

ACTION PLAN FOR SAHELO-SAHARAN MEGAFUNA

This Action Plan aims to frame the actions and measures to be undertaken for the conservation of Sahelo-Saharan Megafauna (SSFM) species, in all the environments where they occur (wild, reintroduced, semi-captive and captive), aligned with strategies already developed for other species.

*The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CMS Secretariat (or the United Nations Environment Programme) concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.

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A- REGIONAL-LEVEL ACTION PLAN

1. Policy and legal	Indicators	Actors
1.1. Review, strengthen and make accessible legal frameworks in relation to species and habitats conservation and align with CMS obligations, also working through the CMS National Legislation Programme.		
1.2. Include the conservation of SSMF species and their habitats in the National Biodiversity Strategy and Action Plans (NBSAPs) – the Convention on Biological Diversity’s (CBD) national implementation instruments.		
1.3. Mainstream SSMF conservation across all appropriate government sectors, including agriculture, infrastructure, mining/excavation, water, tourism, defence.		
1.4. Comply with CMS, CITES and CBD obligations (including the Global Biodiversity Framework) on harvest, use and trade.		
1.5. Encourage the development of public-private partnerships.		
2. Ecosystem management		
2.1. Identify and map important habitats and corridors for SSMF.		
2.2. Include the conservation of SSMF habitats in integrated land use planning (CBD Global Biodiversity Framework (GBF) Target 1).		
2.3. Restore important SSMF sites in compliance with CMS obligations (GBF Target 2).		
2.4. Develop integrated grazing management programmes with local communities at key sites.		
2.5. Ensure sustainable water management and in particular avoid the digging of new water wells in protected areas and other sites important for SSMF species.		
2.6. Engage the mining sector in the implementation of SMFF conservation projects.		
2.7. Conduct Environmental and Social Impact Assessments (ESIAs) for development projects according to CMS obligations and international and national standards.		
3. Site protection		
3.1. Review/expand protected area networks for adequate coverage of SSMF populations and important corridors to meet CBD GBF Target 3.		

3.2. Develop/update and implement protected area management plans of protected areas with SSMF species.		
3.3. Promote transboundary protected areas for SSMF species		
4. Species action (GBF Target 4)		
4.1. Establish the current status of all species.		
4.2. Take urgent action to prevent the extinction of the most threatened species.		
4.3. Protect known populations of all species effectively.		
4.4. Reintroduce or reinforce depleted populations.		
4.5. Adopt the One Plan approach to <i>ex situ</i> and <i>in situ</i> management.		
4.6. Reinforce scientific research actions.		
5. Community engagement		
5.1. Consolidate/update/develop and implement community programmes on SSMF species.		
5.2. Involve, in a participatory manner, local communities in the management of protected areas and value local practices and know-how in relation to SSMF species and habitats.		
5.3. Promote intercommunity dialogue and income-generating activities.		
5.4. Encourage community initiatives for the conservation and valorisations of SSMF.		
6. Education, awareness-raising, and communication		
6.1. Conduct awareness-raising campaigns for local communities and the general public on SSMF and the need for conservation of species and habitats in all key zones through targeted workshops and media.		
6.2. Engage/raise awareness of the hunting, education and tourism sectors on the SSMF and the need for conservation of species and habitats.		
6.4. Raise awareness of SSMF species among regional officials, police, judiciary customs, and military.		
7. Climate Change		
7.1. Conduct assessments on climate change vulnerability and adaptation capacity of SSMF species.		
7.2. Identify the impacts of climate change on SSMF species and habitats.		

7.3. Implement the adaptive capacity of SSMF species to extreme climatic conditions.		
8. Means of implementation		
8.1. Work towards the provision of adequate equipment and technology to conserve SSMF species effectively.		
8.2. Reinforce capacities in all technical aspects required for the implementation of the regional action plan and the species-specific action plans.		
8.3. Reinforce resource mobilisation capacity for the implementation of the action plan.		
9. Regional cooperation		
9.1. Reinforce bilateral and multilateral cooperation on the conservation of transboundary populations of SSMF species including the exchange of best practices.		
9.2. Encourage transboundary initiatives and promote coordination in the fight against poaching.		
9.3. Develop a regional SSMF species database supported by an information exchange mechanism.		
9.4. Work to integrate SMFF conservation activities into regional initiatives including the Great Green Wall.		

B SPECIES-SPECIFIC ACTION PLANS

Addax (*Addax nasomaculatus*)

Objective / Action	Indicator	Urgency	Implementation
Objective 1. The wild addax population is effectively protected and monitored.			
1.1. Establish status			
1.1.1. Conduct regular patrols between Termit and the Chad border (vehicle, camel, air)	Patrol schedule agreed and funded		
1.1.2. Conduct patrols and information collection on the Chad side of the border	Patrol schedule agreed and funded Community reporting system agreed		
1.1.3. Conduct satellite collaring operation in late 2023	Réalisation d'une enquête préparatoire Addax avec collier et suivi		
1.1.4. Survey the ergs between TTNNR and Aïr and Ténéré National Nature Reserve (ATNNR) (from the air and on the ground)	Survey reports		
1.1.5. Maintain records on a central database	Database and map established		
1.2. Enhance the effectiveness of antipoaching			
1.2.1. Increase capacity of DFCPR	Training sessions for rangers held Sufficient vehicles and motorcycles available Equipment and technology available		
1.2.2. Involve the Nigerien military in conservation activities	Inter-ministerial agreement signed		
1.2.3. Conduct military patrols along the main highway corridors	Regular patrols take place		
1.2.4. Provide training for military personnel	Training sessions held		
1.3. Minimise the impact of oil production on Addax			
1.3.1. Secure a formal agreement with the Ministry of Petroleum and the oil companies on joint activities	Memorandum of Understanding (MoU) signed		
1.3.2. Assess the potential impacts on the Addax of the proposed route of the Chad-Niger oil pipeline	Impact assessment produced		
1.4. Consolidate community engagement			
1.4.1. Secure agreements with key communities in the Addax zone	Outreach meetings held MoUs signed Communities actively involved		
1.4.2. Develop a standardised system of community reporting	Community reporting system agreed Regular reports submitted		

Objective / Action	Indicator	Urgency	Implementation
1.4.3. Work with the Préfets to prevent issue of permits for digging new water wells in key areas			
1.4.4. Work with the Préfets to destroy unauthorised water wells in key areas	Wells destroyed		
Objective 2. The status of the species in the wild is established and known populations are monitored and protected			
2.1. Chad (Eguy and Siltou)			
2.1.1. Conduct air and ground surveys	Surveys completed		
2.2.2. Work with communities on conservation	Outreach meetings held		
2.2.3. Strengthen capacity of DCFAP	Capacity needs assessment conducted		
2.2. Mauritania			
2.3.1. Conduct questionnaire and field surveys	Surveys completed		
Objective 3. Addax are successfully reintroduced to suitable sites within their former range			
3.1. Consolidate reintroduction in Morocco			
3.1.1. Continue the scheduled release programme	Population growth and expansion		
3.1.2. Maintain the monitoring programme	Analysis of results (reproduction, movements, habitat use)		
3.1.3. Consolidate community engagement	MoUs renewed		
3.1.4. Minimise effects of tourist disturbance on Addax	Dune-driving exclusion zones designated Tourism operators engaged Awareness programmes developed		
3.2. Consolidate reintroduction in OROA (Chad)			
3.2.1. Continue the scheduled release programme	Population growth and expansion		
3.2.2. Maintain the monitoring programme	Analysis of results (reproduction, movements, habitat use)		
3.2.3. Consolidate community engagement	MoUs renewed		
3.3. Consolidate reintroduction in Tunisia			
3.3.1. Resolve current issues at each site	Population growth and expansion		
3.3.2. Maintain the monitoring programme	Analysis of results (reproduction, movements, habitat use)		
3.4. Conduct reintroduction in Ennedi (Chad)	Addax released		
3.5. Conduct feasibility studies on other reintroductions	- Studies completed - Potential release sites identified		
Objective 4. The genetic diversity of Addax is maximised and the management of <i>ex situ</i> addax populations is optimised to support <i>in situ</i> conservation			
4.1 <i>In situ</i>			

Objective / Action	Indicator	Urgency	Implementation
4.1.1. Capture wild individuals to retain their unique genetic diversity	Addax captured and transferred to breeding centre		
4.1.2. Establish a captive breeding centre in Niger	- Centre constructed - Staff trained in husbandry - Breeding plan developed		
4.1.3. Integrate the wild-caught female at Kelle into the breeding programme	Female breeds successfully		
4.1.4. Integrate privately owned captive Addax into the breeding programme	Animals located and integrated		
4.1.5. Continue genetic and genomic research	Analyses conducted		
4.1.6. Develop a global plan to ensure maximal retention of genetic diversity	Plan completed		
4.1.7. Prioritise biobanking, cell line generation, reproductive technologies, and movement of germ cells	Strategies developed		
4.2 Ex situ			
4.2.1. Maintain and expand coordinated breeding programmes	- Increased number of participating institutions - Increased number of Addax included in programmes		
4.2.2. Integrated <i>in situ</i> and <i>ex situ</i> management under a 'One Plan Approach'	Integrated plan produced		
4.2.3. Maintain the Souss-Massa population as a regional source for reintroductions	Breeding continues		
4.2.4. Improve integration of molecular genetic data into population viability modelling and management strategies	Results incorporated		
Objective 5. Local communities are involved in all addax conservation projects and awareness of addax conservation is raised at all levels.			
5.1 Local communities			
5.1.1. Maintain existing community programmes	Outreach meetings held		
5.1.2. Establish community programmes in areas of new operations	- Outreach meetings held - Community agreements signed		
5.2 Awareness raising			
5.2.1. Distribute information to the public through the press, TV, and social media	Messages, articles, posts sur les médias sociaux publiés		
5.2.2. Raise awareness of Addax conservation among local communities in all key zones	Organisation de sessions de sensibilisation		

Objective / Action	Indicator	Urgency	Implementation
5.2.3. Raise awareness of the Addax situation among regional officials, police, customs and military.	Joint meetings		Government agencies, NGOs

Scimitar-horned Oryx (*Oryx dammah*)

Objective / Action	Indicator	Urgency	Implementation
Objective 1. The reintroduction of Scimitar-horned Oryx into the wild			
1.1. The reintroduced population in Chad is sustainable in the long-term			
1.1.1. Continue release programme in OROA	Population growth and range expansion Lower category of threat on IUCN Red List		
1.1.2. Ensure effective protection	Patrol schedule agreed and funded Training sessions for rangers held Sufficient vehicles and motorcycles available Equipment and technology available		
1.1.3. Increase capacity of DCFAP	Patrol schedule agreed and funded		
1.1.4. Continue satellite, aerial, ground monitoring	Survey reports Analyses conducted		
1.1.5. Consolidate community engagement	Community reporting system maintained Community workshops held Agreements signed in areas of Scimitar-horned Oryx expansion		
1.1.6. Avoid construction of new water wells in key zones	Key zones mapped No new wells constructed Unauthorised wells destroyed		
1.2. Scimitar-horned Oryx are reintroduced successfully in new sites			
1.2.1. Morocco			
1.2.1.1. Implement the scheduled release programme	Oryx released		
1.2.1.2. Develop a monitoring programme	Programme developed		
1.2.1.3. Secure community engagement	Community workshops MoUs agreed		
1.2.2. Niger			
1.2.2.1. Implement the proposed release in Gadabedji BR	Oryx released		
1.2.2.2. Develop a monitoring programme	Programme developed		
1.2.2.3. Secure community engagement	Community workshops MoUs agreed		

Objective / Action	Indicator	Urgency	Implementation
1.2.3. Conduct feasibility studies on other reintroductions	Studies completed Potential release sites identified		
1.2.4. Put in place the required conditions for further introductions			
Objective 2. Consolidate the reintroduced populations in semi-captivity in Tunisia and Senegal			
2.1. Tunisia			
2.1.1. Develop metapopulation management programme	Increase in numbers at each site		
2.1.2. Conduct regular monitoring	Results available (numbers, reproduction, habitat use)		
2.1.3. Establish corridors between sites	Corridors mapped		
2.1.4. Release oryx into the wider landscape	Oryx released		
2.1.5. Secure community engagement	Community workshops MoUs agreed		
2.1.6. Strengthen capacity of DGF	Capacity needs assessment conducted Training workshops held		
2.2. Senegal			
2.2.1. Develop the Katane population	Increase in numbers		
2.2.2. Conduct regular monitoring	Results available (numbers, reproduction, habitat use)		
2.2.3. Expand the Katane enclosure	Expanded enclosure constructed		
2.2.4. Restore habitat in Ferlo Reserve	Key areas restored		
2.2.5. Release oryx into the wider landscape	Oryx released Community agreements signed		
2.2.6. Strengthen capacity of DGF	Capacity needs assessment conducted Training workshops held		
Objective 3. The genetic diversity of Scimitar-horned Oryx is maximised and the management of <i>ex situ</i> populations is optimised to support <i>in situ</i> conservation			
3.1. Continue genetic and genomic research	Analyses conducted		
3.2. Develop a global plan to ensure maximal retention of genetic diversity	Plan completed		
3.3. Prioritise biobanking, cell line generation, reproductive technologies, and movement of germ cells	Strategies developed		
3.3. Maintain and expand coordinated breeding programmes	- Increased number of participating institutions - Increased number of Scimitar-horned Oryx included in programmes		

Objective / Action	Indicator	Urgency	Implementation
3.4. Integrated <i>in situ</i> and <i>ex situ</i> management under a 'One Plan Approach'	Integrated plan produced		
3.5. Maintain the Souss-Massa National Park population as a regional source for reintroductions	Breeding continues		
3.6. Improve integration of molecular genetic data into population viability modelling and management strategies	Results incorporated		

Dama Gazelle (*Nanger dama*)

Updated objectives and actions for Dama Gazelle (*Nanger dama*) conservation (2021-2028). (From the 2.5 year review, 2021)¹

Objective / Action	Indicator	Timeline/ Urgency	Implementation	Update	Notes/Comments	Updated by: Institution (Individual)
WILD						
Objective 1. Monitor wild populations effective!						
1.1. Chad: Wadi Rimé-Wadi Achim Faunal Reserve (OROA)	Survey results	Ongoing	DCFAP, SCF		<ul style="list-style-type: none"> Systematic population monitoring hampered by restrictions on travel due to Covid Local opportunistic record keeping on going Numbers are stable Aerial survey is on track for Nov 2021 	SCF / DCFAP (VB,JN,MHH)
1.2. Chad: Manga	Survey results	2019-2020	Noé, DCFAP, SCF	Achieved over the period 2019 – 2020. No more funding from 2021.	<p>Noé research effort in the Manga:</p> <ul style="list-style-type: none"> 13 research missions in the border area (2018 - 2020) 4 community agents in place, 220 person/days of patrols between 2019 and 2020 Worked on capture and translocation of 3 dama gazelles from Manga to OROA with partners 2 groups of dama gazelles present on the basis of local reports, without real estimate of the size of the groups Groups may be connected to each other? Other groups may be present? Estimate 10 to 20 individuals? 30 maximum? 	Noé (SP)

¹ The *Updated objectives and actions for Dama Gazelle (Nanger dama) conservation (2021-2028)* developed from the 2.5 year review in 2021 was not developed through a CMS process. The CMS Secretariat as a UN entity follows the rules and guidelines as set by the United Nations and any designations employed and the presentation do not imply the expression of any opinion whatsoever on the part of the CMS Secretariat or contributory organisations concerning the legal status of any country, territory, city or area in its authority, or concerning the delimitation of its frontiers or boundaries.

Objective / Action	Indicator	Timeline/ Urgency	Implementation	Update	Notes/Comments	Updated by: Institution (Individual)
1.3. Chad: Alifa-Ati	Survey results	L	DCFAP, SCF		<ul style="list-style-type: none"> No news since 2017 because of local insecurity linked to illegal gold mining Area cannot be accessed 	SCF / DCFAP (VB, JN, MHH)
1.4. Niger: Aïr and Ténéré National Nature Reserve (ATNNR)	Survey results	H	DFCPR, SCF	Ongoing	<ul style="list-style-type: none"> Regular field monitoring ongoing (two missions per year) 2 eco-guards on site for monitoring, awareness raising Use of camera traps finalized in 2020; data analysis/image processing ongoing Observed intensification of human activities on the massif (small-scale gold mining); increased signs of motorbikes Poaching occurs in the area (direct evidence of poaching of a Dorcas gazelle collected in 2020 by field team) A PhD research project (University of Prague) is being carried out on the Dama in Aïr Recommendations on conservation and management are being made to the Governmental authorities Need to reinstall the camera traps for an additional year Dama gazelles are confined to sub-optimal mountain habitats 12 dama gazelles, including 4 very young individuals, were observed on Mount Takolokouzet in late May / early June 2021 as reported to AR (SCF) by a community guard on site 	SCF (VB, JN, AR)

Objective / Action	Indicator	Timeline/ Urgency	Implementation	Update	Notes/Comments	Updated by: Institution (Individual)
1.5. Niger: Termit and Tin-Toumma National Nature Reserve (TTNRR)	Survey results	H	Noé Conservation, DFCPR	Ongoing	<ul style="list-style-type: none"> Permanent, regular monitoring of the population of the Termit massif Population census planned for Q2 2021 Increasing observations of dama gazelles in the valleys and not on the foothills of the Termit massif -> sign of the recolonisation of habitats near the Termit massif? Population census planned for Q2 2021 Census scheduled every 2 years Regular observations with up to more than 20 distinct individuals recorded during these missions No poaching activity recorded in the Termit massif (2019/2020) Population to be re-estimated (awaiting results of the planned census Q2 2021) 	Noé (SP)
1.6. Niger, Western: Tamesna plains						
1.6.1. Establish local contacts	Contacts established Local reporting system	L-M	DFCPR		<ul style="list-style-type: none"> Region too insecure 	
1.7. Mali: Tamesna						
1.7.1. Establish local contacts	Contacts established Local reporting system	M	Government agency, NGO		<ul style="list-style-type: none"> Region too insecure 	
1.8. Algeria: follow-up local reports	Results available	L-M	ANN, DGF			
1.9. Sudan: follow-up local reports and survey former range when feasible	Results available	L	SWS, ASG, Government agency			

Objective / Action	Indicator	Timeline/ Urgency	Implementation	Update	Notes/Comments	Updated by: Institution (Individual)
1.10. Provide training in survey and monitoring methods for all range states	Training courses conducted	M	Government agencies, NGOs	Ongoing (Morocco)		DEF (LS)
1.11. Produce ID card for local use	ID card produced and distributed	L	ASG	Dropped	• No longer a priority	ASG (DM)
Objective 2. Secure and expand key wild populations						
2.1. Niger, Aïr and Ténéré NNR: follow recommendations in DCFAP et DFCPR (2017)	Recommendations implemented	H	DFCPR		• Surveillance needs to be increased for dama gazelles to return to their more optimal habitat in the wadis	SCF (AR)
2.2. Niger, Termit and Tin-Toumma NNR: follow recommendations in DCFAP et DFCPR (2017)	Recommendations implemented	H	Noé Conservation, DFCPR	Ongoing	<ul style="list-style-type: none"> • Termit massif is fully protected • 200 person/days of anti-poaching patrols in the TTNNR • 2500 person/days of community patrols in the RNNTT • No poaching observed on dama gazelles (2019/2020) nor traces of vehicles / motorcycles in the eastern part of the Termit massif (in 2020) • Permanent establishment of management resources in the Termit massif (camp, permanent patrol system, camera trap grid, aerial surveillance system from Q2) • Boundaries of RNNTT were changed in July 2019 and amended in January 2021 to reincorporate the entire Termit massif 	Noé (SP)
2.3. Chad, OROA: follow recommendations in DCFAP et DFCPR (2017)	Recommendations implemented	H	DCFAP, EAD, SCF	Ongoing	• The species is incorporated into the signed, funded and ongoing project on the conservation of endangered species	SCF (VB, JN)

Objective / Action	Indicator	Timeline/ Urgency	Implementation	Update	Notes/Comments	Updated by: Institution (Individual)
2.4. Incorporate Dama Gazelle conservation in all site management plans (MPs)	MPs produced	M	Government agencies			
2.5. Monitor route of the Great Green Wall and potential impact on movements of dama gazelle	Recommendations on changes to route made to governments, as appropriate	L		New	<ul style="list-style-type: none"> See Naia, M. et al (2021) for possible impacts of the GGW on the dama gazelle 	
Objective 3. Reintroduce to new sites						
3.1. Niger, Gadabedji BR: conduct feasibility study	Study produced	M	DFCPR, SCF		<ul style="list-style-type: none"> Cartography and habitat data was collected in 2018 by SCF Analysis is required 	SCF (VB, JN)
3.2. Niger, Ennedi NCR: conduct feasibility study	Study produced	M	DCFAP, APN		<ul style="list-style-type: none"> An ethnozoological study of 110 interviews has been carried out focused on absence/presence of species and those extinct No reports of dama currently being present A map is being developed based on reports of former presence 	AP (AH)
3.3. Errachidia: conduct feasibility study	Study produced	M	DEF	Dropped	<ul style="list-style-type: none"> No longer relevant 	DEF (LS)
3.4. Boujdour-Safia ABC: conduct feasibility study	Study produced	M	DEF	Dropped	<ul style="list-style-type: none"> No longer relevant 	DEF (LS)
3.5. Morocco, M'hamid Elghizlane (Iriqui National Parc): conduct feasibility study	Study produced	H	DEF	New	<ul style="list-style-type: none"> Establishment of habitat map of Iriqui National Parc by November 2022 Analysis of the evolution of the carrying capacity of the habitat by September 2022 Translocation of the first group in Oct/Nov 2022 	DEF (LS)

Objective / Action	Indicator	Timeline/ Urgency	Implementation	Update	Notes/Comments	Updated by: Institution (Individual)
Objective 4. Reinforce wild populations						
4.1. Chad, OROA: conduct feasibility study	Study produced	H	DCFAP, EAD, SCF		<ul style="list-style-type: none"> Plans are underway to reinforce the captive group sourced from OROA/Manga with animals from EAD/Abu Dhabi in late 2021 See new action 7.5 below 	SCF / EAD (VB, JN, JC)
SEMICAPTIVE						
Objective 5. Secure and expand semi-captive populations						
5.1. Senegal: Katane						
5.1.1. Extend area to 5000 ha	Extension created and fenced	H	DPN	Achieved	<ul style="list-style-type: none"> Extension completed but lack of development for feed and water supply A comparative study report between the interior and the exterior of the completed enclosure 	DPN (SF, BY)
5.1.2. Conduct drone survey	Survey report	M	ABZC, DPN		<ul style="list-style-type: none"> Exchange with ABZC with the facilitation of David Mallon on a Memorandum of Cooperation Document not finalized by ABZC 	DPN (SF, BY)
5.1.3. Conduct training programme	Programme completed	H	ABZC, DPN		<ul style="list-style-type: none"> Relevant training needed for DPN Requested finalization of memorandum with ABZC 	DPN (SF, BY)
5.1.4. Conduct feasibility study on obtaining new animals	Study produced	M	DPN	In progress	<ul style="list-style-type: none"> Study already carried out with the participation of National universities, NGOs, and DPN curators (report available) with strong recommendations on obtaining new animals 	DPN (SF, BY)
5.1.5. Conduct research on movement patterns population dynamics and diet	Results produced	M	DPN, partners	In progress	<ul style="list-style-type: none"> Permanent Sahelo-Saharan antelope monitoring in the Katane enclosure A memorandum was signed with the Spanish cooperation This will be strengthened by a research study in partnership with the university 	DPN (SF, BY)

Objective / Action	Indicator	Timeline/ Urgency	Implementation	Update	Notes/Comments	Updated by: Institution (Individual)
5.2. Senegal, Guembeul: Evaluate role in dama conservation and need for new stock	Study produced	M	DPN	Achieved	<ul style="list-style-type: none"> Guembeul is a key site in the context of increasing dama numbers The DPN strategy provides for the reinforcement of the Guembeul population with a reproductive nucleus 	DPN (SF, BY)
5.3. Morocco, Safia & M'Cissi: Continue government programme	Breeding continues	M	DEF	Ongoing	<ul style="list-style-type: none"> A special population management plan was produced to ensure the optimum development of the population As of March 2021, there were 24 damas in M'cissi and 12 in Safia Numbers are increasing There's a plan to create a separate enclosure for addax to give the damas more space to breed Reintroduction is the long-term plan 	DEF / EEZA (LS, TA, ZA)
5.4. Morocco, Assa: Continue government programme	Enclosure created	M	DEF	Achieved	<ul style="list-style-type: none"> Translocation of the first group to the enclosure will be carried out by the end of 2021 (October/November) 	DEF (LS)
5.5. Morocco, R'Mila: Continue breeding programme	Breeding continues	H	DEF	Ongoing	<ul style="list-style-type: none"> Work is being carried out to establish a breeding centre in R'Mila to manage genetic diversity in the controlled breeding program A mission was carried out in March 2021 which showed that more than 100 damas are currently present Numbers are increasing To provide more space for dama gazelle breeding, the dorcas gazelles are being removed and transferred to another site in the South Reintroduction is the long-term plan 	DEF / EEZA (LS, TA, ZA)

Objective / Action	Indicator	Timeline/ Urgency	Implementation	Update	Notes/Comments	Updated by: Institution (Individual)
5.6. Algeria: Conduct feasibility study into possible reintroduction	Study produced	L-M	ANN, DGF	Ongoing	<ul style="list-style-type: none"> A qualitative, interview-based investigation exploring local perceptions of a future project to reintroduce extinct ungulates in Ahaggar, including dama gazelle and addax, has been carried out in the Protected Area 	UB (FB, KDS)
5.7. Tunisia: Conduct feasibility study on establishment of a breeding group at Haddej NP	Study produced	H	DGF, MW	Ongoing but delayed due to COVID travel restrictions	<ul style="list-style-type: none"> Will need to be coordinated with the management of the existing breeding group of addax in Haddej NP 	MW (MP)
CAPTIVE AND SEMICAPTIVE OUTSIDE RANGE						
Objective 6. Maximise the effectiveness of captive populations						
6.1. Minimise loss of genetic diversity of captive populations	Genetic diversity managed in all populations	H	SSP and EEP coordinators, SPA, SAF, EWA, others	Ongoing in AZA and EEZA	<ul style="list-style-type: none"> Three animals were transferred from ABZC to EAD EAD population now more than 40 animals SAF and EWA – ranches in USA (mainly Texas) continue to buy and sell dama gazelles among each other. Increasing genetic diversity is sometimes a definite objective 	EAD (JC) SAF / EWA (EM)
6.1.1. Exchange animals between AAZ and EAD	Exchanges completed	H	AAZ, EAD		<ul style="list-style-type: none"> The process has been initiated Awaiting results of genetic analysis of EAD animals to inform exchanges 	EAD / AAZ (JC, MQ)

Objective / Action	Indicator	Timeline/ Urgency	Implementation	Update	Notes/Comments	Updated by: Institution (Individual)
6.1.2. Transfer mhorh gazelles from EAZA to AAZ	Transfers completed	H	AAZ, EAZA, Studbook keeper	Amended / Ongoing EEP coordinator	<ul style="list-style-type: none"> Action changed from “exchange” to “transfer” More information about the affiliation of the AAZ population is necessary 	EEZA (TA, SD)
6.1.3. Exchange animals between Morocco and EAZA	Exchanges completed	H	DEF, EEZA	Ongoing EEZA	<ul style="list-style-type: none"> In collaboration with the CSIC, we are working on establishing an exchange plan with the Arid Zones Experimental Station of Almería (2023) 	EEZA (TA, SD, LS)
6.1.4. Transfer addra from US to AAZ/EAD	Exchanges agreed and completed	H	AZA, SPA, SAF, AAZ, EAD	Amended and ongoing	<ul style="list-style-type: none"> Action changed from “AAZ” to “AAZ/EAD” EAD is also planning to transfer some animals in the future 	EAD (JC)
6.1.5. Develop a metapopulation management plan for animals in the UAE	Plan developed	M	All regional holders	Amended	<ul style="list-style-type: none"> Action changed from “Arabian Peninsula” to “UAE” 	
6.1.6. Evaluate role of mixed animals in reintroduction and reinforcement operations	Evaluation conducted	H	AAZ, Key stakeholders		<ul style="list-style-type: none"> Need to take into account social and genetic needs Need to consider who, how and when the decision is made whether or not to treat all dama gazelle as one population for conservation purposes 	EEZA (TA) UO (MSP)
6.1.7. Identify collections in Texas with rare haplotypes and recommend appropriate animal transfers or exchanges	Animals identified Transfers agreed and arranged	H	RZSS, SCBI Studbook keepers	Amended	<ul style="list-style-type: none"> Amended to include approval of the owners SAF and EWA members are supportive of conservation initiatives 	SAF / EWA (EM)

Objective / Action	Indicator	Timeline/ Urgency	Implementation	Update	Notes/Comments	Updated by: Institution (Individual)
subject to approval of the owners						
6.2. Continue to develop the C2S2 consortium	Increased number of holders Increased number of animals	Ongoing	C2S2, SPA, SAF, EWA	Ongoing	<ul style="list-style-type: none"> SAF and EWA members are supportive of conservation initiatives 	SAF / EWA (EM)
6.3. Continue the breeding experiment at Al Ain Zoo	Results available	M-H	AAZ	Ongoing	<ul style="list-style-type: none"> Mixed groups of males and females have been separated for now Plans to develop mixed breeding herds are being discussed 	AAZ (MF)
6.4. Increase range state capacity for dama husbandry and management	Trained teams in each facility	M	Government agencies	Ongoing (Morocco)		DEF (LS)
6.4.1. Establish a training programme	Training courses provided	2019-2020	DEF, EAD, EEZA	Ongoing	<ul style="list-style-type: none"> Delayed by covid Training cycle is implemented for the local managers of the natural reserves (Morocco) 	EEZA / DEF (TA, SD, LS)
6.4.2. Circulate husbandry guidelines	Guidelines circulated	M	EEZA	Ongoing		EEZA (TA, SD)
6.4.3. Translate guidelines into French	Translation available	M	EEZA, NGOs			
6.5. Carry out PVA and metapopulation management planning to evaluate different strategies of management and produce enough animals for release operations	PVA conducted	L-M	SPA, SAF, EWA, Studbook keepers, others	Amended	<ul style="list-style-type: none"> Clarification: Evaluate mhor, addra and mixed animals separately and consider joint evaluations Management strategies used in Texas and how withdrawal of animals will affect owners' livelihood need to be considered 	ASG / AAZ / RZSS (DM, LB, HS) SAF / EWA (EM)
6.6. Produce a long-term plan for producing				Dropped	<ul style="list-style-type: none"> Merged with 6.5 	

Objective / Action	Indicator	Timeline/ Urgency	Implementation	Update	Notes/Comments	Updated by: Institution (Individual)
enough animals for re- lease operations						
6.7. Review development of wider metapopulation models				Dropped	<ul style="list-style-type: none"> Covered under 6.5 	
Objective 7. Obtain new founders						
7.1. Obtain privately held animals in range coun- tries				Amended	<ul style="list-style-type: none"> Action amended by adding 'in range countries' for clarity 	
7.1.1. Monitor possible captive animals in Chad and Niger	Captive animals ob- tained	L-M	DCFAP, DFCPR			
7.1.2. Develop a protocol and holding facilities	Protocol developed	L-M	DCFAP, DFCPR, NGOs			
7.2. Chad: Capture wild animals from Manga	New founders ob- tained	2019- 2020	DFCPR, SCF, others	Achieved	<ul style="list-style-type: none"> 3 Manga females successfully captured and relocated to holding facilities in OROA Female group supplemented with 1 male captured in OROA Subsequent loss of 2 females due to nu- trition issues Remaining female and male have pro- duced 2 calves Group supplemented by 1 female self- caught in holding facilities • Total group in June 2021 includes: 1 adult male, 2 adult females, 2 young females Need to decide what to do with the re- maining wild animals in Manga as the site is unprotected 	SCF / Noé / DFCPR (VB, JN, SP, MHH)

Objective / Action	Indicator	Timeline/ Urgency	Implementation	Update	Notes/Comments	Updated by: Institution (Individual)
					<ul style="list-style-type: none"> A decision tree developed for this scenario is available in the strategy (page 44) See also section 2.3 	
7.2.1. Conduct scoping survey	Survey results	2019-2020	DFCPR, SCF	Achieved		SCF (VB, JN)
7.2.2. Feasibility study on capture methods	Study published	Done 2019	SPA, EAD, SCF	Achieved		SCF (VB, JN)
7.2.3. Plan capture operation	Plan developed	Done 2019	DFCPR, SCF, others	Achieved		Noé / SCF (SP, VB, JN)
7.2.4. Ensure suitable holding facility available in OROA	Facility available	Done 2019	DFCPR, SCF, EAD	Achieved		SCF (VB, JN)
7.3. Collate all capture and veterinary information in US	Summary available	L-M	SPA, AZA			
7.4. Train range state personnel in gazelle handling and management (see 6.4.1)	Training courses provided	L-M	DEF, EAD, EEZA		<ul style="list-style-type: none"> Delayed by covid Needs to be reviewed and rescheduled 	EEZA / DEF (TA, SD, LS)
7.5. Chad: Assess feasibility of capturing additional wild ounders from Manga	Decision taken	H	DFCPR, SCF, Noé, others	New		
7.6. Chad: Develop a plan for ex-situ population at OROA	Plan developed	H	EAD, SCF, RZSS, ASG, Noé, others	New	<ul style="list-style-type: none"> Ensure optimal use of new founder genetic diversity and minimise inbreeding Mid to long-term plan for breeding and release 	
OTHER						
Objective 8. Continue genetic research						

Objective / Action	Indicator	Timeline/ Urgency	Implementation	Update	Notes/Comments	Updated by: Institution (Individual)
8.1. Record morphological data and take genetic samples from all museum specimens with locality data	Data available	Ongoing	NMS, RZSS	Ongoing	<ul style="list-style-type: none"> Hybrid capture array developed for use on museum and wild faecal samples 	
8.2. Continue genome sequencing	Results available	Ongoing	SCBI, RZSS, partners	Ongoing	<ul style="list-style-type: none"> Hybrid capture array developed for use on museum and wild faecal samples ddRAD analysis conducted on AAZ mixed animals and whole genome sequencing to be explored Whole genome & ddRAD analysis of US captive addra and mhorr samples completed with two publications pending Less than 1% difference found between the genomes of addra and mhorr gazelle, five times less than the difference between dama gazelle and grant's gazelle Mhorr gazelles have a greater number of deleterious mutations Three different chromosome numbers (38, 39 & 40) have been found but these do not correlate to specific subspecies 	RZSS, SCBI (HS, KD, KK)
8.3. Assess the role of cryobanking	Study published	L	SCBI, RZSS			
8.4. Include option of gamete preservation in any wild capture operations	Protocol developed	L-M	SCBI, RZSS			
8.5. Obtain and analyse new samples	Samples analysed	Ongoing	RZSS	Ongoing	<ul style="list-style-type: none"> Samples from newly captured animals are under analysis Continuing genetic analysis of animals in EAD and Chad (Manga and OROA) and a private collection in Morocco 	RZSS / EAD (HS, KD, JC)

Objective / Action	Indicator	Timeline/ Urgency	Implementation	Update	Notes/Comments	Updated by: Institution (Individual)
8.6. Continue genetic and morphological research into intraspecific structure, using nuclear markers	Analyses published	Ongoing	RZSS	Ongoing	<ul style="list-style-type: none"> Hybrid capture array developed for use on museum samples and wild faecal samples 	RZSS (HS, KD)
8.7. Morocco: Carry out genetic analysis on any untested captive populations	Analyses conducted	M	RZSS, DEF		<ul style="list-style-type: none"> Looking for potential partnership and funding 	DEF (LS)
8.8. Continue breeding experiment and carry out genetic analysis, semen analysis, and karyotyping on offspring	Results available	Ongoing	AAZ, RZSS	Partially achieved	<ul style="list-style-type: none"> Genetic analysis on mixed animals is complete Semen analysis and karyotyping delayed due to lack of a local collaborator and covid-related travel restrictions A potential collaboration for semen analysis is being investigated Potential for genomics investigation on the mixed animals to be explored 	AAZ (LB)
Objective 9. Conduct research on biology and conservation of dama gazelle						
9.1. Compile lists of in-situ and ex-situ research needs	Lists available	L-M	Done at Al Ain workshop	Achieved	<ul style="list-style-type: none"> Available in the strategy document The following are added: studies related to the behaviour, morphology, health, survival and reproduction of mixed mhorra x addra animals 	
9.2. Continue research in Texas on movements and population dynamics	Some results available, some in progress	Ongoing	SAF, EWA	Ongoing	<ul style="list-style-type: none"> Biological research is continuing, study into skull set for tooth replacement and wear almost complete (to complement visual criteria already published) Paper on habitat selection under Texas conditions has been published (Mungall & Cooper, 2020) 	SAF / EWA (EM)

Objective / Action	Indicator	Timeline/ Urgency	Implementation	Update	Notes/Comments	Updated by: Institution (Individual)
					<ul style="list-style-type: none"> Paper on home range size aspects under Texas conditions has been published (Mungall & Cooper, 2021) Paper on movement data is under development With the help of management interventions, winter losses among dama gazelles in Central Texas were fortunately quite light despite the unusually cold period with ice and snow lasting about a week 	
9.3. Analyse radio-collaring data from the Safia release	Analysis available	Ongoing	EEZA, DEF	Achieved in 2020	<ul style="list-style-type: none"> Results and data published in: Abáigar et al (2019): e00680 Abáigar et al (2020): e01389 	EEZA / DEF (TA)
9.4. Conduct research into interspecific interactions and competition at OROA and other sites	Research results available	L-M	DCFPR, SCF			
9.5. Review release operations to date and reasons for success and failure	Review published	M	EEZA, Government agencies	Ongoing	<ul style="list-style-type: none"> Assessment of the first release operation in Safia has been completed Planning the next release operation in Assa taking into consideration all the results of the previous release Article on 50 years of mhorh conservation has been submitted to the forthcoming Gnusletter 38 (1) (Abáigar, 2021) 	EEZA / DEF (TA, SD, LS)
Objective 10. Implement the strategy effectively						
10.1. Continue and expand Dama network	Key stakeholders participate Regular updates produced	Ongoing	RZSS, ASG	Ongoing		

Objective / Action	Indicator	Timeline/ Urgency	Implementation	Update	Notes/Comments	Updated by: Institution (Individual)
10.2. Maintain 'Dama-library' (Google Groups etc)	Library up-to-date	Ongoing	RZSS, ASG	Ongoing	<ul style="list-style-type: none"> Accessible here 	
10.3. Hold a review meeting in Texas	Meeting to be held	2024	SAF, EWA	Amended	<ul style="list-style-type: none"> Covid travel problems have meant postponement of the 2022 Texas dama gazelle update workshop until 2024 (5-year review in Kerrville, Texas) Overseas participants need to be present to see ranch conditions, and US owners need to hear the discussion on how their animals can contribute to species sustainability – especially for addra 	SAF / EWA (EM)
10.4. Publish and distribute the 2019-2028 strategy	Strategy published in EN and FR	H	AAZ, ASG, RZSS	Achieved in 2019	<ul style="list-style-type: none"> 150 English and 150 French hard copies of the conservation strategy were distributed to reviewers and delegates of the 2018 Al Ain workshop Some hard copies are available upon request PDF versions are available for download from AAZ website 	AAZ, ASG, RZSS (LB, DM, HS)
10.5. Initiate an education and awareness programme on dama gazelle and ecosystem in range countries (schools, media, public)	Programmes established	L-M	Government agencies, NGOs	Ongoing (Morocco)		DEF (LS)
10.6. Develop and implement Monitoring & Evaluation Plan for the strategy	M&E Plan available	M	AAZ, ASG, RZSS	Ongoing	<ul style="list-style-type: none"> Added "and implement" Plan developed (see section 3.0) 	ASG / AAZ / RZSS (DM, LB, HS)
10.7. Obtain adequate resources for each component	Resources obtained Actions implemented	2019-2028	All	Partially achieved	<ul style="list-style-type: none"> Funding has been obtained for some activities 	

Objective / Action	Indicator	Timeline/ Urgency	Implementation	Update	Notes/Comments	Updated by: Institution (Individual)
AH - Annabelle Honorez (AP) AE - Adam Eyers (FRm) AR - Abdoul Razack Moussa Zabeirou (SCF) BY - Babacar Youm (DPN) DM - David Mallon (IUCN ASG) EM - Elizabeth Mungall (SAF & EWA)	FB - Farid Belbachir (UB) HS - Helen Senn (RZSS) JC - Justin Chuvén (EAD) JN - John Newby (SCF) KD - Kara Dicks (RZSS) KDS - Koen de Smet KK - Klaus Koepfli (SCBI)			LB - Lisa Banfield (AAZ) LS - Latifa Sikli (DEF) MF - Mohammed Al Faqeer (AAZ) MHH - Mahamat Hassan Hatcha (DCFAP) MQ - Myyas Al Qarqas (AAZ) MSP - Mark Stanley Price (UO) SD - Sonia Domínguez (EEZA-CSIC)	SF - Serigne Fall (DPN) SP - Sébastien Pinchon (Noé) TA - Teresa Abáigar (EEZA-CSIC) VB - Violeta Barrios (SCF) ZA - Zouhair Amhaouch (DEF)	

Slender-horned Gazelle (*Gazella leptoceros*)

Slender-horned Gazelle *Gazella leptoceros* Planning Logframe 2020-2029

Objective / Action	Indicator	Urgency	Implementation
Objective 1. Current status in the wild is established			
1.1. Conduct feasibility study on aerial surveys of Great Western Erg and Great Eastern Erg (Algeria)	Study reports completed		DGF (agency responsible), ANN
1.2. Conduct ground surveys in the Great Western Erg and Great Eastern Erg (Algeria)	Survey reports completed		DGF (agency responsible), ANN
1.3. Carry out interview surveys with local communities in Erg Erraoui, Erg Cherch, Erg Iguidi, Region of Tadmait, Erg Issaouene (Algeria)	Surveys completed		DGF (agency responsible), ANN
1.4. Conduct aerial survey of Great Eastern Erg (Tunisia)	Survey reports completed		DGF, Marwell Wildlife
1.5. Conduct ground surveys in the Great Eastern Erg (Tunisia)	Surveys completed		DGF, Marwell Wildlife
1.6. Conduct questionnaire and field surveys in Egypt	Surveys completed		Government agency, Nature Conservation Egypt (NGO)
1.7. Collate reports of SHG in Libya and conduct questionnaire and field surveys where feasible	Information available Survey results available		Government agency, Alhaya organisation
1.8. Collate historic reports of SHG in Sudan	Information available		Government agency, NGOs
1.9. Collate reports of SHG in countries south of the Sahara	Information available		Government agency, NGOs
1.10. Monitor poaching reports on social media with the support of anonymous volunteers	Monitoring in place with regular reports coordinated with the roadmap		
1.11. Carry out a study to characterise poaching through enquiries on the ground and administration archives	Report available		Proposed by TWCS to the DGF (Tunisia)
1.12. Develop standardized survey and monitoring methods	Methods developed and in use		All
1.13. Develop an identification card (SHG and dorcas gazelle) Arabic/French/English	ID card produced and available online		ASG, IUCN-Mediterranean
1.14. Maintain an updated status summary	Running update maintained		ASG, Living Desert
1.15. Establish a central database and national databases to store records	Databases set up		Government agencies

1.16. Organise courses and training in field survey, identification of gazelles, census techniques and site management	Staff trained		ASG, IUCN-Med, others
Objective 2. Protection of known populations is enhanced			
2.1. Provide adequate vehicles and equipment for anti-poaching activities to key PAs	Key PAs are adequately equipped Poaching reduced		DGF (agency responsible), ANN
2.2. Support anti-poaching measures at key points in the Great Western and Great Eastern Ergs	Anti-poaching patrols in place Poaching reduced		DGF (agency responsible), ANN
2.3. Ensure that legal penalties for poaching are applied effectively	Poachers successfully prosecuted Poaching reduced		Law enforcement agencies, judicial authorities
2.4. Engage citizen scientists in monitoring poaching activity	Citizen science networks operating		Government agencies, NGOs
2.5. Avoid imports into North Africa of non-indigenous gazelle species.	No further imports of non-indigenous gazelles		DGF, Marwell Wildlife
Objective 3. The status of captive populations is improved			
3.1. Manage breeding centres according to the best international standards	Breeding plans developed Enclosure designs optimized Gazelles tagged to allow identification Veterinary protocols in place Parasite loads monitored and controlled		Government agencies, Managers, Experts
3.2. Algeria (Brezina Breeding Centre): Monitor numbers, sex/age ratios, reproductive success	Monitoring carried out annually Studbook developed		ANN
3.3. Tunisia (Sidi Toui breeding centre): Monitor numbers, sex/age ratios, twinning rates, reproductive success, annually	Monitoring carried out Animals tagged to allow identification Studbook developed		DGF
3.4. Tunisia: Construct a new breeding facility at El Gonna and provide equipment and trained staff	Centre constructed and operational Studbook developed		DGF, Marwell Wildlife
3.5. Develop protocols to confiscate privately owned animals in range states	Protocols developed Confiscated animals transferred to official centres		ANN, DGF (Algeria), DGF (Tunisia), TWCS
3.6. Provide training in techniques of gazelle husbandry and captive management	Staff in all centres trained		BEF (HCEFLCD), IUCN-Med, EEZA, Marwell
3.7. Produce guidelines on husbandry and management (EN and FR)	Guidelines available in both languages		AZA, EAZA, ZSL, EEZA, Marwell Wildlife
3.8. Review options to expand the US breeding program	Review completed; Recommendations made		AZA, managers
3.9. Review the future of the European population	Decision made		EAZA

3.10. Continue attempts to obtain new founders	Genetic diversity increased		Government agencies, AZA
3.11. Develop a captive management plan across all populations	Integrated management plan developed		All
Objective 4. Policy framework strengthened			
4.1. Develop National Action Plans or work plans, based on the regional roadmap (Algeria, Tunisia, Egypt, Libya)	National action Plans developed and available online		State agencies, in collaboration with national stakeholders
4.2. Contribute to the CMS Concerted Action for Sahelo-Saharan Megafauna and revised Action Plan	Revised AP developed		CMS, all
Objective 5. Awareness of Slender-horned gazelle conservation enhanced			
5.1. Messages distributed through the press, TV and social media	Messages and articles published in the media and on social networks		All
5.2. Raise awareness of the status of SHG among local communities in all key zones	Outreach sessions organized		Government agencies, NGOs
5.3. Raise awareness of the status of SHG among hunting organizations	Joint meetings held		Government agencies, NGOs, hunting associations
5.4. Raise awareness of the situation of Slender-horned gazelle among regional officials: Customs, Gendarmerie and military			Government agencies, NGOs
Objective 6. The taxonomic relationships of <i>G. leptoceros</i> are clarified			
6.1. Conduct a genomic analysis to confirm the taxonomic relationships between <i>G. leptoceros</i> , <i>G. cuvieri</i> and <i>G. marica</i> , including specimens from Egypt and from museums	Analysis of results available		RZSS
Objective 7. Reintroduction and reinforcement			
7.1. Carry out a feasibility study on reintroduction and reinforcement of wild populations (depends on success of actions under Objective 3.	Study conducted Potential release sites identified		Government agencies, NGOs,
Objective 8. The road map is coordinated and implemented			
8.1. Review progress at regular intervals	Reports produced		Government agencies, IUCN/SSC ASG, NGOs
8.2. Provide adequate capacity and resources to ensure conservation of SHG	Resources and capacity provided		All partners
8.3. Maintain communication between all stakeholders	Club Leptocère email list maintained with regular communication		ASG, Living Desert

Cuvier's Gazelle (*Gazella cuvieri*)

Cuvier's Gazelle *Gazella cuvieri* Objectives and actions (from IUCN 2017)

Regional Objectives

Objective / Action	Indicator	Urgency	Implementation
Intervention strategy: International cooperation			
Objective R1: Coordinate the Action Plan			
R.1.1. Establish a mailing list of all stakeholders	List established		Government agencies, NGO, IUCN-Med, CMS
R.1.2. Create a database on Cuvier's gazelle	Database created and available		
R.1.3. Identify a focal point in each range country	3 focal points identified		Government agencies
R.1.4. Assess at regular intervals (2-3 years) if the indicators have been achieved	Report produced		CMS, others
R.1.5. Distribute the results of actions taken to all stakeholders	List established and implemented (R1.1)		All
R.1.6. Standardise monitoring methods	Pilot actions, training courses		Government agencies
Intervention strategy: Reinforce capacity			
Objective R2 Reinforce capacity			
R.2.1. Organise courses on census and monitoring methods (« distance sampling », camera traps, tracks, genetic ID)	Courses organised Monitoring teams trained in each country Standardised monitoring methodology put into effect		Governments, SC, NGO, universities
R.2.2. Organise courses on habitat management	Regional training organised		
Intervention strategy: Management in captivity			
Objective : R3 Develop a coordinated captive breeding programme			
R3.1. Develop guidelines on captive breeding	Guidelines developed and published		EAZA-CSIC
R3.2. Translate guidelines into French	French translation circulated		IUCN Med
R3.3. Strengthen capacity in captive management (husbandry, handling, demography, genetics)	Training courses organised Team trained in each site with Cuvier's Gazelle		EAZA-CSIC, Government agencies
R3.4. Complete the genetic analysis of Cuvier's Gazelle	Study completed, results published		Research institutes Spanish National Research Council (CSIC)
R3.5. Ensure that reinforcement and	Projects planned according to IUCN (2013)		Government agencies,

Objective / Action	Indicator	Urgency	Implementation
reintroduction projects follow the IUCN guidelines			NGO
R3.6 Investigate the possibility of exchange of animals to Almeria through EAZA	Feasibility report published		EAZA-CSIC, Government agencies

Objectives and Actions: Morocco

Objective / Action	Indicator	Urgency	Implementation
Intervention strategy: Protection and restoration of populations			
Objective 1: Anti-poaching			
1.1. Reinforce the system of surveillance (humans and material resources).	Cadre trained and equipped in each key site		ANEF
1.2. Put in place surveillance systems dedicated to wild fauna	Structures in place Monitoring programme		ANEF
1.3. Consolidate coordination between different authorities to control and prevent.	Liaison committee established		ANEF, government agencies
Objective 2: Control stray dogs			
2.1. Organise programmes to shoot stray dogs (regularly)	Decrease in number of stray dogs in key sites		
2.2. Prevent rubbish disposal in key sites	Decrease in rubbish Decrease in stray dogs at key sites		
Intervention strategy: Protection and management of habitats			
Objective 3: Protect and restore Cuvier's Gazelle habitat			
3.1. Integrate key sites into the Protected Area system	Gaps in the PA network analysed Potential reserves identified		ANEF
3.2. Restore degraded habitats to favour Cuvier's Gazelle	Improved habitats in key sites		ANEF, Ministère de l'Agriculture
Intervention strategy: Awareness			
Objective 4: Reinforce awareness programmes			
4.1. Develop materials to support awareness	Materials developed		
4.2. Organise meetings with hunters	Meetings organised Dialogue established		ANEF Hunting federation
4.3. Organise meetings with local actors	Meetings organised Local organisations involved in conservation		ANEF Local organisations NGO,
4.4. Organise regional and national media campaigns	Articles published or broadcast (press, TV, radio)		

Objective / Action	Indicator	Urgency	Implementation
Intervention strategy: Research and monitoring			
Objective 5: Conduct research and monitoring activities			
5.1. Study space use and movements.	Study conducted Results published		Universities, researchers
5.2. Study the diet of Cuvier's Gazelle in the Anti-Atlas	Study conducted Results published		Universities, researchers
5.3. Implement a data collection system	Database developed Monitoring system established		Universities, researchers
5.4. Implement a population monitoring system	Monitoring methodology adopted Teams trained		Universities, researchers, ANEF

Objectives and Actions: Algeria

Objective / Action	Indicator	Urgency	Implementation
Intervention strategy: Protection and restoration of populations			
Objective 1 : Reduce direct mortality			
1.1. Train staff	Teams trained in all key sites Direct mortality reduced		
1.2. Ensure rigorous application of the law	Poachers prosecuted Direct mortality reduced		
1.3. Implement an anti-poaching strategy	Strategy in place Direct mortality reduced		
1.4. Involve hunting federations in anti-poaching	Meetings organised Dialogue established Direct mortality reduced		
1.5. Involve civil society in anti-poaching	Awareness programme Co-management committee Direct mortality reduced		
1.6. Put in place a strategy to control stray dogs	Decrease in stray dogs in key sites		
Intervention strategy: Protection and management of habitats			
Objective 2 : Protect and manage the habitat			
2.1. Establish protected areas in key sites	Gaps in the PA network analysed Potential reserves identified		
2.2. Create ecological corridors	Corridors identified and mapped Management measures developed		
2.3. Conduct rigorous impact assessments	Impact assessments conducted according to international standards		

Objective / Action	Indicator	Urgency	Implementation
Intervention strategy: Awareness			
Objective 3 : Reinforce awareness programmes			
3.1. Launch awareness campaigns (media, local communities)	Articles published or broadcast (press, TV, radio) Meetings organised Local organisations involved in conservation		
3.2. Develop a programme of environmental education	Meetings organised Local organisations involved in conservation		
3.3. Organise awareness days on wild fauna	Meetings organised Local organisations involved in conservation		
Intervention strategy: Research and monitoring			
Objective 4: Conduct a programme of research and monitoring			
4.1. Basic research: population dynamics	Study conducted Results published		
4.2. Applied research: carrying capacity	Study conducted Results published		

Objectives and Actions: Tunisia

Objective / Action	Indicator	Urgency	Implementation
Intervention strategy: Protection and restoration of populations			
Objective 1. Reduce direct mortality			
1.1. Reduce poaching to a minimum	Increase in the Cuvier's Gazelle population Decrease in signs of poaching Direct mortality reduced		DGF and <i>Commissariat Régional au Développement Agricole</i> (Regional Commission for Agricultural Development – CRDA) ONG
1.2. Rigorous application of the law	Prosecutions conducted Decrease in number of cases		Garde Nationale, courts, Local and national authorities
Objective 2 : Launch a reintroduction programme			
2.1. Develop a captive breeding programme	Programme developed and implemented Increase in the captive population	MoU signed April 2015	DGF, CSIC (Almeria)
2.2. Identifier the optimal sites for reintroduction	Sites assessed		DGF
	Gazelles transferred	Transfer from Almeria to Serj National Park, October 2016	DGF, CSIC
	Gazelles released in national parks		DGF, CSIC
Intervention strategy: Protection and management of habitats			
Objective 3: Protect and restore the habitat			
3.1. Improve and strengthen wardening	Teams trained in all key sites Direct mortality reduced		DGF and CRDA ONG, national authorities
3.2. Coordinate habitat management and planning	Improvement in habitats in key sites		
3.3. Monitor forest fires and wood cutting	Increase in area of forest		
3.4. Protect and restore the alfa steppe	Increase in area of alfa steppe		
Objective 4 : Ensure habitat connectivity			

Objective / Action	Indicator	Urgency	Implementation
4.1. Conduct studies on potential corridors	Corridors identified and mapped		
Intervention strategy: Awareness			
Objective 5 : Strengthen awareness raising programmes			
5.1. Launch awareness campaigns among: schools, media, local communities, journalists	Public are more supportive of nature Increase in volunteering Articles published or broadcast (press, TV, radio)		
5.2. Launch awareness campaigns among: Police, Army, hunters, administrative authorities	Meetings organised Leaders trained		
5.3. Develop brochures, conferences, information days, postcards, social networks, films	Materials developed		
Intervention strategy: Research and monitoring			
Objective 6 : Conduct a programme of research and monitoring			
6.1. Determine the current status of the relict population of Cuvier's gazelle	Programme of study developed Population estimates		
6.2. Assess the response of the habitat to the needs of the reintroduced populations	Studies conducted Management plans adapted		
6.3. Monitor the adaptation of the reintroduced populations (diet, diseases, behaviour)	Studies conducted Management adapted		DGF, NGO, Universities
6.4. Organise courses for managers, researchers, wardens, eco-guards	Programme de training courses organised		IUCN, national and international specialists
6.5. Reinforce human capacity: increase numbers of personnel	Numbers increased in key sites		DGF
6.6. Reinforce equipment and methods of monitoring	Adequate equipment in key sites		DGF, NGO
6.7. Put in place a monitoring and evaluation programme	System in place Regular monitoring implemented		

Dorcas Gazelle (*Gazella dorcas*)

Objective / Action	Indicator	Urgency	Implementation
Objective 1. Status in the wild is established			
1.1 Identify key sites and corridors and other protected areas	Map of key sites and corridors produced		
1.2 Strengthen regional and national capacity for census and monitoring	Capacity needs assessment conducted Training workshops held Trained teams present in all range countries		
1.3. Carry out population counts	Counts conducted and result analyzed		
Objective 2. Known populations and their habitats are protected effectively and monitored			
2.1. Enhance anti-poaching	Patrol schedules agreed and funded Reduction in poaching incidents Training sessions for rangers Sufficient vehicles and motorcycles available		
2.1.1. Strengthen law enforcement			
2.1.2. Organise anti-poaching patrols			
2.1.3 Involve local populations in surveillance and control			
2.1.4. Build capacity			
2.1.5. Sensitise local communities and other stakeholders			
2.2. Develop or update management plans for all key sites	Management plans developed/updated		
2.3. Develop and implement regular monitoring plans	Monitoring plans developed/implemented		
Objective 3. Dorcas Gazelles reintroduced into parts of their range and existing populations are bolstered.			
3.1. Reinforce the reintroduction programme in Morocco			
3.2. Conduct feasibility studies on other reintroductions	Studies completed Potential release sites identified		
Objective 4. The genetic diversity of Dorcas Gazelle is maximised and the management of <i>ex situ</i> populations is optimised to support <i>in situ</i> conservation			
4.1. Continue genetic and genomic research	Analyses conducted Genetic diversity assessed		
4.1.1. Confirm status of <i>G. d. massaelya</i>	Analysis completed		
4.1.2. Assess phylogenetic structure	Conservation units identified		
4.2. Maintain and expand coordinated breeding programmes	- Increased number of participating institutions		

Objective / Action	Indicator	Urgency	Implementation
4.3. Integrated <i>in situ</i> and <i>ex situ</i> management under a 'One Plan Approach'	Integrated plan produced		
4.4. Maintain the <i>ex situ</i> populations in Morocco as a regional source for reintroductions	Breeding continues		
4.5. Improve integration of molecular genetic data into population viability modelling and management strategies	Results incorporated		

Red-fronted Gazelle (*Eudorcas rufifrons*)

Objective / Action	Indicator	Urgency	Implementation
Objective 1. The status of the species in the wild is established			
1.1. Conduct air, ground, and questionnaire surveys throughout the range			
1.1.1. <i>G. r. rufifrons</i>	Surveys completed Distribution maps produced Population estimates produced		
1.1.2. <i>G. r. tilonura</i>	Surveys completed Distribution maps produced Population estimates produced		
1.1.3. <i>G. r. albonotata</i>	Aerial survey completed Distribution maps produced Population estimates produced		
1.2. Enhance regional capacity for survey and monitoring	Capacity needs assessment conducted Training workshops held Trained teams in all range countries		
1.3. Identify key sites and corridors	Map of key sites and corridors produced		
Objective 2. Known populations are protected effectively			
2.1. Enhance anti-poaching measures	Patrol schedules agreed and funded Reduction in poaching incidents		
2.1.1. Strengthen capacity of government agencies	Training sessions for rangers Sufficient vehicles and motorcycles available		
2.3. Develop or update management plans for all key sites	Management plans produced/updated		
Objective 3. The taxonomy of <i>Eudorcas</i> is clarified			
3.1. Conduct rangewide phylogenetic analyses units	Conservation units identified		
3.2. Develop a global plan to ensure maximal retention of genetic diversity	Plan completed		
3.3. Investigate role of biobanking, cell line generation, reproductive technologies, and movement of germ cells	Strategies developed		
Objective 4. Evaluation of the need for ex situ programmes			

Objective / Action	Indicator	Urgency	Implementation
4.1. Review feasibility of establishing coordinated breeding programmes	Review completed		
Objective 5. Evaluation of the rôle of reintroduction			
5.1. Review the importance of reintroductions	Review completed		

Barbary Sheep (*Ammotragus lervia*)

Objective / Action	Indicator	Urgency	Implementation
Objective 1. Status in the wild is established			
1.1. Conduct air and ground surveys	Surveys completed Individual population status established		
1.2. Enhance regional capacity for survey and monitoring	Capacity needs assessment conducted Training workshops held Trained teams in all range countries		
Objective 2. Known populations are protected effectively			
2.1. Enhance anti-poaching	Patrol schedules agreed and funded Reduction in poaching incidents		
2.1.1. Strengthen capacity of government agencies	Training sessions for rangers Sufficient vehicles and motorcycles available		
2.2. Identify key sites and corridors	Map of key sites and corridors produced		
2.3. Management plans for all sites produced or updated	Plans produced/updated		
Objective 3. Reintroduction into suitable parts of its former range			
3.1. Consolidate reintroduction in Morocco			
3.1.1. Continue the scheduled release programme	Population growth and expansion		
3.1.2. Maintain the monitoring programme	Analysis of results (reproduction, movements, habitat use)		
3.1.3. Consolidate community engagement	MoUs renewed		
3.2. Conduct feasibility studies on other reintroductions	- Studies completed - Potential release sites identified	L	
Objective 4. Genetic diversity is assessed and the management of <i>ex situ</i> populations is optimised to support <i>in situ</i> conservation.			
4.1. Conduct genetic and genomic analyses	Genetic diversity assessed Conservation units identified		
4.1.2. Assess phylogenetic structure	Analysis completed		
4.2. Identify conservation units			
4.3. Research biobanking, cell line generation, reproductive technologies, and movement of germ cells	Strategies developed		
4.4. Maintain and expand coordinated breeding programmes	- Increased number of participating institutions - Increased number of animals included in programmes		

Objective / Action	Indicator	Urgency	Implementation
4.5. Integrated <i>in situ</i> and <i>ex situ</i> management under a 'One Plan Approach'	Integrated plan produced		
4.6. Improve integration of molecular genetic data into population viability modelling and management strategies	Results incorporated		