
# NAPA

# News from African Protected Areas

Nouvelles des Aires Protégées en Afrique

N°117
March 2018

## Edito

*Geoffroy MAUVAIS*
*PAPACO coordinator*

**Good news…**

For once, let us rejoice on some recent good news about nature conservation. The good news are certainly relative when compared to less good ones (which are both more numerous and more impacting) but in many respects, they still represent a sunray of hope. The "Mongabay" website (www.news.mongabay.com) lists several of them.

For one thing, new populations of extremely endangered species have been discovered, which - slightly - alleviates the pressure on those trying to save them. This is for example the case of a near-extinct helmeted Hornbill found in western Borneo. Closer to us, over 30 Grauer gorillas have been discovered in 1% of Maiko National Park in the DRC, kindling hopes of a much larger population, kept secret by the inaccessibility of the area. Local populations of tigers have also been found in Myanmar and Thailand, showing that important species of this kind may stay under the radar when biologists cannot access the area.

More surprisingly yet, new species keep being discovered. This is not much of a surprise in the case of spiders in Australia, frogs in India or Geckos in Burmese caves, but when it comes to new primates like an Orangutan in Sumatra, a lemur in Madagascar, and even more intriguing, a new Galago in Angola... the extent of our ignorance is challenged!

Oceanic pollution, of which everyone is now aware, has become a central topic of debate, resulting in plastic bag bans in an increasing number of countries, such as in Rwanda. This awareness is progressively spreading to other sources of micro-plastic, and we witness the emergence of more alternatives to our mode of consumption of the past decades, which was based on ever greater waste production. This movement was accompanied by the creation of very large marine reserves, particularly in the Pacific, which represent serious progress towards achieving the Aichi target 11 (at least 10% of protected seas by 2020).

The place of local communities is increasingly respected globally – even though it is still not an iron rule in Africa. Thus, encouraging examples exist in Indonesia or Brazil where the balance of power now allows communities to have a say in the choices that relate to the protected areas that concern them. This is a first step towards a possible appropriation of their conservation and its value. Yet the path ahead remains difficult, and simplistic top-down solutions should not distract us.

In the same line, we witness the emergence of more and more research initiatives entirely led by Southern countries. At last, this is a successful emancipation of the rising generation from the "science of the West" which prevailed until then. Madagascar is taken as an example of this evolution which also reinforces the appropriation of local conservation.

On the private sector side, nothing really new, but rather a confirmation and an increase in commitments to fund conservation, often through the fight against climate change. Well-known donors like Bill Gates and the Hewlett Foundation continue to give considerable sums, far above the bilateral aid of most northern countries. This funding may come with already established choices, but the benefits probably exceed this risk. Our MOOCs, largely funded by private partners, are a good illustration, on an obviously much lower scale.

Finally, in all sectors of conservation new technologies emerge as essential catalysts for the quick progress necessary in protected areas. If we consider that MOOCs are part of this arsenal and given that we are also working on the practical implementation of these technologies in some parks, we can rejoice that despite our very modest scale, we contribute a little to the good news.

Hopefully, there will be more soon…

**Papaco is also on:**

**Twitter = @Papaco_IUCN**
(https://twitter.com/Papaco_IUCN)

**And on:**

**Facebook = facebook /IUCNpapaco**
(https://www.facebook.com/IUCNpapaco)

**Please also visit the IUCN-GPAP (IUCN global PA program) webpage and read the newsletter:**
https://www.iucn.org/theme/protected-areas/our-work/newsletter

## OUR ONSITE TRAININGS

### The 14th University Diploma has started in Ouagadougou

Our annual onsite training (UD - University Diploma), organized with the **Senghor University** (Egypt – Francophonie) and **IUCN-PACO**, has started on the 12th of February in Ouagadougou: 20 students coming from 10 countries (Benin, Burkina, Côte d'Ivoire, Central African Republic, Guinea, Mali, Mauritania, Niger, Senegal, Togo) will be working together for eight weeks including 2 in the field (Nazinga Game Reserve). This is the 14th time we organize this training…The training is funded by the **MAVA foundation**.

*The 14th promotion of the University Diploma in Ouagadougou, February 2018*

The course covers several topics:
- Conservation and protected areas: history, context, evolution
- Definition and categories, governance types
- International convention relevant to PA and PA values conservation
- Planning and management effectiveness assessment
- Useful biology notions for PA conservation including in marine environment
- Funding and PA benefits, ecosystem services, climate change
- Ecological monitoring (including field application) and local development and local population involvement
- Laws and regulations that applies to PA conservation

More than 250 students have benefitted from this training so far since 2011…

## OUR ONLINE TRAININGS




Our **four MOOC**, namely:

1) **Protected areas management**
2) **Ecological monitoring**
3) **Species conservation** and
4) **Law enforcement**

…are online and will be until the **13th of April**. **It is still time to register**, do the course(s) and **to pass the exams** if you wish to get **the certificate**(s). The courses are **completely free** and **registration is open to all**.

**To enroll**, please visit www.papaco.org (page MOOC) or **go to the following links**:

**Protected areas management:**
http://papaco.org/how-to-join-the-pam-mooc/
**Ecological monitoring:**
http://papaco.org/how-to-join-the-em-mooc/
**Species conservation:**
http://papaco.org/how-to-join-the-sp-mooc/
**Law enforcement:**
http://papaco.org/how-to-join-the-le-mooc/

Find more information about our **MOOC on www.papaco.org,** at the page « trainings »

Also, join our **Group MOOC** on **Facebook**:
**https://www.facebook.com/groups/208309996241190/**

And like our papaco **Facebook page**
**https://www.facebook.com/IUCNpapaco**

***Our MOOC are developed in cooperation with the Ecole Polytechnique Fédérale de Lausanne***

**More information on the MOOCs: www.papaco.org – page: "training"**

## Species conservation in protected areas: extracts of the MOOC SP

*Our MOOC (Massive Open Online Course) on Species conservation (MOOC SP) is about the species approach to ensure conservation of PAs. It is made of 5 modules that gather 40 courses and covers the conservation of species at all scales, from international to local, from the field to laboratories. This NAPA presents a few extracts of different sequences. To join the MOOC, follow the link:http://papaco.org/mooc-on-species-conservation/*

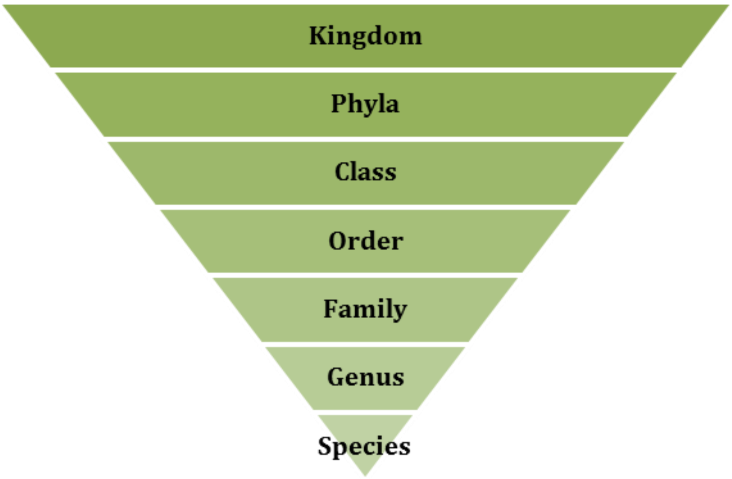
### Extract of module 1: definition of species

***Nakedi Maputla (African Wildlife Foundation – South Africa)***

**Taxonomy:** the science of classifying living organisms into groups (taxa) based on similarities.

**Systematics:** the overarching science that governs taxonomy.

There are 8 major taxonomic ranks, and each of them groups organisms with similar characteristics:

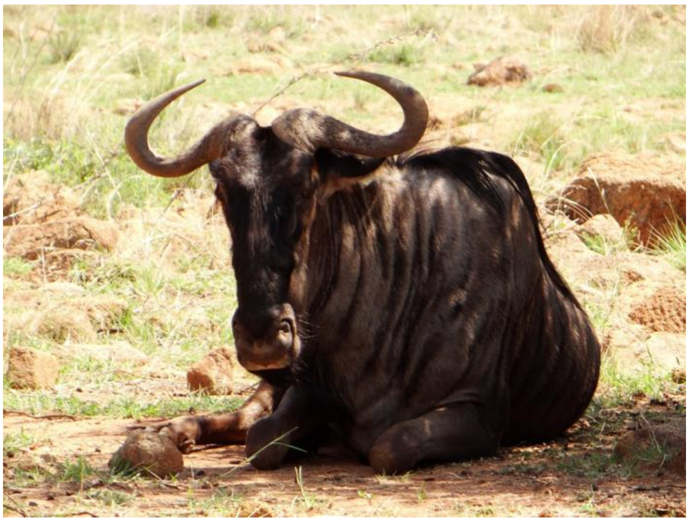



The "high" ranks characterises organisms with "broad" characteristics while the lower ranks characterises smaller groups of organisms based on more precise characteristics. Species are the most basic representation of living organisms.

**Definition of a species:** The simplest and generally accepted definition of species is the following: a species is a group of organisms with similar characteristics capable of producing fertile offspring. It is the basic unit of animal classification.

Sometimes, within the same species there are statistically quantifiable differences between populations. In these cases, the species in question is divided into a subspecies. For example, African elephants can be broken down into two main groups, forest elephants and savanna elephants. The two can be looked at as subspecies of the African elephant.

Use of binomial Latin names: the first part describes the Genus of the species while the second part describes the species. For example, the lion that we've already mentioned belongs to the Genus *Panthera*. The species' name is *Panthera leo*. Sometimes a third rank can be added. For example, the Asian lion subspecies is called *Panthera leo spp. persica*.



## Characteristics of species

**Population:** group of organisms of the same species alive in an area simultaneously.

**Speciation:** development of two or more species due to the physical separation of a population.

**Species mobility:** ability of a species to disperse.

**Migration:** back and forth movement between two specific areas.

**Endemic species:** distribution of a species is restricted to the boundaries of a given area.

**Fragmentation:** barriers between species or within a population. Human beings encroaching on areas that are important habitats for certain species is a source of fragmentation.

**Keystone species:** species that have a major impact on the ecosystem. If they were to go extinct, the environment or the ecosystem will also collapse; thus, causing other species to go extinct as well.

## Extract of module 1: key biodiversity areas

***Penny Langhammer (Global Wildlife Conservation - USA)***

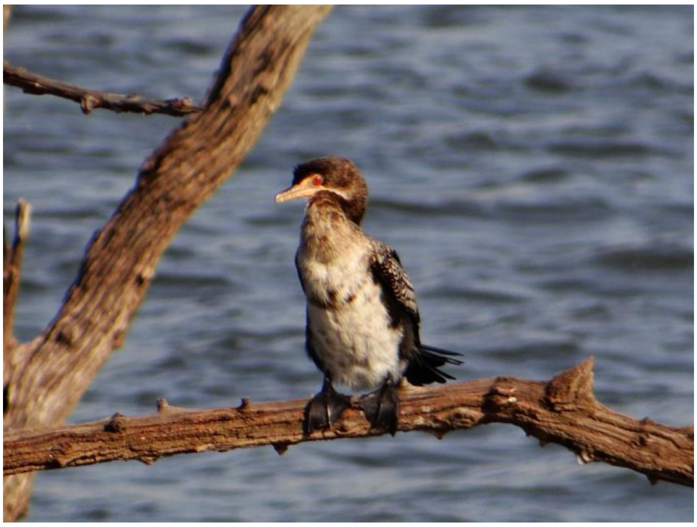
KBAs are sites that contribute significantly to the global persistence of biodiversity. As "sites", they are areas of land and/or in water with defined ecological, physical, administrative or management boundaries that are actually or potentially manageable as a single unit. As such, KBAs differ from large-scale biogeographic regions such as biodiversity hotpots, ecoregions and landscapes or seascapes. KBAs are identified by national constituencies using globally standardized criteria and quantitative thresholds:

**Criterion A: threatened species.** Sites that are important for globally threatened biodiversity. They hold a significant proportion of the global population of a species at risk of extinction, or a significant proportion of an ecosystem type facing risk of collapse.

**Criterion B: geographically restricted biodiversity.** Sites that are important for biodiversity that is geographically restricted on a global scale. They hold a significant proportion of the global population of an individual geographically restricted species.

**Criterion C: ecological integrity.** Sites with globally outstanding ecological integrity and maintaining their full complements of species in their natural abundances or biomass, support the ability of species to engage in natural movements, and allow for the unimpeded functioning of ecological processes. These sites are large and essentially undisturbed by significant industrial human influence.

**Criterion D: biological processes.** Sites that maintain important biological processes. They hold a significant proportion of the global population of a species during one or more life history stage or process, such as feeding, breeding or migration. This also includes sites that concentrate a significant proportion of a species' global population during periods of environmental stress, and sites that produce a very high proportion of the global adult population of a species that disperses elsewhere.



**Criterion E: irreplaceability through quantitative analysis.** Sites with very high irreplaceability for the global persistence of biodiversity. It identifies sites that are irreplaceable because of their combination of biodiversity elements and may identify areas that would not be identified by the other criteria.

Each of the KBA criteria and sub-criteria is underpinned by quantitative thresholds to ensure that KBA identification is objective, transparent and repeatable. These typically take the form of a minimum proportion of the global population of a species (or global extent of an ecosystem type) that must occur at the site. Although KBAs have delineated boundaries, they are not necessarily formal protected areas nor should they necessarily be. Many KBAs will need to be conserved through other site-based management approaches.

KBA data are being used in many different ways to influence conservation policy and sustainable development at the global, national and local levels. For example, KBAs can guide the strategic expansion and strengthening of protected-area networks by governments and civil society as they work to achieve biodiversity targets under the CBD and the Sustainable Development Goals. They also inform private sector safeguard policies, environmental standards, and certification schemes, as well as support conservation planning and priority-setting at national and regional levels.

## Extract of module 2: the Red List of Endangered Species

*Caroline Pollock (IUCN-Red List – Cambridge – UK)*

The IUCN Red List is a tool to identify which species are at greatest risk of becoming extinct. The purpose is to provide information and analyses on the status, trends and threats to species in order to inform and catalyse action for biodiversity conservation. In 2013, the Red List was officially recognised as an online scientific journal. Each species account on the Red List includes information on :

- the species' distribution,
- the habitat and ecological conditions it relies on,
- what we know about its population size and trends,
- whether it is used by humans and if there is any local, national or international trade in the species,
- what threats may be causing population declines,
- what conservation actions are already in place to protect the species or are needed to prevent it declining further.

The Red List is the world's most comprehensive information source for species at risk of extinction and it is widely used around the world to inform and influence conservation actions and policies. The data underlying the assessments on the Red List are often used for analyses and research. The results of these analyses often feed into international conservation policies and agreements, such as the Convention on Biological Diversity and CITES, and can also be used to inform national and local level planning and priority setting. The IUCN Red List is used by various funding bodies and conservation donors in their decision processes for allocating funds for conservation actions. It is used in the private sector to help businesses to make informed decisions to minimise their impacts on biodiversity. And it has a wide range of educational, communications, and public awareness uses.

Currently, there are around 2 million described species on the planet, and an unknown number of species that have still not been described or even discovered yet. In 2017 less than 5% of described species were included on the Red List. The aim of the IUCN Red List is to provide the status of a representative sample of biodiversity, with a focus on selecting certain taxonomic groups which can be fully assessed and have their changing status monitored over time through reassessments.

**NOT EVALUATED**

This category applies to all of the species that have not been assessed. However, it is just as important as the other Red List categories because it means that we don't know whether these species are at high or low risk of extinction, or even if they are already extinct.

**DATA DEFICIENT**

Sometimes, the available information for a species is insufficient to allow the assessor to know whether the species is at high risk of extinction or not. The species in this category highlight the gaps in our knowledge and are often highlighted as potential areas for future research to focus on.

**LEAST CONCERN**

In this category, species are at lowest risk of extinction. These include:

- widespread and abundant species with a stable and/or increasing population,
- species that have a restricted range, but there are no current or future threats likely to affect the population,
- widespread species that are currently abundant, but they are slowly declining. This must be highlighted because if the causes of this decline are not addressed, these species may eventually move into a higher threat category as they are pushed towards extinction.

**NEAR THREATENED**

Species are at higher risk than Least Concern species, but are not quite threatened. It would take very little additional pressure to push these species into a threatened category. The Near Threatened category is also used for species that are dependent on a continuing species-specific, or habitat-specific, conservation or management programme to insure the future survival of the species. If these focused actions to protect the species were to stop, then it would very likely qualify for a threatened category within five years.

**THREATENED CATEGORIES**

As the species moves closer to extinction, it enters the threatened categories:

- Vulnerable: facing a high risk of extinction in the wild,
- Endangered: facing a very high risk of extinction in the wild,
- Critically Endangered: facing an extremely high risk of extinction in the wild.

These three threatened categories have a series of criteria with quantitative thresholds attached to them. Critically Endangered is the highest threatened category before a species moves into the extinct categories. Some species in this category may actually already be extinct, but further surveys are needed to confirm this; these species can be flagged as "Possibly Extinct" and are urgent cases for targeted surveys.

**EXTINCT CATEGORIES**

The two extinct categories are used for the worst case scenarios:

- Extinct in the Wild: the species no longer exists in its natural habitat, and can only be found in captivity (for example, in zoos or botanic gardens),
- Extinct: species that no longer exist at all, either in the wild or in captivity.

## Extract of module 3: invasive species

***Geoffrey Howard (IUCN – Global program on Invasive Species - ret)***

**Biological invasion:** when an exotic species makes its way into a new environment, survives in it and multiplies to the point of becoming a nuisance to the new ecosystem's indigenous biodiversity.

Invasive species have one or several of the following features:

- their reproduction is more effective because they are more fertile, they use resources better or they produce large quantities of seed,
- they disseminate faster and over wider areas than local species do,
- they grow at a faster pace than indigenous species,
- they are able to grow better in severe conditions, including extreme temperatures, unusual rainfall, different soil types etc.,
- they have a better ability to access water, food and light resources compared to indigenous species,
- some plants produce biochemical or "allelopathic" substances themselves (through leaves, stems or roots) which prevents local species from sprouting, growing or reproduce normally.

**Present damages.** They can lead to the extinction of native species. In some cases, entire habitats are destroyed by the invasive species. Often, ecosystems with relatively low biodiversity are the more fragile, like semi-arid zones for instance. Invasive species can completely destabilise the ecosystem and destroy the services it provides.

**Possible damages.** In light of climate change, the possible future effects of these alien species must also be anticipated. The intensification of climatic events such as floods, or fresh and sea water current changes create powerful flows carrying matters that contribute to the dissemination of invasive species over considerable distances, which allow them to colonise new habitats.

Practically all terrestrial, marine and freshwater biomes are affected at some level, and this regardless of the climate. This should get worse in the years to come with the intensification of global trade, population movement, the increase of environment fragmentation, in synergy with the effects of climate change as we said, and the presence of a potentially important number of "dormant invaders".

## Extract of module 3: loss of connectivity and fragmentation

***Bertrand Chardonnet (Wildlife conservation independent expert)***

**Connectivity:** the ability for organisms (including animal or plant species), to move around between components of one or more ecosystems. These components can be a habitat, a landscape, but also an ecological or evolutionary process. This connectivity is a key factor of the persistence of populations as it promotes gene flows between populations and enables greater species diversity.

**Structural connectivity:** refers to spatial organisations of habitats within a landscape, without considering the probability of physical movement.

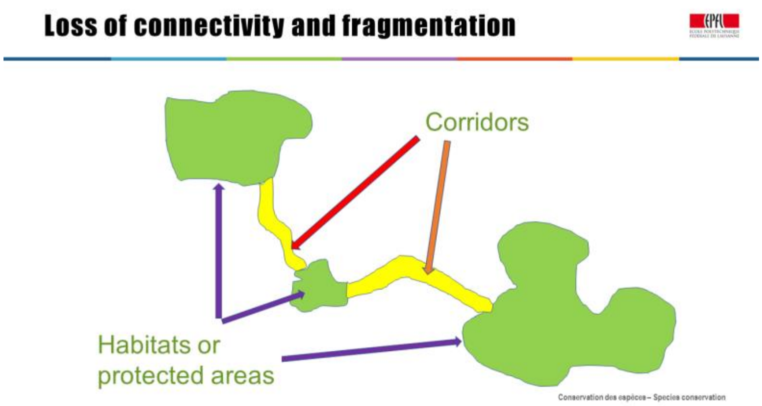
**Functional connectivity:** includes behavioural responses of individuals or species in relation to the structural component.

**Corridors.** Connectivity is often ensured by a corridor which is a habitat with greater length than width, and that connects a habitat's fragments.
Main objective: to facilitate the movement of individuals, either by the phenomenon of dispersal, or by migrations in a way that genetic flows and diversity are maintained among local populations.

**Areas of Connectivity Conservation (ACC).** They aim at connecting protected areas within areas occupied and used by humans, in way that humans and other species can survive and adapt to changes. This idea underscores the notion of space required for the survival of species, and of movement functionality, by dispersal or migration.

**Habitat fragmentation.** Fragmentation affects habitats around protected areas that are occupied by humans. The unplanned development of land use creates habitat fragments for animal and plant species, usually too small to host viable populations of these species. Fragmentation is most advanced in areas of great human density. Urbanisation is the highest stage of fragmentation where nature gives way to human infrastructures.

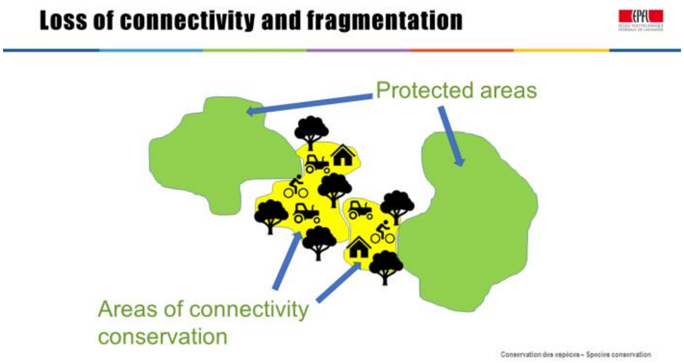
Actions enabling connectivity are hence easier to implement when human density is lower. In some cases it is no longer a possibility, namely in the case of species migrations, but this only affect a limited number of species and geographical sites. Consequently, the contact between two populations is usually made by the continuum of vital spaces and not by movements of exchange between two populations. Thus, corridors between two areas of species distributions are not necessarily used as passageways, but as an extension of their vital space.



In this context, space management between protected areas must as much as possible seek to increase the vital space of the concerned species, which is done for instance by creating ACCs. This can be done by:

- renting land in strategic places, that contains important habitats for animal species, and devote them to conservation,
- creating community PAs or other areas of conservation thanks to the decentralised planning approach of land use,
- creating incentives so that private lands are assigned to conservation on a voluntary basis.

With human population growth, the development of farming and infrastructures, the increase of living spaces and functional connectivity won't always be possible. Individuals moving within anthropogenic areas are one of the factors enabling human/wildlife conflicts. Active management of connectivity has already started to develop, without direct contact, but by planning the movements of identified breeding individuals (absence of consanguinity for example) between isolated protected areas and sometimes even fenced off ones to reduce conflict with humans in densely populated areas.




## Extract of module 4: marine species

***Beth Polidoro (Arizona State University – USA)***

As of 2017, more than 12,000 marine species in complete taxonomic clades have been systematically evaluated against the Categories and Criteria of the IUCN Red List, involving the work and expertise of more than 1500 scientists around the globe. Current results indicate that 20% of marine species are in threatened categories. These include 33% of reef-building corals, 17% of mangroves, and 16% of seagrasses.

The main threats to marine species are:

- overfishing and harmful fishing practices,
- habitat-loss,
- pollution,
- invasive species.

**Threat locations.** Although these threats can certainly occur in the open ocean, they tend to be more concentrated along coastlines and in near-shore areas where human activity is highest. These results have transformed conservation priorities across the globe, and conservation priorities for reducing specific threats to species can now be focused in areas with high threatened species richness.

Conservation actions that can be implemented include:

- regional scale: creation and improved management of marine protected area networks that are coordinated at the regional scale, in order to facilitate protection for migratory species and shared fishery stocks,
- national scale: implementation of policies and actions that preserve critical near-shore habitats, such as mangrove areas, seagrasses and coral reefs,
- local scale: communities can work together to reduce pollution, to minimize coastal land use changes, and to better enforce and monitor local fishing practices and marine resource use.

**Global coordination.** Many marine species have relatively large or widespread distributions that extend across multiple countries' management zones, or even across the globe. For these reasons, conservation responses to eliminate or reduce threats to marine species at the local or site level, such as on coasts and beaches, must also be implemented or coordinated at the regional or global scale for maximum effectiveness.

## Extract of module 5: ex situ conservation

***Nucharin Songsasen (Smithsonian Conservation Biology Institute – Washington DC - USA)***

**Ex situ conservation:** off-site conservation, or maintenance of organisms outside their natural environment (living animals and plants in zoos, aquaria and botanical gardens). It also includes preservation of biomaterials, including seeds and gametes in forms of frozen sperm, eggs and embryos as well as tissue, cell line or DNA in genome resource banks.

**Why ex situ conservation?**

The collection of living, whole animals has several purposes:

1. serve as insurance for their declining wild counterparts,
2. prevent species from complete extinction,
3. serving as sources for reintroduction.

Secondary but important roles of ex situ conservation:

- raising awareness for conservation,
- research to better understand species biology,
- developing tools that can be applied to wild counterparts,
- training professionals in animal handling or monitoring.

*www.nal.usda.go*

**Roles of genome resource banks in conservation:**

The main goal for captive breeding is maintaining gene diversity of the ex situ animal population. Frozen specimens such as sperm, can be used to help genetic management of living collections:

- frozen gametes are easier to transport than live animals, thus, allowing genetic exchange among geographically isolated populations,
- extend an individual's reproductive life by using cryopreserved, or frozen sperm,
- they serve as insurance against catastrophes in wild populations.
- specimens of collected cell lines or DNA can be used for research to better understand phylogenetic, population genetics, and epidemiology of diseases.

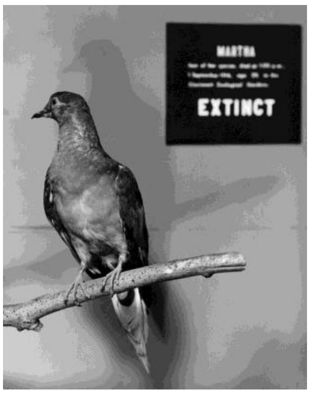
### So, how to apply ex situ conservation?

**Step 1: review detailed information of the species** (life history, taxonomy, population status, demographics, genetic viability and ecosystem functions). This step also includes identification of threats and how they impact species viability.

**Step 2: define the roles of ex situ management.** Will it serve as insurance population, a source for reintroduction or research? Will it serve for public awareness raising? Will it indeed contribute to the conservation of the species?


**Step 3: determine the characteristics of ex situ populations that are required to fulfil their conservation roles.** How many founders are required, how many individuals should be within the population and are there any risks of adaptation to captivity. Regardless the role of ex situ population, the goal of captive management is to maximize genetic variability.

Founder requirements: they should come from multiple populations and not be related. It has been calculated that a minimum of 15 founders are required for establishing an ex situ population. However, in many cases, these minimum numbers cannot be obtained.




**Step 4: define resources and expertise needed for maintaining viable ex situ populations and conduct feasibility and risk assessment.** For instance, if one wishes to develop an ex situ population of the Ethiopian wolf, several factors need to be considered. First, can a

captive facility be built in Ethiopia, how much will it cost and are husbandry protocols available? Although Ethiopian wolves have not been kept in captivity, information may be gleaned from other packed canids, including African painted dogs and dholes. Then, we need to conduct risk assessment - examples of risks include, adaptability (i.e., animals cannot adapt to captive environment), mortality (what are acceptable mortality rate?) and reputation (i.e., if not successful).

**Step 5: making the decision whether or not to include ex situ management in the conservation strategy for a species.** Weighing potential benefits against likelihoods of success and overall costs and risk. If it is determined that species will become extinct without ex situ management, then benefits clearly outweigh the risk. In this case, ex situ management should be included in the conservation strategy for the species.

This entire decision-making process is extremely important to make sure that ex situ conservation is used for the right purpose and these steps should be followed carefully before making any decision.

**More on www.papaco.org**

PANORAMA
SOLUTIONS FOR A HEALTHY PLANET

**Forest protection and Livelihoods improvement in Ekuri, Nigeria**

http://panorama.solutions/en/solution/forest-protection-and-livelihoods-improvement-ekuri-nigeria

*@Ekuri initiative*

Through an inclusive approach, involving the community in land use planning and natural resource governance the Ekuri Initiative in Nigeria`s Cross River State has addressed problems caused by deforestation and forest degradation. These problems are exacerbated by climate change including drought, fire and flood, as well as food insecurity, illiteracy and poverty and poor governance. The Ekuri Initiative concentrated on raising awareness and education of the values of the forest and forestry and used a participatory approach to create a land use plan including nine zoning areas. These were based on topography as well as needs of the local community. Rules and regulations were created and approved with the aid of an indigenous lawyer and are affectively enforced. Today the Ekuri forest floor continues to be reseeded and jobs have been created in sustainable harvesting of timber and non-timber forest products. Increased community income has enabled the creation of a 40km dirt road, construction of a school, health centre and townhall and literacy rates have improved in the community as a result of scholarships and skills training.

**More info on PANORAMA**

**NAPA – CONTACTS** **www.papaco.org and www.iucn.org**

geoffroy.mauvais@iucn.org Program on African Protected Areas & Conservation
beatrice.chataigner@iucn.org PAPACO – Program Officer – Green List
marion.langrand@papaco.org PAPACO – Program Officer - MOOCs
youssouph.diedhiou@iucn.org PAPACO – Program Officer – Green List and World Heritage
Coetzer.madeleine@gmail.com PAPACO – Program Officer - MOOCs

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