 'WAZA Guidelines on the acceptance of seized or confiscated animals' before accepting confiscated animals.**
- **The WZACS urges all zoos and aquariums to continue to support the scientific development of population management, particularly for taxa held in group situations (e.g. fish, invertebrates and micro-organisms), or species facing specific challenges, such as disease.**
- **The WZACS reminds all zoos and aquariums that they are expected to maintain critical animal records on their collections and contribute these data to the ISIS database and studbooks in a timely and comprehensive manner. The WAZA and regional associations must continue to explore economically viable methods for institutions in developing countries to participate fully in this process.**
- **The WZACS calls on all zoos and aquariums to link their collection planning with regionally or globally identified conservation priorities working in collaboration with the IUCN Species Survival Commission's taxonomic and species advisory groups.**
- **The WZACS calls upon legislators and enforcers to make sure that the processes of implementation involved in the transfer of animals and genetic materials between zoos and between aquariums are completed as speedily as possible.**

## Chapter 5. Education and training

**SUMMARY:** *Education is a central role for all zoos and aquariums and should thus be part of their organizational strategy. This includes having a defined education policy, making a strategic development plan for education and demonstrating environmental sustainability (a 'green' ethos). Educational goals should be integral to planning collections, designing exhibits, developing conservation programmes and planning visitor services. The educational role is to interpret living collections to attract, inspire and enable people from all walks of life to act positively for conservation. Educators interpret animals in their economic, cultural and political contexts, as well as biological ones, and explain human impact on wildlife in both local and global contexts. In order to do this education staff (and volunteers) should be supported through training. Networking through the International Zoo Educators Association and with counterparts in botanic gardens, museums, and science centres provides further opportunities to share methods. Zoos and aquariums undertake informal (free-choice) education with their visitors, and formal education through developing links with schools, colleges, universities and teacher training institutes. By participating in curriculum development, zoo and aquarium educators can keep their programmes up to date and help ensure that conservation is incorporated into courses. Living collections can be used well beyond biology, to teach animal care, horticulture, exhibit design, and leisure management; so developing training partnerships further expands educational roles. Education is also a critical component of field conservation, building awareness and support. The chapter thus presents a vision of zoos and aquariums making a significant conservation contribution by acting as leaders and mentors in socially- and culturally-relevant formal and informal education, thereby influencing people's attitudes and behaviour towards wildlife and environments, local and global.*

**VISION:** Zoos and aquariums with their unique base of live animals, their expertise, and their links to field conservation will be recognized as leaders and mentors in formal and informal education for conservation. The educational role of zoos and aquariums will be socially, environmentally and culturally relevant, and by influencing people's behaviour and values, education will be seen as an important conservation activity. Zoos and aquariums will expand the training of their own staff and of others engaged in *in situ* and *ex situ* work.

### **RECOMMENDATIONS:**

- **The WZACS urges all zoos and aquariums to ensure that education is a central part of their reason for being and to provide adequate support and resources to enable this role to be fulfilled.**
- **The WZACS recommends that all zoos and aquarium associations, regional and national, develop an education policy. This should provide a coordinated approach to education, both formal and informal, and provide leadership in the formulation of principles, strategies and minimum education standards.**
- **The WZACS recommends that individual zoos and aquariums develop or adapt their own education policies in line with those of their association and their own needs.**
- **The WZACS recommends that education policy statements, strategies and standards should be readily available and should be reviewed and updated regularly.**
- **The WZACS recommends that zoos and aquariums enhance the effectiveness of conservation education by working closely with other education institutions and organizations, governmental departments and ministries, and by being involved in formal education curriculum activities, and formal educational programmes designed for all ages and abilities.**
- **The WZACS recommends that zoos and aquariums endeavour to develop structured training programmes available to all staff and volunteers.**
- **The WZACS strongly encourages all zoos and aquariums to use objective and tested methods of evaluating the effectiveness of their conservation education and training programmes.**

## Chapter 6. Communication: marketing and public relations

*SUMMARY: This chapter presents a vision of zoos and aquariums being among the major voices of conservation through their effectiveness in communicating conservation issues, and their integrity and expertise. It lays out a set of principles through which zoos and aquariums can best communicate their conservation achievements. These principles include: zoos and aquariums are universal, inspirational, and educational and they care for their animals. They are conservation bodies which help effect change; they bring benefits to urban populations, are accountable and ethical and the support of members and visitors helps conservation in the wild. But, in addition to conservation, education, welfare and research, zoos and aquariums are about fun, and conservation and fun are not mutually exclusive. To raise the profile of zoos and aquariums as conservation organizations, every institution needs a communications strategy. This strategy should be designed to include identification of the audience and the integration of communication through collaboration between marketing staff and animal, education and research staff, as well as other wildlife organizations. This integration should extend to such activities as collection planning, ethical review processes, enclosure design, events and interpretation. Communication messages should be factual, positive, pro-active and optimistic. The strategy should include networking and information sharing with other organizations (for marketing and benchmarking) and increasing, through training, the professionalism of staff communication skills. Zoos and aquariums should use the full range of communication media available and recognize that all staff and volunteers need to be well informed, so they can act as message bearers in their families and communities. It is also advocated that zoos and aquariums involve anti-zoo people/groups in debate and be open and transparent in all their activities. The communications strategy should be monitored, evaluated and shared. A strong, integrated communications strategy has a major role in developing zoos and aquariums as positive voices for conservation.*

**VISION:** Zoos and aquariums and their national and regional associations will become highly effective in communicating conservation issues and their role in conservation. They will become better recognized as one of the major and most trusted voices speaking on behalf of wildlife and wild places.

### **RECOMMENDATION:**

- **The WZACS strongly recommends that all zoo and aquarium associations, and all zoos and aquariums, however small or large, design and implement a communications strategy. This should include the following basic steps: define the overall communication goals; identify the target audiences; decide key messages; choose tactics and methods; identify resources available and needed; and develop monitoring and evaluation techniques.**

## Chapter 7. Partnerships and politics

*SUMMARY: This chapter presents a vision of increased global cooperation between zoos and aquariums and other organizations to achieve conservation goals. Zoos and aquariums represent a unique mix of technical and interpretive expertise, legal and environmental ethics and biological diversity. However, no zoo or aquarium is an island - it cannot alone carry out everything needed for biodiversity conservation. Thus these institutions need partnerships - with each other and with other institutions such as parks, protected areas, government departments, wildlife and environmental agencies, animal welfare organizations, conservation organizations, and academic, professional, cultural, commercial and community organizations. Zoos and aquariums should become members of national and regional associations and support their well-intentioned but under-resourced colleagues. They should however also support governments in reforming or closing those that fail to achieve acceptable standards. Zoos and aquariums can be mutually supportive by exchanging training programmes and materials and by involving local zoos in conservation projects and outreach programmes. The World Association of Zoos and Aquariums (WAZA) is formalizing links with several organizations, including The World Conservation Union (IUCN). WAZA members frequently work with IUCN Specialist Groups, both taxonomic and discipline-based. Partnerships with academia bring increased research opportunities, and*

*partnerships with schools can provide the chance to influence curricula. Linking with libraries and art galleries promotes creative visual and written natural history. Conservation affects people whatever their occupation or social class, so common interest can be developed with architects, engineers and town planners. Partnerships with the media reinforce the conservation message. WAZA requires that all institutions should work within conservation legislation and abide by the WAZA Code of Ethics. Operating ethically and providing information enables zoos and aquariums to influence public opinion and voting habits. By developing strong collaborative relationships with a broad spectrum of partners, zoos and aquariums can substantially increase their conservation impact.*

**VISION:** Through increased cooperation and judicious encouragement, zoos and aquariums will continue to raise standards of animal management, educate the public to act on behalf of conservation issues, and assist in field projects. Partnerships will strengthen global cooperation and help all zoos, aquariums and other conservation organizations to improve and to achieve their conservation goals. Zoos and aquariums will be encouraged to help one another, particularly those that have fewer resources and/or expertise.

### **RECOMMENDATIONS:**

- **The WAZACS strongly recommends that zoo and aquarium partnerships and networks be established or strengthened at local, national, regional and international levels.**
- **The WZACS reminds all zoos and aquariums that they must comply with the legislation and policy that affects conservation and animal welfare.**
- **The WZACS maintains that all zoos and aquariums should be or should strive to be members of a regional and/or national zoo association.**
- **The WZACS recommends that regional and national associations should make every effort to produce and present a conservation conscience appropriate to their culture within their member institutions, and to bring the activities of all their members into a common ethical and technical framework.**
- **The WZACS urges national and regional associations to persuade their respective governments to improve or create zoo and aquarium legislation that will help zoos and aquariums to undertake their conservation purpose.**
- **The WZACS urges those countries that do not have zoo and aquarium legislation to use and adapt the existing relevant legislation of other countries when formulating their own policies and regulations, and to seek the help of those zoo and aquarium associations for which legislation already exists.**

## **Chapter 8. Sustainability**

**SUMMARY:** *This chapter presents a vision of all zoos and aquariums working towards sustainability and reducing their 'environmental footprint', by using natural resources in a way that does not lead to their decline. They will also provide examples to visitors of how they can 'green' their lifestyles. Sustainability is defined as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. It embodies social, economic and environmental dimensions. The 'Earth Summit' in Rio in 1992 set out 27 principles for sustainable development, including Agenda 21, and the subsequently developed ISO 14000; these principles address environmental management and pollution prevention. From these, a set of eight guiding principles can support zoos and aquariums in developing objectives and activities for sustainability: 1) use environmentally sound waste management, 2) be energy efficient, 3) use natural resource responsibly, 4) if you pollute, you pay, 5) put local consumption first, 6) contribute to equitable development, 7) apply the*

*precautionary principle, and 8) encourage public awareness and participation. By becoming models for sustainability, zoos and aquariums can become champions for environmental responsibility, enhance compliance with environmental principles and help inform and shape future legislation. The chapter outlines four ways for zoos and aquariums to initiate and develop sustainable practices, by: encouraging environmental interest groups ('green teams'), developing an environmental management system, registering and gaining ISO 14001 accreditation, and aiming for 'animal embassy' responsible tourism accreditation. These initiatives need to be supported by organizational environmental policies and environmental audits. In summary, zoos and aquariums practising environmental sustainability can influence attitudes and change behaviour. In these ways they can contribute to the conservation of the whole planet.*

**VISION:** All zoos and aquariums will work towards sustainability and reduce their 'environmental footprint'. They will use natural resources in a way that does not lead to their decline, thus meeting the needs of the present without compromising future generations. All zoos and aquariums will serve as leaders by example, using green practices in all aspects of their operations and by demonstrating methods by which visitors can adopt sustainable lifestyles.

### **RECOMMENDATIONS:**

- **The WZACS strongly recommends that all zoos and aquariums adopt measures and activities that help sustain natural resources.**
- **The WZACS recommends that all zoos and aquariums have a written environmental policy and undertake environmental audits.**
- **The WZACS urges all zoos and aquariums to practise environmental sustainability, for by showing by example how sustainability can be achieved, social attitudes and behaviour can be changed; zoos and aquariums can thus be shown to be contributing to the conservation of entire ecosystems.**

## **Chapter 9. Ethics and animal welfare**

*SUMMARY: This chapter outlines a vision of zoos and aquariums working ethically and sustaining the highest standards of animal welfare in their management of viable populations for conservation; they will thus convey credible conservation education messages to the public. The World Association of Zoos and Aquariums (WAZA) Code of Ethics and Animal Welfare represents the common ground on which WAZA Members base their ex situ management and in situ conservation activities. Actions taken should be in the context of species survival, without compromising individual welfare. Animal acquisition and disposition policies are covered, with discussion of the realities of population management. In collections, where predation, disease, and food shortages do not occur, breeding programmes have the potential to produce a surplus. Zoos and aquariums are urged to keep surpluses to a minimum and to consider transfer to other accredited institutions, release into semi-reserves, or release to the wild as part of a coordinated conservation programme, or temporarily preventing reproduction. The disadvantages of long-term contraception are also discussed. If nothing else is feasible, a quick, painless, stress-free death should be considered as a last resort. Collections must provide suitable environments which meet animals' physical and psychological needs. Enrichment activities should be part of routine husbandry. Zoos and aquariums are encouraged to use evidence-based assessments of animal welfare and to use the results when designing enclosures. The chapter mentions a range of policies and procedures which zoos and aquariums should adhere to. Lastly, zoos and aquariums are urged to aim high and exceed legislated standards, thus establishing themselves as responsible organizations which can be trusted to provide the best care for their animals.*

**VISION:** All zoos and aquariums will follow ethical principles and maintain the highest standards of animal welfare in order to establish and sustain viable populations of healthy animals for conservation purposes and to convey credible conservation messages to the

public.

#### **RECOMMENDATIONS:**

- The **WZACS** recommends that all zoos and aquariums seek continually to improve their management techniques and the profession's current practices, based on evolving knowledge and sensibilities.
- The **WZACS** recommends that all zoo and aquarium associations have their own ethical codes and animal welfare policies, and that the associations ensure that their members comply with them.
- The **WZACS** requires that zoos and aquariums acquiring animals of threatened species from the wild will fully comply with the 'IUCN Technical Guidelines on the Management of *ex situ* Populations for Conservation'.
- The **WZACS** requires that all animal transportation must be in accord with regulations, such as the International Air Transport Association's 'Live Animals Regulations', and with relevant national regulations.
- The **WZACS** requires that zoos and aquariums undertake every effort to prevent the escape of animals and plants of alien invasive species.
- The **WZACS** calls upon all zoos and aquariums to comply with legal requirements under which animals must be kept but points out that legislation can only define minimum standards and the zoo and aquarium community should strive for even higher standards.
- The **WZACS** advises that if there are legal or cultural reasons why the killing of surplus animals is not an acceptable option, and the prevention of reproduction would damage the health or cause suffering of the animals concerned, and if the surplus animals cannot be kept in acceptable welfare conditions, then the zoo or aquarium should not have these animals in their collection and they should consider the option of transferring them to another collection.
- The **WZACS** recommends that all regional and national associations develop peer-reviewed animal husbandry guidelines, in particular for species that are managed by cooperative *ex situ* breeding programmes.
- The **WZACS** recommends that zoos and aquariums provide environmental enrichment and should direct resources toward exploring ways that enrichment techniques can be expanded, improved and evaluated.
- The **WZACS** recommends that more use be made of evidence-based objective welfare assessments, and that the results be used to improve the environment of animals in collections.
- The **WZACS** recommends that all zoos and aquariums become more familiar with the relevance of ethics and welfare issues in their conservation activities, and they should increase their efforts to educate and involve staff and the public.
- The **WZACS** recommends that all zoos and aquariums should have an ethics committee and an ethical review process for all aspects of their operations, including those off site.